

Math 3330: Regression Notes

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Preface

Welcome to the MATH 3330 Notes! Please install [R](#) and [R studio](#) (Or you can use VSCode if you're comfortable there.)

In order to make the most of these notes, do all of the exercises in the order they appear.

There will likely be typos and some errors, please let me know if you encounter any.

1 Introduction

1.1 What is the course about?

1.1.1 The main question

The whole course is concerned with the following problem: Suppose that X and Y are some attributes of a population. What is the relationship between X and Y . How can we use X to predict Y , or how can we use X to explain Y ?

For example, questions of this form include:

- How is location, square feet, parking available related to the price of an Airbnb?
- How is hours played and age related to win rate in League of Legends?
- How are creatine and protein consumption related to deadlift 1RM?
- How is treatment (A or B) related to pain levels of patients?

All of these can be answered with regression!

Exercise 1.1. What is X and what is Y here?

Solution 1.1.

- X : location, square feet, parking available Y : price of an Airbnb
- X : hours played and age Y : win rate in League of Legends
- X : creatine and protein consumption Y : deadlift 1RM
- X : treatment (A or B) Y : pain levels of patients

We suppose at the population level, **on average** that $Y = f(X)$. By on average, we mean that each person may not have exactly $Y = f(X)$, but if we average out Y for many people, we will have that the average is approximately $f(X)$. (This will be made more formal later).

For instance, consider the pain level question in the above example. Suppose that $f(A) = 2$ and $f(B) = 5$. Then, if we average the pain level of many patients who take treatment B , it should be close to 5.

Obviously, we cannot observe the whole population, and so we will assume that we have observed X and Y for a set of n individuals. Specifically, we observe some outcome Y_1, \dots, Y_n ,

which is a real number and some attributes (categorical or numeric) about the n individuals, denoted by X_1, \dots, X_n . Note that here X_i can be vectors or single numbers.

1.1.2 Using our data, how can we determine f ?

Other, related questions:

- What is the form of f ? Is it linear?
- How can we estimate f , say with \hat{f} ? What is the best \hat{f} ? What is the error of \hat{f} on average?
- How can we tell if our model is good? i.e. how does \hat{f} fit the data?
- How can we tell which X values are important? How can we tell if X is related to Y at all?
- What is the effect of correlation of X values?

These are all questions we will answer in this course.

Statistical modelling starts as follows:

1. Question about a population, e.g., “How are hours played and age related to win rate in League of Legends?”
2. Data: $(Y_1, X_1), \dots, (Y_n, X_n)$
3. Explore data with graphs and summary stats
4. Use exploratory data analysis to posit a model for the population.

Note that step 4 is necessary! Letting f be anything is too general and won’t work well, so we need to use the data to give us a hint at the form of f ! For instance, we might suppose that f is a linear function! That is, $f \in \{g(X) = X\beta: \beta \in \mathbb{R}^d\}$.

Next, we proceed with the following steps:

5. Estimation: How to get an estimate $\hat{\beta}$ of β ?
6. Inference: What is the error of $\hat{\beta}$? Is f degenerate? I.e., is $\beta = 0$?
7. Fit: Does our fitted line match up with the data? What about the normality assumption?
Do the errors appear normal?
8. Prediction: Predict any values if necessary.

1.1.3 Comparison with means example

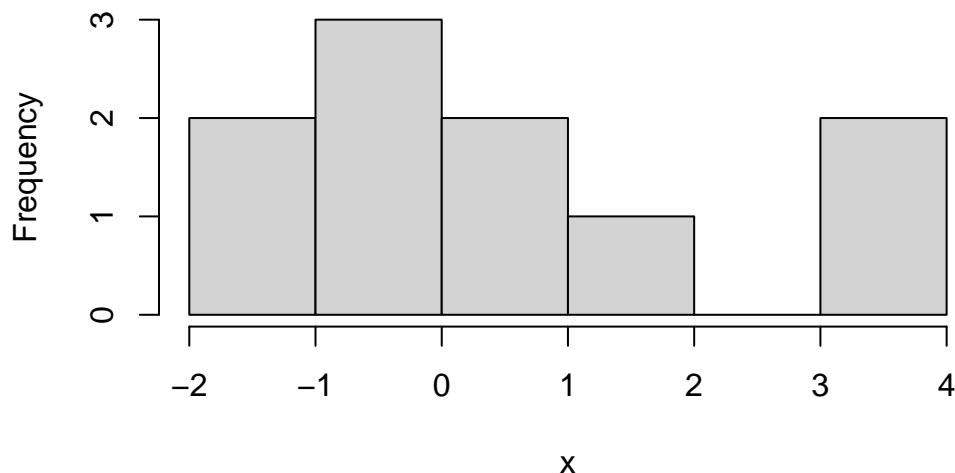
Let’s compare to what we learned in previous statistics courses about two sample testing with the above steps in mind. Below we have different hours of extra sleep for two different treatments. Let’s see if the sleep for groups 1 and 2 differ.

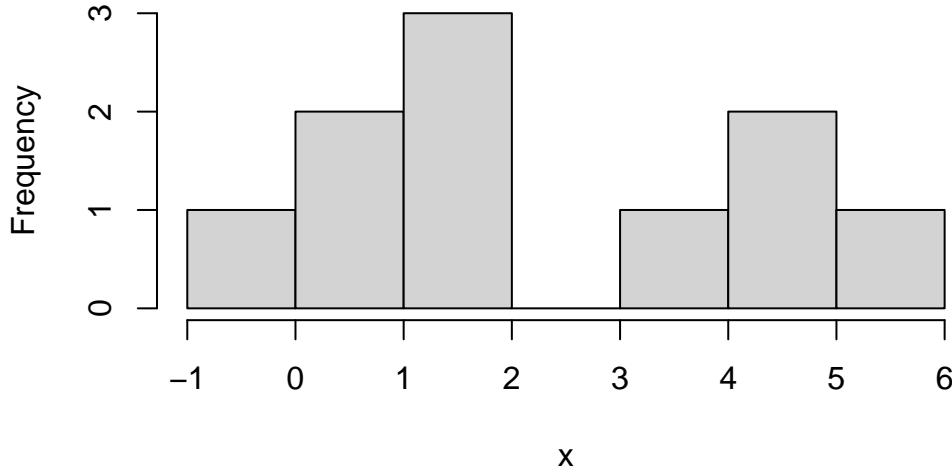
1. Do the counts for A and B differ?

```
# 2.  
data('sleep')  
head(sleep)
```

	extra	group	ID
1	0.7	1	1
2	-1.6	1	2
3	-0.2	1	3
4	-1.2	1	4
5	-0.1	1	5
6	3.4	1	6

```
# 3.  
aggregate(extra ~ group, data = sleep, FUN = function(x){hist(x,main=names(x))})
```





```
Warning in format.data.frame(if (omit) x[seq_len(n0), , drop = FALSE] else x, :
corrupt data frame: columns will be truncated or padded with NAs
```

group	extra
1	1 -2, -1, 0, 1, 2, 3, 4
2	2 -1, 0, 1, 2, 3, 4, 5, 6

```
summary_stats = aggregate(extra ~ group, data = sleep, FUN = summary)
aggregate(extra ~ group, data = sleep, FUN = length)
```

group	extra
1	1 10
2	2 10

We will assume that the extra hours are normal from the histograms.

Recall then that the pooled standard deviation is $\hat{\sigma}_p = \sqrt{((n_x - 1)\hat{\sigma}_x^2 + (n_y - 1)\hat{\sigma}_y^2)/(n_x + n_y - 2)}$ and the test statistic is:

$$T = \frac{\bar{X} - \bar{Y}}{\hat{\sigma}_p \times \sqrt{1/n_x + 1/n_y}}.$$

In addition, we have that $T \sim t_{n_x + n_y - 2}$.

```
# 5 and 6 - here these steps are the same, since we are only doing inference  
t.test(sleep$extra[sleep$group==1],sleep$extra[sleep$group==2])
```

Welch Two Sample t-test

```
data: sleep$extra[sleep$group == 1] and sleep$extra[sleep$group == 2]  
t = -1.8608, df = 17.776, p-value = 0.07939  
alternative hypothesis: true difference in means is not equal to 0  
95 percent confidence interval:  
-3.3654832 0.2054832  
sample estimates:  
mean of x mean of y  
0.75 2.33
```

```
# 7 - we checked normality earlier, 8 is not applicable
```

Here, we fail to reject the null hypothesis, and there is not enough evidence to suggest that there is a difference between the groups. Notice that the p-value is 0.08, which is moderately low, so there is some evidence of a difference between the groups.

1.2 Important course information and preparation tasks

1.2.1 Prerequisite review

If you have forgotten, you should review the following concepts:

- Sample vs. population, estimates vs. parameters, hypothesis testing and confidence intervals
- Normal theory, random variables, conditional variance and expectation.
- CLT, LLN
- Linear algebra: Matrix operations, inverse, transpose etc.

1.2.2 Software

Download RStudio/R. You can use python, but I'll use R in class. If you are not familiar with R, please follow this tutorial [here](#).

1.2.3 Outline

The course will proceed as follows:

- Review
- Core linear regression concepts
- Special Cases
- Advanced

1.2.4 Homework tasks:

- Download and install RStudio and R Software
- Think of a relationship you would want to model, what is X ? what is Y ?
- Review prerequisites as stated above

2 Review material

2.1 Review of random variables

Recall that

Definition 2.1. A random variable X is a function which maps outcomes $\omega \in \Omega$ to the real numbers, i.e., $X: \Omega \rightarrow \mathbb{R}$.

i Note

Note that the notation $f: A \rightarrow B$ means that f is a function whose domain is A and range is B . That is, f takes a value from A and outputs some value in B .

Generally, we will just write X , and ignore the fact that X is a function.

We can categorize a random variable X as follows:

- If $X: \Omega \rightarrow S$ where S is countable, then X is a *discrete random variable*
- We say X is a *continuous random variable* if $\Pr(X = r) = 0$ for all $r \in \mathbb{R}$.
- Otherwise, X is a *mixed random variable* (which we won't worry about in this course)

2.1.1 Discrete Random Variables

If $X: \Omega \rightarrow S$ where S is countable, then X is a discrete random variable. S can be finite, but can also be any infinite subset of the integers \mathbb{Z} . The distribution of X is given by its PMF, denoted by $f(x)$. For any $x \in S$, $f(x) = \Pr(X = x)$. (Note that '∈' means the word "in".) We must have that:

- $\sum_{x \in S} f(x) = 1$, (This notation means summing over all the elements in S .)
- $\forall x \in S, 0 \leq f(x) \leq 1$. (This notation means for all x in $S, 0 \leq f(x) \leq 1$.)

Examples: Binomial random variables, Poisson random variables and Geometric random variables are all discrete random variables.

Exercise 2.1. What is the PMF of a Binomial random variable? Can two different random variables have the same PMF? Why or why not?

Solution 2.1. First: $\Pr(X = x) = \binom{n}{x} p^x (1-p)^{n-x}$ Second: Yes. Two random variables can be different random variables, but have the same distribution.

2.1.2 Continuous Random Variables

We say X is a *continuous random variable* if $\Pr(X = r) = 0$ for all $r \in \mathbb{R}$. If $X: \Omega \rightarrow S$ and X is a continuous random variable, then S is typically the real numbers, denoted by \mathbb{R} , but can be any uncountable subset of \mathbb{R} . The distribution of X is given by the PDF $f(x)$. For any interval $(a, b) \subset S$, $\Pr(X \in (a, b)) = \int_a^b f(x)dx$. We must have that: - $\int_{-\infty}^{\infty} f(x)dx = 1$, - $\forall x \in \mathbb{R}, f(x) \geq 0$.

Examples: Normal random variables, Chi-squared random variables, t random variables, Cauchy random variables, F random variables are all continuous random variables. Generally, we will focus on continuous random variables.

Exercise 2.2. What is the PMF of a Normal random variable?

$$\text{Solution 2.2. } f(x) = \frac{1}{\sqrt{2\pi}\sigma} e^{-\frac{1}{2\sigma^2}(x-\mu)^2}$$

2.1.3 Properties of Random Variables

Let X, X_1, X_2 be random variables.

Recall the important quantities EX , $\text{var}X$, $\text{cov}(X_1, X_2)$, $\text{corr}(X_1, X_2)$. Recall expectation: :::
{#def-2} The expectation of a random variable X is

$$\text{EX} = \sum_{x \in S} x \Pr(X = x),$$

if X is discrete and is

$$\text{EX} = \int_{-\infty}^{\infty} f(x)dx,$$

if X is continuous. ::: This is the “average” value of the random variable. Note that it is possible for it to be impossible for $X = \text{EX}$. Try to come up with an example of this!

Definition 2.2. The variance of a random variable X is

$$\text{Var}[X] = \text{E}[|X - \text{E}[X]|^2] = \sum_{x \in S} (x - \text{E}[X])^2 \Pr(X = x),$$

if X is discrete and is

$$\text{Var}[X] = \text{E}[|X - \text{E}[X]|^2] = \int_{-\infty}^{\infty} (x - \text{E}[X])^2 f(x)dx,$$

if X is continuous.

The variance describes the variation of X about its mean. In other words, it describes on “average”, how far is X from its mean.

Definition 2.3. The covariance between two random variables X and Y is

$$\text{cov}[X, Y] = \mathbb{E}[(X - \mathbb{E}[X])(Y - \mathbb{E}[Y])].$$

The covariance describes the unnormalised linear association between X and Y .

Definition 2.4. The correlation between two random variables X and Y is

$$\text{corr}[X, Y] = \text{cov}[X, Y] / \sqrt{\text{Var}[X] \text{Var}[Y]}.$$

The correlation describes the normalized linear association between X and Y .

Next, recall that for a random variable X , its cumulative distribution function (CDF) is given by $F_X(x) = \Pr(X \leq x)$. The joint CDF of X and Y is given by $F_{XY}(x, y) = \Pr(X \leq x, Y \leq y)$.

Lastly, for a vector of d random variables $\mathbf{X} = (X_1, \dots, X_d)$, let its CDF by $F_{\mathbf{X}}(\mathbf{x}) = \Pr(X_1 \leq x_1, \dots, X_d \leq x_d)$, where here $\mathbf{x} \in \mathbb{R}^d$ and $\mathbf{x} = (x_1, \dots, x_d)$.

We next present the concept of independence of random variables. Let $F_{XY}(x, y)$ be the joint CDF of X and Y and let F_X and F_Y be the univariate CDFs of X and Y , respectively. For two random variables X and Y , we say that X and Y are independent if $F_{XY}(x, y) = F_X(x)F_Y(y)$. More generally, two vectors of random variables \mathbf{X} and \mathbf{Y} are independent if $F_{\mathbf{X}, \mathbf{Y}}(\mathbf{x}, \mathbf{y}) = F_{\mathbf{X}}(\mathbf{x})F_{\mathbf{Y}}(\mathbf{y})$, where A set of random variables $\{X_i\}_{i=1}^n$ are mutually independent if for any two subsets mutually exclusive subsets of $\{X_i\}_{i=1}^n$ are also independent. Note that we write $X \perp Y$ if X is independent of Y .

We have that:

Theorem 2.1.

- $X_1 \perp X_2 \implies \mathbb{E}[X_1 X_2] = \mathbb{E}[X_1] \mathbb{E}[X_2]$
- $X_1 \perp X_2 \implies \text{corr}[X_1, X_2] = 0$
- $\text{corr}[X_1, X_2] = 0$ does not imply $X_1 \perp X_2$

Exercise 2.3. Prove Theorem 2.1 .

Let X, X_1, X_2, \dots, X_n be random variables. Recall the linearity of expectation property:

Theorem 2.2. For $a, b \in \mathbb{R}$, it holds that $\mathbb{E}[aX + b] = a\mathbb{E}[X] + b$.

Exercise 2.4. Prove Theorem 2.2 .

As a corollary of Theorem 2.2 , we have that - $E[\sum_{i=1}^n a_i X_i] = \sum_{i=1}^n a_i E[X_i]$ - $\text{Var}[\sum_{i=1}^n a_i X_i] = \sum_{i=1}^n a_i^2 \text{Var}[X_i] + \sum_{i \neq j} a_i a_j \text{cov}[X_i, X_j]$ - $\text{Var}[aX_1 + bX_2 + c] = a^2 \text{var}X_1 + b^2 \text{Var}[X_2] + 2abc\text{cov}[X_1, X_2]$

Exercise 2.5. What happens to $\text{Var}[aX_1 + bX_2 + c]$ when $\{X_i\}_{i=1}^n$ are mutually independent?

Exercise 2.6. Let X_1, X_2, \dots, X_n be iid random variables with mean μ and variance σ^2 . What is the mean and variance of

$$\bar{X} = \frac{1}{n} \sum_{i=1}^n X_i/n?$$

2.1.4 Useful properties of normal and related random variables

Let

- $\mathcal{N}(\mu, \sigma^2)$ represent the normal distribution with mean μ and variance σ^2 .
- χ_k^2 be the Chi-squared distribution with k degrees of freedom
- t_n be the student- t distribution with n degrees of freedom
- $F_{m,n}$ be the F distribution with m numerator degrees of freedom and n denominator degrees of freedom

We have the following results:

Theorem 2.3. Suppose that $X \sim \mathcal{N}(\mu, \sigma^2)$, then - $Z = \frac{X-\mu}{\sigma} \sim \mathcal{N}(0, 1)$ - $Z^2 \sim \chi_1^2$.

Let $[n] = \{1, \dots, n\}$. We also have that

Theorem 2.4.

- If for $i \in [n]$ $Y_i \sim \chi_{k_i}^2$ and $Y_i \perp Y_j$ for $i \neq j$ then $\sum_{i=1}^n Y_i \sim \chi_{k_1+\dots+k_n}^2$.
- If $Y \sim \chi_k^2$ and $Y \perp Z$, then $Z/\sqrt{Y/k} \sim t_k$.
- If $Y_1 \sim \chi_{k_1}^2$, $Y_2 \sim \chi_{k_2}^2$ and $Y_1 \perp Y_2$ then $\frac{Y_1/k_1}{Y_2/k_2} \sim F_{k_1, k_2}$.

Define

$$\hat{\sigma}^2 = \frac{1}{n-1} \sum_{i=1}^n (X_i - \bar{X})^2.$$

Theorem 2.5. Suppose that $X_1, X_2, \dots, X_n \sim \mathcal{N}(\mu, \sigma^2)$ and are independent, then $\frac{\bar{X}-\mu}{\sigma/\sqrt{n}} \sim \mathcal{N}(0, 1)$, $\bar{X} \perp \hat{\sigma}^2$, $(n-1)\hat{\sigma}^2/\sigma^2 \sim \chi_{n-1}^2$ and $\frac{\bar{X}-\mu}{\hat{\sigma}/\sqrt{n}} \sim t_{n-1}$.

2.1.5 Central Limit Theorem

CLT: If X_1, X_2, \dots, X_n are i.i.d. with mean μ and variance $\sigma^2 < \infty$, then $\frac{\bar{X} - \mu}{\sigma/\sqrt{n}} \xrightarrow{d} \mathcal{N}(0, 1)$ as $n \rightarrow \infty$.

We have that in general, for large n , regardless of the distribution of the random variables, the sample mean is approximately normally distributed.

2.1.6 Homework stop 1

Review your material and complete the above exercises before continuing to the next section.

2.2 Review of introductory statistics

The followings are some concepts that you have learned from prerequisites, and/or we have reviewed in the last two lectures.

- Sample vs. Population
- Observation vs. Random variable
- Statistic vs. Parameter
- Estimate vs. Estimator
- Estimator is a random variable and estimate is a number calculated from data
- Mean and variance of random variable
- Relationships between Normal, t , χ^2 , F etc.

2.2.1 Basic premise of statistics

The whole purpose of statistics is to learn something about a population using only a sample of units from that population. A **sample** is a smaller, typically randomly selected, subset of a population. A **population** is a collection of units which we would like to know something about. For example, we may collect a sample of hamburgers from McDonald's if we want to learn something about the population of McDonald's hamburgers.

In general, at least for this course, we assume that we have access to a sample of units from a given population. Furthermore, we assume that that sample is a **random sample**. Specifically, we assume that these units in the sample are realizations of random variables. In addition, we also assume that these random variables are mutually independent. For example, we could assume that our sample X_1, \dots, X_n is Normally distributed with some fixed mean μ and fixed variance σ^2 . In this case, μ and σ^2 are unknown **parameters** of the population. A parameter of a population is some quantity that is a function of the distribution of our given sample. For instance, $E[X_i] = \mu$. Generally, we are concerned with unknown population parameters,

which are parts of the distribution that are unknown, and can only ever be estimated. For example, we may know our data is normal, but not know the mean parameter. In that case, we need to use an **estimate** of the parameter. We use a function of the data, typically called the estimator, say T , which produces the estimate, given by T computed at the sample we observed: $T(X_1, \dots, X_n)$.

For example, to estimate μ , we typically use the sample mean. Here, the estimate is given by $\bar{X} = \sum_{i=1}^n X_i/n$. To be specific, the estimate is the value of \bar{X} and the estimator T is the function that maps n real numbers to their mean. In general, estimates are used to give our ‘best guess’ at population parameters.

2.2.2 Confidence intervals:

Recall from the previous section that our estimate of a parameter is only that, an estimate. In other words, it is not exactly equal to the population parameter. For instance, if we drew a different sample our estimate would change. A confidence interval is used to acknowledge this phenomenon in the reporting of our statistics. Its used to give a range of estimates that we might have obtained from any “regular” sample we might observe. It is ultimately used to quantify the error (sometimes called uncertainty) in our estimate.

Confidence intervals consist of a level, usually denoted by $(1 - \alpha)100\%$ and two end points. For example, you have learned confidence intervals for the population mean. When we say $(-1, 1)$ is 95% confidence interval for the population mean, what does this mean? Colloquially, it means that we expect the sample mean to be somewhere within $(-1, 1)$ with high confidence. Note that confidence intervals are computed from the data, which means also that for each new sample, we would get a different confidence interval. However, the population parameter never changes. Therefore, the interval is what is varying from sample to sample. This impacts the interpretation of a confidence interval.

Continuing our example, we have that the interval $(-1, 1)$ can be interpreted as: “if we drew many more samples, 95% of the **intervals** will contain the population parameter.” We **do not** say that the parameter has a 95% chance of falling in $(-1, 1)$, since the parameter is not random, the interval end points are.

For example, we have the formula for a confidence interval for the population mean is given by: $\bar{X} \pm 1.96\hat{\sigma}$. Notice that it is based only on the data. Therefore, it will change if we drew a new sample.

To summarize this section, a confidence interval is used to quantify the uncertainty in our reported estimates. By uncertainty, we specifically mean the uncertainty resulting from the fact that we have only a sample of the population, and our estimate varies depending on the sample.

2.2.3 Hypothesis tests:

Hypothesis tests are used to determine whether an effect is spurious or a real property of the population. A spurious effect is one that is specific to the sample we observed, and is not a real property of the population. For example, if the heights of males and female students are measured, and we observe that the sample mean of both male and females are equal, then this would be a spurious effect. We know that the population heights of males and females are substantially different. If we drew a new sample, we would likely observe something that mirrors the population reality (provided it is large enough).

Formally, a hypothesis test compares two competing beliefs about a population parameter, called the null and alternative hypothesis. For instance, we may wish to test whether the population heights of men is greater than women, vs. the heights being less than or equal to that of men.

We write this as follows: $H_0: \mu_{men} \leq \mu_{women}$ vs. $H_a: \mu_{men} > \mu_{women}$.

The null hypothesis is usually chosen to be one such that if we make a mistake, the error is most serious. However, it is usually clear from the context.

In general, we compute a test statistic and its distribution **under the null hypothesis**. Then we compute how likely it was to see the observed test statistic we saw, if the null hypothesis was true. This likelihood is given by the **p-value**. If it was sufficiently unlikely (in other words, the p-value is less than the threshold α), then we reject the null hypothesis. Otherwise, we fail to reject the null hypothesis. If we fail to reject the null hypothesis then either the null hypothesis is true, it is not true, but there was not enough data collected to show the effect.

There are two types of errors we can make in a hypothesis test: Type 1 and Type 2 error. Type one error occurs when we reject the null hypothesis when it is true. Type two error occurs when we fail to reject the null hypothesis when the alternative is true.

Let's do an example.

Exercise 2.7. In a study about online dating, you are interested in determining the average age of individuals who use online dating platforms. You want to know whether the average age of online daters is significantly different from 30. You have a dataset of 40 ages of people using online dating platforms.

How would you answer this question?

$$H_0: \mu = 30 \quad \text{vs.} \quad H_1: \mu \neq 30.$$

First, we can explore the data:

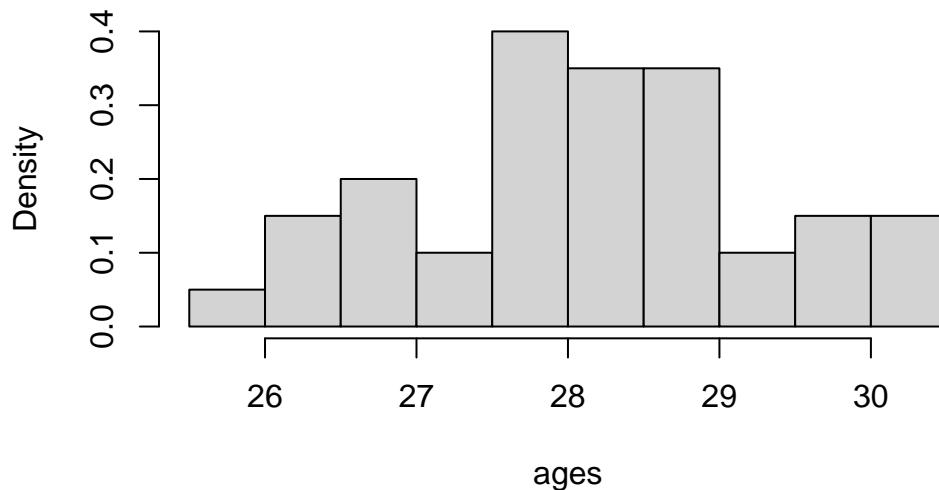
```
getwd()
```

```
[1] "C:/Users/12RAM/OneDrive - York University/Teaching/Courses/Math 3330 Regression/Math 3330 Regression Data Set.csv"

ages=read.csv('C:\\\\Users\\\\12RAM\\\\OneDrive - York University\\\\Teaching\\\\Courses\\\\Math 3330 Regression\\\\Data Set.csv')

hist(ages,freq=F)
```

Histogram of ages



Now, assume that $X_1, \dots, X_{40} \sim \mathcal{N}(\mu, \sigma^2)$, and independent. (We can justify normality with the histogram, or we could also invoke the CLT to get normality of the sample mean (not the data itself).) Therefore, we can do a one sample t -test. Recall that, under the null hypothesis, we have $\frac{\bar{X}-30}{\hat{\sigma}/\sqrt{n}} \sim t_{n-1}$. This means that if $\left| \frac{\bar{X}-30}{\hat{\sigma}/\sqrt{n}} \right| \geq t_{n-1, 1-\alpha/2}$, then we reject the null hypothesis! Here, $t_{n-1, 1-p}$ is the $(1-p)$ th quantile of the t_{n-1} distribution. For large n and $p = 0.025$, this is roughly equal to 2.

Now, recall that

$$H_0: \mu = 30 \quad vs. \quad H_1: \mu \neq 30$$

We have that $\left| \frac{\bar{X}-30}{\hat{\sigma}/\sqrt{n}} \right| = 66.234$. Using R, we get that the p-value is $< 2.2 \times 10^{-16}$.

```
# Calculate the mean of the 'ages' data and assign it to xbar
xbar = mean(ages)
xbar # Print the mean
```

```
[1] 28.16378
```

```
# Calculate the variance of the 'ages' data and assign it to ssq
ssq = var(ages)
ssq # Print the variance
```

```
[1] 1.277377
```

```
# Calculate the length (number of observations) of the 'ages' data and assign it to n
n = length(ages)
n # Print the number of observations
```

```
[1] 40
```

```
# Set the significance level
alpha = 0.05

# Perform a two-sided t-test to check if the mean of 'ages' is significantly different from 30
# t.test() is the function for performing t-tests in R
test = t.test(ages, mu = 30, alternative = 'two.sided')
test # Print the test result
```

One Sample t-test

```
data: ages
t = -10.275, df = 39, p-value = 1.179e-12
alternative hypothesis: true mean is not equal to 30
95 percent confidence interval:
27.80232 28.52524
sample estimates:
mean of x
28.16378
```

Here the p-value measures how much evidence there is against the null hypothesis. If the p-value is very small, then this constitutes strong evidence against the null hypothesis. If the p-value is small, but closer to 0.05, then there is evidence against the null. If it is larger, but still small, say 0.1, then this is weak evidence against the null hypothesis. It is not helpful to throw it away if it is above 0.05, therefore we should not just take $\alpha = 0.05$. Choosing α depends on how serious a type 1 error is. If it is not that serious, we can take α larger. If it is very serious, we can take α smaller.

In this example, there is very strong evidence against the null hypothesis.

i Note

Note also that we can use the confidence interval method with

$$\bar{X} \pm t_{n-1, 1-\alpha/2} \sqrt{\hat{\sigma}^2/n}.$$

```
# Alternative method to calculate the confidence interval
# ci will store the confidence interval values
ci = xbar + c(-1, 1) * qt(1 - alpha / 2, n - 1) * sqrt(ssq / n)
ci # Print the confidence interval
```

[1] 27.80232 28.52524

i Note

Moving beyond the one-sample testing problem, we might be interested in other population parameters, say $\theta \in \Theta$. Think Lecture 1: $E[Y|X] = \beta_0 + X\beta_1$, we might want to estimate $E[Y|X]$, which amounts to $\beta_0, \beta_1 \in \mathbb{R}$! In general, we may estimate θ by $\hat{\theta}$. Then we may compute the variance and distribution of $\hat{\theta}$. From there, we can make confidence intervals and conduct hypothesis tests etc.

Let's do another example:

Exercise 2.8. In a study about online dating, you are interested in determining if the average age of those who identify as men who use online dating platforms differs from those who identify as women. You have a dataset of 20 ages of each group using online dating platforms.

What is the population parameter of interest here? It is $\Delta = \mu_1 - \mu_2$, the difference in means between the two populations. Now, suppose that $X_1, \dots, X_{20} \sim \mathcal{N}(\mu_1, \sigma^2)$ and $Y_1, \dots, Y_{20} \sim \mathcal{N}(\mu_2, \sigma^2)$, and are mutually independent. (We could also invoke the CLT instead of assuming normality.) We can estimate those parameters with **estimates**. For instance, \bar{X}, \bar{Y} ,

$$\hat{\sigma}^2 = \frac{(n_1 - 1)\hat{\sigma}_1^2 + (n_2 - 1)\hat{\sigma}_2^2}{n_1 + n_2 - 2}.$$

Exercise 2.9. Suppose that $X_1, \dots, X_{20} \sim \mathcal{N}(\mu_1, \sigma^2)$ and $Y_1, \dots, Y_{20} \sim \mathcal{N}(\mu_2, \sigma^2)$, and are mutually independent. Compute $\text{Var}[\bar{X} - \bar{Y}]$.

Solution 2.3. Using independence of \bar{X} and \bar{Y} and the result of the Exercise 2.6 , we have that

$$\text{Var}[\bar{X} - \bar{Y}] = \text{Var}[\bar{X}] + \text{Var}[\bar{Y}] = \sigma_1^2/n_1 + \sigma_2^2/n_2.$$

First, we write down the null and alternative hypothesis:

$$H_0: \Delta = 0 \quad \text{vs..} \quad H_1: \Delta \neq 0.$$

Here, we can do a two sample t -test.

Recall that the pooled variance is given by:

$$\hat{\sigma}_p^2 = \frac{(n_1 - 1)\hat{\sigma}_1^2 + (n_2 - 1)\hat{\sigma}_2^2}{(n_1 + n_2 - 2)}$$

We previously said that a multiple of a one sample standard deviation follows a Chi-squared distribution. It follows that $(n_1 - 1)\hat{\sigma}_1^2/\sigma^2 \sim \chi_{n_1-1}^2$ and $(n_2 - 1)\hat{\sigma}_2^2/\sigma^2 \sim \chi_{n_2-1}^2$. Using the theory from here, specifically, $(n_1 - 1)\hat{\sigma}_1^2/\sigma^2 + (n_2 - 1)\hat{\sigma}_2^2/\sigma^2$ is a sum of independent Chi-squared random variables, and so we have $(n_1 - 1)\hat{\sigma}_1^2/\sigma^2 + (n_2 - 1)\hat{\sigma}_2^2/\sigma^2 \sim \chi_{n_1+n_2-2}^2$.

Again, using the theory from here, under the null hypothesis, we have that

$$\frac{\bar{X} - \bar{Y}}{\hat{\sigma}_p/\sqrt{1/n_1 + 1/n_2}} = \frac{(\bar{X} - \bar{Y})/\sigma\sqrt{1/n_1 + 1/n_2}}{\hat{\sigma}_p/\sigma\sqrt{1/n_1 + 1/n_2}} \sim t_{n_1+n_2-2}.$$

This follows from 3 facts, first, letting $Z = (\bar{X} - \bar{Y})/\sqrt{\text{Var}[\bar{X} - \bar{Y}]}$, note that $Z \sim \mathcal{N}(0, 1)$. We have that

$$Z = (\bar{X} - \bar{Y})/\sqrt{\text{Var}[\bar{X} - \bar{Y}]} = (\bar{X} - \bar{Y})/\sigma\sqrt{1/n_1 + 1/n_2}.$$

Next, we said earlier that \bar{X} is independent of $\hat{\sigma}_1$ and \bar{Y} is independent of $\hat{\sigma}_2$. Now, recall that if two random variables are independent, then any function of them is also independent. In other words, if X and Y are independent, then for real functions f and g , we have that $g(X)$ is independent of $f(Y)$. It follows that \bar{X} is independent of $\hat{\sigma}_2$ and \bar{Y} is independent of $\hat{\sigma}_1$. It follows that $\bar{X} - \bar{Y}$ is independent of $\hat{\sigma}_p$. Then,

$$\frac{(\bar{X} - \bar{Y})/\sigma\sqrt{1/n_1 + 1/n_2}}{\hat{\sigma}_p/\sigma\sqrt{1/n_1 + 1/n_2}}$$

is a ratio of a standard normal random variable and the square root of a Chi-squared random variable, divided by its degrees of freedom. Further, the numerator and denominator are

independent. Therefore, the above quantity follows a t distribution with $n_1 + n_2 - 2$ degrees of freedom.

This means that if $\left| \frac{\bar{X} - \bar{Y}}{\hat{\sigma}_p / \sqrt{1/n_1 + 1/n_2}} \right| \geq t_{n_1+n_2-2, 1-\alpha/2}$, then we reject the null hypothesis.

Let's execute the test in R:

```
# Normally, I will give you a dataset. Here I generate the data
set.seed(440)
female_ages=rnorm(20,28,4)
male_ages=rnorm(20,32,4)

# Check for equal variance
var(female_ages)
```

```
[1] 15.72805
```

```
var(male_ages)
```

```
[1] 26.22371
```

```
## Putting the data in a dataframe
cbind("Age"=c(female_ages,male_ages),"Gender"=rep(c(0,1),each=20))
```

	Age	Gender
[1,]	37.19809	0
[2,]	20.69693	0
[3,]	27.80284	0
[4,]	27.69463	0
[5,]	29.53143	0
[6,]	29.46190	0
[7,]	30.41164	0
[8,]	33.27790	0
[9,]	22.65974	0
[10,]	30.73540	0
[11,]	34.08564	0
[12,]	27.58077	0
[13,]	23.26108	0
[14,]	30.94523	0

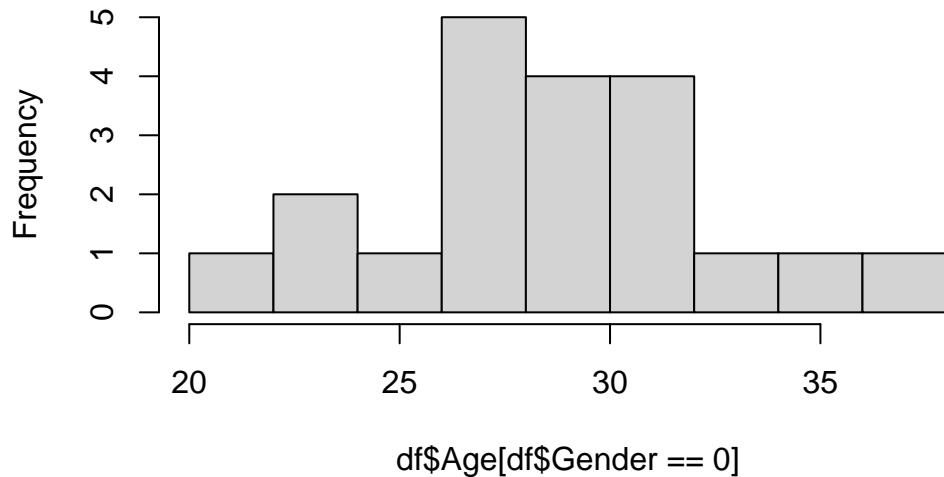
```
[15,] 31.52404      0
[16,] 29.13246      0
[17,] 26.95470      0
[18,] 24.80749      0
[19,] 28.60051      0
[20,] 26.76294      0
[21,] 25.94775      1
[22,] 40.16080      1
[23,] 25.58905      1
[24,] 32.16780      1
[25,] 29.87934      1
[26,] 35.46593      1
[27,] 35.71651      1
[28,] 37.76510      1
[29,] 27.23068      1
[30,] 33.41994      1
[31,] 40.43822      1
[32,] 31.04841      1
[33,] 32.66165      1
[34,] 38.28678      1
[35,] 34.72411      1
[36,] 39.57994      1
[37,] 26.85585      1
[38,] 31.87533      1
[39,] 23.71793      1
[40,] 30.54803      1
```

```
df=data.frame(cbind("Age"=c(female_ages,male_ages),"Gender"=rep(c(0,1),each=20)))

#exploring the data
#hist(x) creates a histogram of the vector x

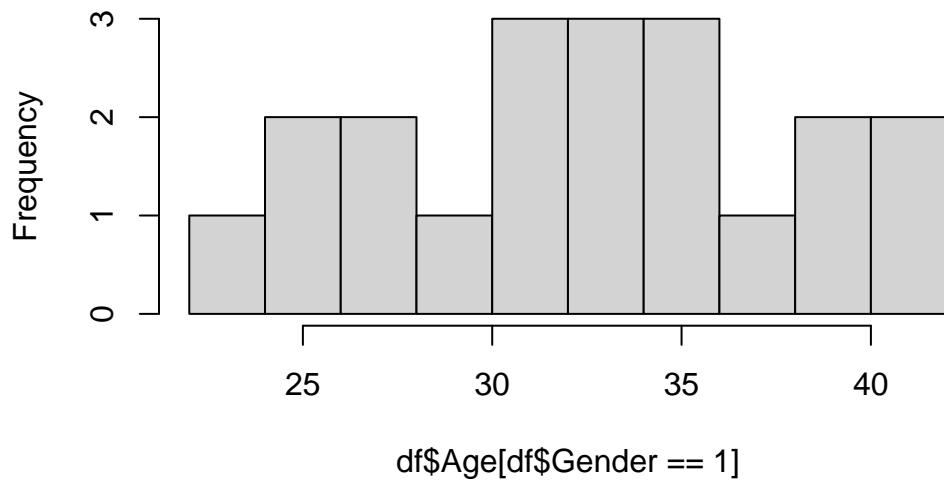
hist(df$Age[df$Gender==0])
```

Histogram of df\$Age[df\$Gender == 0]

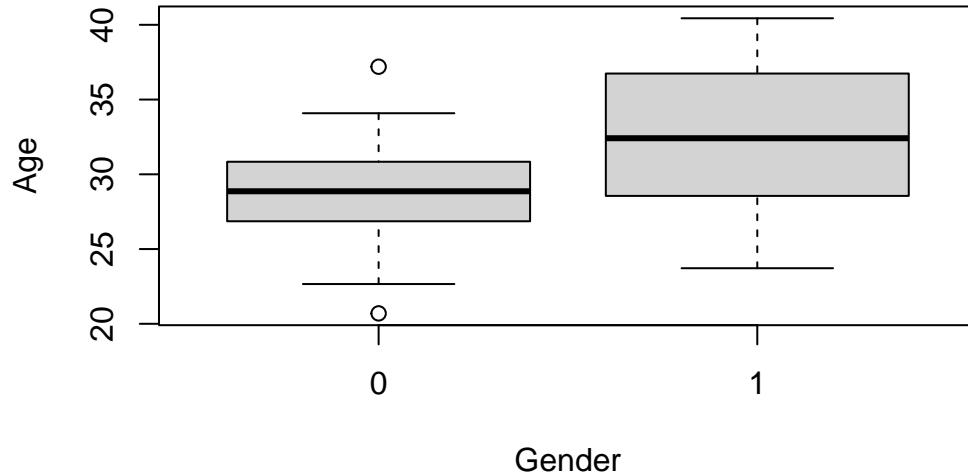


```
hist(df$Age [df$Gender==1])
```

Histogram of df\$Age[df\$Gender == 1]



```
#boxplot creates boxplots of Age against gender  
boxplot(Age~Gender, df)
```



```
test=t.test(Age~Gender,data=df,var.equal=TRUE)  
test
```

Two Sample t-test

```
data: Age by Gender  
t = -2.7603, df = 38, p-value = 0.008841  
alternative hypothesis: true difference in means between group 0 and group 1 is not equal to  
95 percent confidence interval:  
-6.929630 -1.065749  
sample estimates:  
mean in group 0 mean in group 1  
28.65627 32.65396
```

```
#Interpret the P value, and CI, what are we going to say to a stakeholder?
```

```
#e.g.  
test$estimate
```

mean in group 0	mean in group 1
28.65627	32.65396

i Note

Note also that we can use the confidence interval method, meaning that if 0 is in the interval:

$$\hat{\Delta} \pm t_{n_1+n_2-2,1-\alpha/2} \sqrt{\hat{\sigma}_1^2/n_1 + \hat{\sigma}_2^2/n_2},$$

then we fail to reject the null hypothesis.

2.2.4 Homework stop 2

Exercise 2.10. IBM Human Resources (HR) department is evaluating job applicants from York University.

They are interested to know if the 2020 ITEC graduating class has an average GPA higher than 6 (i.e. average GPA higher than “B’’). They collected the GPA of 25 ITEC students graduated in 2020.

4.92	4.79	6.76	5.64	6.12	7.37	6.45	6.31	6.68
6.30	4.91	6.95	5.87	6.18	6.60	6.71	6.69	5.62
6.40	5.51	6.44	6.13	8.55	7.94	4.78	-	-

💡 Tip

Use chatGPT to convert the above table to an R vector, so you don't have to waste time!

- For the one sample testing problem, i.e., you have a sample of n normal random variables, with unknown mean and variance and you want to test whether $H_0: \mu = 0$ vs. $H_1: \mu \neq 0$, show that $\frac{\bar{X}}{\hat{\sigma}/\sqrt{n}} \sim t_{n-1}$ under the null hypothesis.
- What is the distribution of each of the following: $\bar{X}, \bar{Y}, \hat{\sigma}$ under the assumption of normal data with unknown mean and variance?

Compare and contrast the following concepts. That is, define them and explain the difference between them.

- Sample vs. Population
- Observation vs. Random variable
- Statistic vs. Parameter
- Estimate vs. Estimator

2.3 Review of matrices and linear algebra

Recall that

Definition 2.5. An $(n \times m)$ matrix A takes the form

$$A = \begin{pmatrix} a_{11} & a_{12} & \cdots & a_{1m} \\ a_{21} & a_{22} & \cdots & a_{2m} \\ \vdots & \vdots & \vdots & \vdots \\ a_{n1} & a_{n2} & \cdots & a_{nm} \end{pmatrix}$$

$$= ((a_{ij})) \quad i = 1, \dots, n, \quad j = 1, \dots, m$$

and a_{ij} is the element in the i^{th} row and j^{th} column of the matrix A

We also define the following:

- An $(n \times 1)$ matrix is also known as a n dimensional column vector. Note: in this course, a vector means a column vector.
- A $(1 \times m)$ matrix is also known as a m dimensional row vector
- The n dimensional one vector, 1_n , (sometimes the subscript n is suppressed when the dimension is obvious), is an n dimensional column vector with all entries being 1.
- The $(n \times n)$ identity matrix, I_n , is the $(n \times n)$ matrix with diagonal entries set equal to 1 and the off diagonal entries set equal to 0

Throughout this section, we will use the following matrices to demonstrate the numerical calculations:

$$U = \begin{pmatrix} 1 & 2 & 3 \\ -1 & 4 & -2 \end{pmatrix}, \quad V = \begin{pmatrix} 2 & 4 \\ 1 & -2 \\ -1 & 0 \end{pmatrix}, \quad k = 4$$

2.3.1 Matrix properties

First, we define the transpose of a matrix:

Definition 2.6. Let $A = ((a_{ij}))$ for $i = 1, \dots, n$ and $j = 1, \dots, m$, is an $(n \times m)$ matrix. Then $A^\top = A$ transpose $= ((a_{ji}))$ for $j = 1, \dots, m$ and $i = 1, \dots, n$, and A^\top is an $(m \times n)$ matrix.

When we transpose a matrix A , the rows of A becomes the columns of A^\top and the columns of A becomes the rows of A^\top .

Example 2.1. Using our example matrices, we have that

$$U^\top = \begin{pmatrix} 1 & -1 \\ 2 & 4 \\ 3 & -2 \end{pmatrix}, V^\top = \begin{pmatrix} 2 & 1 & -1 \\ 4 & -2 & 0 \end{pmatrix}$$

Definition 2.7. Let $A = ((a_{ij}))$ and $B = ((b_{ij}))$ be two $(n \times m)$ matrices. Then

$$A \pm B = ((a_{ij} \pm b_{ij})).$$

Addition and subtraction of matrices required the matrices to have the same dimension.

Example 2.2. Using our example matrices, we have that: $U + V$ is undefined because they are not of the same dimension, and

$$U + V^\top = \begin{pmatrix} 1+2 & 2+1 & 3+(-1) \\ (-1)+4 & 4+(-2) & (-2)+0 \end{pmatrix} = \begin{pmatrix} 3 & 3 & 3 \\ 3 & 2 & -2 \end{pmatrix}$$

Definition 2.8. Let $A = ((a_{ij}))$ for $i = 1, \dots, n$ and $j = 1, \dots, m$, is an $(n \times m)$ matrix and k is a constant. Then

$$kA = ((ka_{ij})) = Ak,$$

i.e. each element of the matrix A is multiplied by k .

Example 2.3. Using our example matrices, we have that:

$$kU^\top = 4 \begin{pmatrix} 1 & -1 \\ 2 & 4 \\ 3 & -2 \end{pmatrix} = \begin{pmatrix} 4(1) & 4(-1) \\ 4(2) & 4(4) \\ 4(3) & 4(-2) \end{pmatrix} = \begin{pmatrix} 4 & -4 \\ 8 & 8 \\ 12 & -2 \end{pmatrix}$$

Definition 2.9. Let A and B be two matrices. Then A multiplied by B , AB , is defined only if (number of columns of A) = (number of rows of B).

The product is a ((number of rows of A) \times (number of columns of B)) matrix.

More precisely, let $A = ((a_{ij}))$ be an $(n \times m)$ matrix and $B = ((b_{ij}))$ be an $(m \times p)$ matrix. Then $C = AB = ((c_{ij}))$ is an $(n \times p)$ matrix with

$$c_{ij} = a_{i1}b_{1j} + a_{i2}b_{2j} + \cdots + a_{im}b_{mj}$$

i Note

In matrix algebra, AB is not necessarily equal to BA .

Example 2.4. Using our example matrices, we have that:

$$\begin{aligned}
 UV &= \begin{pmatrix} 1 & 2 & 3 \\ -1 & 4 & -2 \end{pmatrix} \begin{pmatrix} 2 & 4 \\ 1 & -2 \\ -1 & 0 \end{pmatrix} \\
 &= \begin{pmatrix} 1(2) + 2(1) + 3(-1) & 1(4) + 2(-2) + 3(0) \\ (-1)(2) + 4(1) + (-2)(-1) & (-1)(4) + 4(-2) + (-2)(0) \end{pmatrix} \\
 &= \begin{pmatrix} 1 & 0 \\ 4 & -12 \end{pmatrix}
 \end{aligned}$$

Assume all the matrix multiplication works. Let I_n be an $(n \times n)$ identity matrix. Then

$$AI_n = A, \quad \text{and} \quad I_n B = B.$$

Definition 2.10. Let A be an $(n \times n)$ matrix. The inverse of A , A^{-1} , if exists satisfies

$$AA^{-1} = A^{-1}A = I_n$$

and if A^{-1} does not exist, then A is a singular matrix.

! Important

From your linear algebra course, a prerequisite, you have learned the condition(s) for the existence of an inverse, (<https://mathworld.wolfram.com/InvertibleMatrixTheorem.html>) [The Invertible Matrix Theorem] and you have learned how to obtain an inverse. You should review them. Specifically, you should know how to obtain inverse of any diagonal matrix and any (2×2) non-singular matrix, i.e.,

$$\begin{pmatrix} a & b \\ c & d \end{pmatrix}^{-1} = \frac{1}{ad - bc} \begin{pmatrix} d & -b \\ -c & a \end{pmatrix}.$$

Example 2.5. Using our example matrices, let

$$W = UV = \begin{pmatrix} 1 & 0 \\ 4 & -12 \end{pmatrix}$$

Then

$$W^{-1} = \frac{1}{1(-12) - 0(4)} \begin{pmatrix} -12 & 0 \\ -4 & 1 \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ 1/3 & -1/12 \end{pmatrix}.$$

You can verify that $WW^{-1} = W^{-1}W = I_2$.

2.3.2 Important identities

Lastly, we introduce some important identities:

$$X = \begin{pmatrix} 1 & x_1 \\ \vdots & \vdots \\ 1 & x_n \end{pmatrix}, \quad \text{and} \quad y = \begin{pmatrix} y_1 \\ \vdots \\ y_n \end{pmatrix}$$

Then

$$X^\top X = \begin{pmatrix} n & \sum_{i=1}^n x_i \\ \sum_{i=1}^n x_i & \sum_{i=1}^n x_i^2 \end{pmatrix}, \quad \text{and} \quad X^\top y = \begin{pmatrix} \sum_{i=1}^n y_i \\ \sum_{i=1}^n x_i y_i \end{pmatrix}.$$

Also $\bar{y} = \frac{1}{n} 1^\top y$ and $\sum_{i=1}^n y_i = n\bar{y}$ \ Finally $\sum_{i=1}^n (y_i - \bar{y})^2 = \sum_{i=1}^n y_i^2 - n\bar{y}^2$

These are useful identities that we will use throughout this course.

Lastly, we recall an important application of matrices. An application of matrices: Suppose that we want to solve for x_1, x_2, x_3 where they satisfy the following set of linearequations:

$$\begin{aligned} 2x_1 + 3x_2 - 4x_3 &= 0 \\ -x_1 + 4x_2 &= -1 \\ 5x_1 + x_2 - 2x_3 &= 4 \end{aligned}$$

We can set it up in matrix form as follows:

$$\begin{pmatrix} 2 & 3 & -4 \\ -1 & 4 & 0 \\ 5 & 1 & -2 \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \\ x_3 \end{pmatrix} = \begin{pmatrix} 0 \\ -1 \\ 4 \end{pmatrix}$$

Or it can be presented as $Ax = b$. If A is not a singular matrix, then $x = A^{-1}b$. Since $\det(A) = 62$, it is not a singular matrix. Solving the above equation this using $x = A^{-1}b$ yields that $x = (1, 0, 0.5)^\top$.

Keep this in mind, we will see it return in the next chapter.

2.3.3 Homework stop 3

Exercise 2.11. Let

$$W = \begin{pmatrix} 3 & 2 \\ -4 & 6 \end{pmatrix}$$

and $x = (2, 1)^\top$. Compute W^{-1} , xx^\top and $x^\top W$. Verify that $WW^{-1} = W^{-1}W = I_2$.

- Prove each of the **important identities**.

- Verify $X^\top A = (A^\top X)^\top$.
- What is the rank of a matrix? Is a matrix's rank related to whether or not a matrix is invertible? Why?
- Define a positive definite matrix. When is $X^\top X$ positive definite?

2.4 Review Random Vectors

2.4.1 Definition of random vectors

Definition 2.11. Let Y_1, \dots, Y_n be random variables. Then

$$Y = \begin{pmatrix} Y_1 \\ \vdots \\ Y_n \end{pmatrix}$$

is an n -dimensional random vector.

Similar to a random variable, a random vector also comes with a probability mass function (if all the Y_i are discrete) or a probability density function (if all the Y_i are continuous), or a “mixture” distribution (if some Y_i are discrete and others are continuous). In general, a random vector is drawn from a multivariate distribution, defined by the PMF or PDF. Just as before, the PMF and PDF range is non-negative, the PMF sums to 1 over all outcomes, and the PDF integrates to 1 over \mathbb{R}^n . One discrete multivariate distribution you have learned in 1131 is the Multinomial distribution. We will learn about the multivariate normal distribution soon.

2.4.2 Expected Value and Covariance

Definition 2.12. Let Y be an n -dimensional random vector, then the mean (expected value) of Y is defined as

$$\mathbb{E}(Y) = \begin{pmatrix} \mathbb{E}(Y_1) \\ \vdots \\ \mathbb{E}(Y_n) \end{pmatrix} = \mu$$

and the covariance of Y is defined as

$$\text{cov}[Y] = \mathbb{E}[(Y - \mu)(Y - \mu)^\top] = ((\text{cov}[Y_i, Y_j])) = \Sigma.$$

Sometimes $\text{cov}[Y]$ is written as $\text{Var}[Y]$.

The following are some facts about Σ :

Σ is an $n \times n$ matrix with the diagonal elements being the variances, $\text{Var}[Y_i]$ for $i = 1, \dots, n$, and the off-diagonal elements being the covariances, $\text{cov}[(Y_i, Y_j)]$ for $i, j = 1, \dots, n$ and $i \neq j$. Σ is a symmetric, non-negative definite matrix. In this course, we further restrict it to be a positive definite matrix. Σ is referred to as the **covariance matrix**.

2.4.3 Properties of expected value and covariance

Let $Y \in \mathbb{R}^d$ be a random vector with $A \in \mathbb{R}^{d \times d}$ and $B \in \mathbb{R}^{n \times d}$ be matrices. It holds that

- $E(A + BY) = A + BE(Y)$
- $\text{cov}[A + BY] = B\text{cov}[Y]B^\top$.

Exercise 2.12. Let $\$Y = (Y_1, \dots, Y_n)^\top \$$ be a random vector, where Y_i are i.i.d. random variables with mean μ and variance σ^2 . What are the mean and covariance of Y ? Use properties of random vectors to compute the mean and variance of the sample mean.

Solution 2.4. First, $E(Y) = \mu 1$ and $\text{cov}[Y] = \sigma^2 I$. Note that $\bar{Y} = (Y_1 + \dots + Y_n)/n = \frac{1}{n} 1^\top Y$. Now, we have

$$E(\bar{Y}) = E\left(\frac{1}{n} 1^\top Y\right) = \frac{1}{n} (1^\top E(Y)) = \frac{1}{n}(n\mu) = \mu$$

and,

$$\begin{aligned} \text{cov}[\bar{Y}] &= \text{cov}\left[\frac{1}{n} 1^\top Y\right] \\ &= \left(\frac{1}{n}\right)^2 (1^\top \text{cov}[Y] 1) \\ &= \left(\frac{1}{n}\right)^2 (n\sigma^2) = \frac{\sigma^2}{n}. \end{aligned}$$

2.4.4 Multivariate normal distribution

We say that a random vector $X \sim \mathcal{N}_d(\mu, \Sigma)$ follows a multivariate normal distribution if X has PDF:

$$\phi(\mathbf{x}) = \left(\frac{1}{2\pi}\right)^{d/2} |\Sigma|^{-1/2} \exp\left\{-\frac{1}{2}(\mathbf{x} - \mu)' \Sigma^{-1} (\mathbf{x} - \mu)\right\}.$$

If $X \sim \mathcal{N}_d(\mu, \Sigma)$ and $c \in \mathbb{R}^d$, $A \in \mathbb{R}^{m \times d}$ then:

- $AX \sim \mathcal{N}(A\mu, A\Sigma A^\top)$.
- $c^\top X \sim \mathcal{N}(c^\top \mu, c^\top \Sigma c)$.

- Any conditional distribution for a subset of the variables conditional on another subset of variables is a multivariate distribution.

Using random vectors is a simple way of deriving lots of equations for this course. Working with vectors also allows those who are “geometrically gifted” to view the whole regression concepts geometrically! If not, not to worry!

2.4.5 Homework stop 4

Exercise 2.13. For a (full-rank) matrix $X \in \mathbb{R}^{n \times p}$ with $n > p$, and random vector $Y \in \mathbb{R}^{n \times 1}$ with mean μ and covariance Σ , compute the following:

- Expected value and covariance of $(X^\top X)^{-1} X^\top Y$
- Expected value of $Y^\top Y$
- Expected value and covariance of $X^\top X$
- Expected value and covariance of $X(X^\top X)^{-1} X^\top Y$

3 Linear Regression

3.1 Basics of linear regression

By the end of this section, you should be able to say what the linear and normal linear regression models are. As well as what it means to assume either of these models.

3.1.1 The linear regression model

Consider the following example.

Example 3.1. It is difficult to accurately determine a person's body fat percentage without immersing them in water. However, we can easily obtain the weight of a person. A researcher would like to know if weight and body fat percentage are related? If so, for a given weight, can the person's body fat percentage be predicted? If so, how accurate is the prediction? This researcher collected the following data:

Individual	1	2	3	4	5	6	7	8	9	10
Weight (lb)	175	181	200	159	196	192	205	173	187	188
Body Fat (%)	6	21	15	6	22	31	32	21	25	30

Individual	11	12	13	14	15	16	17	18	19	20
Weight (lb)	188	240	175	168	246	160	215	159	146	219
Body Fat (%)	10	20	22	9	38	10	27	12	10	28

How can we (as statisticians / data scientists) answer the questions raised by the researcher?

The first thing we might do is explore the data:

```

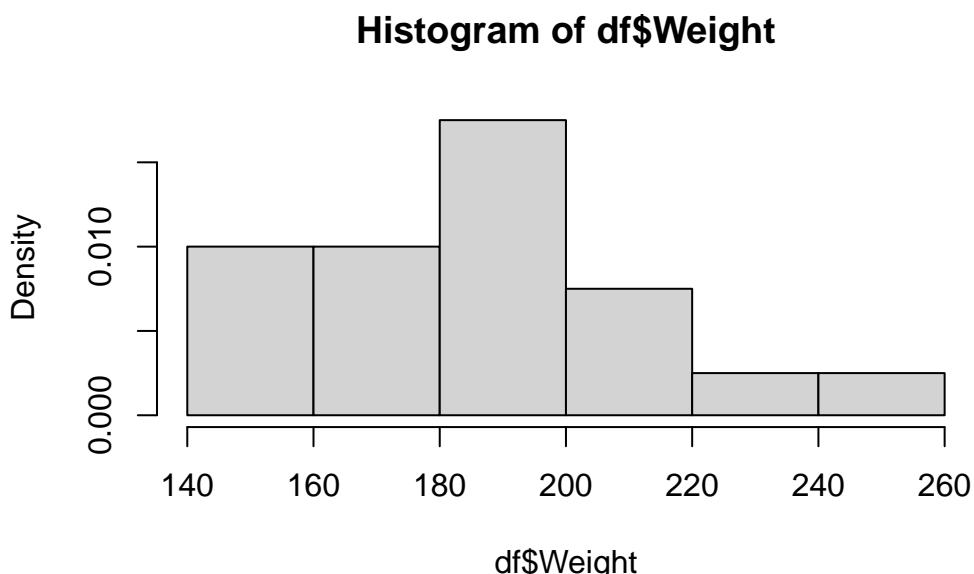
#####
##### Exploratory analysis

# Make the data frame
Weight=c(175 , 181 , 200 , 159 , 196 , 192 , 205 , 173 , 187 , 188 ,
       188 , 240 , 175 , 168 , 246 , 160 , 215 , 159 , 146 , 219 )
BodyFat =c(6 , 21 , 15 , 6 , 22 , 31 , 32 , 21 , 25 , 30 ,
          10 , 20 , 22 , 9 , 38 , 10 , 27 , 12 , 10 , 28 )

df=data.frame(cbind(Weight=Weight,BodyFat=BodyFat))

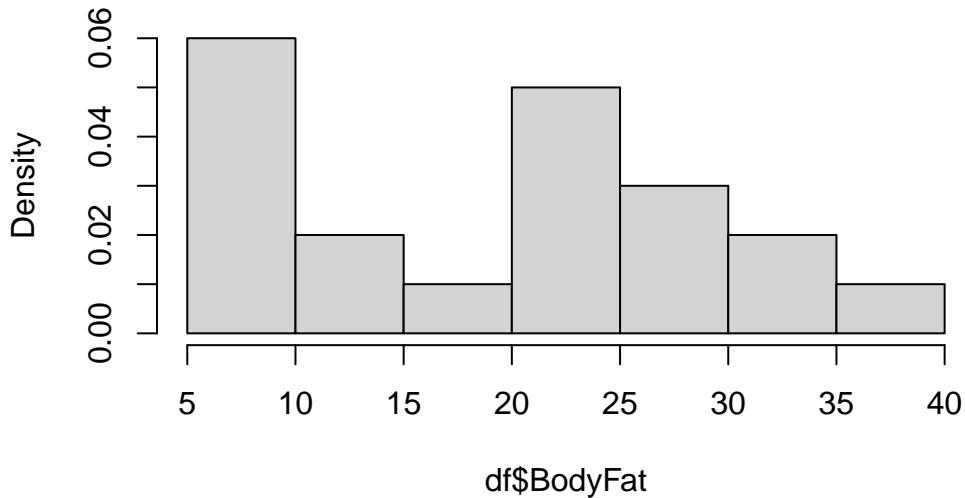
# make some histograms
hist(df$Weight,freq=F)

```



```
hist(df$BodyFat,freq=F)
```

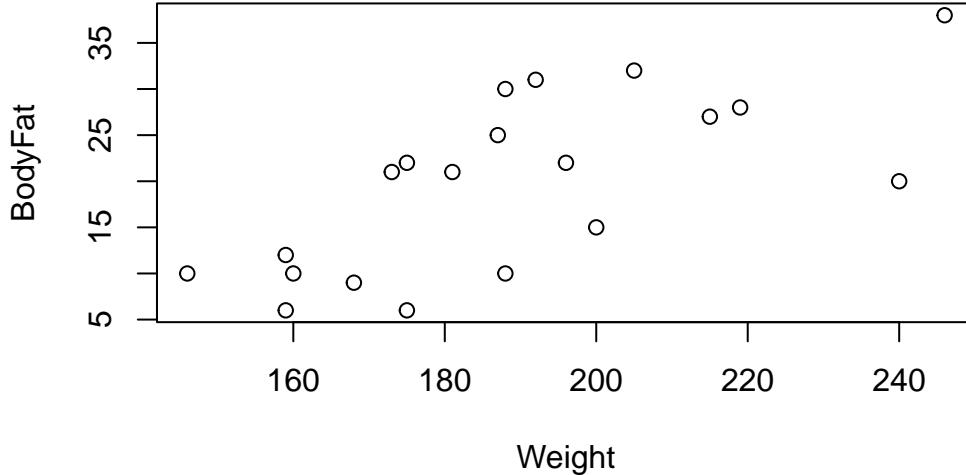
Histogram of df\$BodyFat



```
# print summary statistics
summary(df)
```

Weight	BodyFat
Min. :146.0	Min. : 6.00
1st Qu.:171.8	1st Qu.:10.00
Median :187.5	Median :21.00
Mean :188.6	Mean :19.75
3rd Qu.:201.2	3rd Qu.:27.25
Max. :246.0	Max. :38.00

```
# There seems to be some relationship here
plot(df)
```



```
# Here is the correlation matrix, notice it is high!
cor(df)
```

```
      Weight  BodyFat
Weight  1.0000000 0.6966328
BodyFat 0.6966328 1.0000000
```

We have observed that there is a relatively strong linear relationship between these two variables. What next? We might ask, what is this relationship precisely?

In particular, note that we have observed a sample of vectors $(Y_1, X_1), \dots, (Y_n, X_n)$. Now, we want to say something about the relationship between X and Y in general. One way to do that is to suppose at the **population** level that

$$\mathbb{E}[Y|X] = f(X).$$

That is, on average, Y is equal to $f(X)$. One way to do that is to assume that $Y|X = f(X) + \epsilon$, where ϵ is a random variable that satisfies $\mathbb{E}[\epsilon] = 0$. This assumption means that, for each Y_i , given X_i , we have that $Y_i = f(X_i) + \epsilon_i$. Note that we do not observe ϵ_i , but we can assume it exists. We can read this as Y_i is equal to $f(X_i)$, plus some random, individual error ϵ_i . The next step is to use the data to determine f .

Using the data analysis steps from the [Introduction](#) we can write out the first few steps:

- Question about a population: “How can we use weight to determine body fat percentage?”,
- Data: $(Y_1, X_1), \dots, (Y_{20}, X_{20})$, (Y_i, X_i) are the body fat percentage and weight of individual $i \in [20]$.

We have explored the data with graphs and summary statistics. Now, we have posited the model $Y|X = f(X) + \epsilon$. Letting f be any function is too general. In fact, we can use the data to learn more about what f might be. Recall that earlier, we saw the scatter plot, where it looked like there was a linear relationship, (with some error), between Y and X . (We can draw a straight line through the middle of the data.)

Let's make some assumptions that make the statistical analysis easier:

1. Assume that $\forall i \in [20]$, it holds that

$$Y_i|X_i = \beta_0 + \beta_1 X_i + \epsilon_i.$$

This means that we assume that f is a line.

2. Next, we assume $\forall i \in [20]$, $E[\epsilon_i] = 0$ and $\text{Var}[\epsilon_i] = \sigma^2$. That is, the random error have the same mean and variance for each individual. In addition, the random errors average to 0.
3. We also assume that the individuals' Body fat percentage, weights and random errors are independent, that is, $\epsilon_i \perp \epsilon_j$ for $i \neq j$, $i, j \in [20]$.

This is the **simple linear regression model**. That is, the simple linear regression model is the set of assumptions 1-3 given above.

It is often also assumed:

4. $\epsilon_i \sim \mathcal{N}(0, \sigma^2)$,

but not always. Including the normality assumption is known as the **simple normal linear regression model**.

In general, a model is a set of assumptions about a population. The particular set of assumptions 1-3 is the simple linear regression model.

The following is some terminology used in regression analysis:

- Here, Y_i is the **response variable**, also known as the dependent variable, or the outcome variable.
- Here, X_i is the **covariate**, also known as the explanatory variable, or the independent variable.

Given a “question about a population” which involves regression, you should immediately identify the response variable and the covariates.

Now, how can we interpret this model? That is, what does it mean to assume this model?

First, observe that we assume that $E[Y|X]$ is a line. This means there is a linear relationship between the average body fat percentage and weight.

Next, observe that for any individual, their actual body fat percentage is given by $Y = E[Y|X] + \epsilon_i = \beta_0 + \beta_1 X_i + \epsilon_i$. Therefore, their body fat percentage will not fall exactly on the line $\beta_0 + \beta_1 X_i$. Rather, it will fall above or below the line, depending on ϵ_i . Furthermore, if we assume that $\epsilon_i \sim \mathcal{N}(0, \sigma^2)$, then we know from the properties of the Normal distribution that this random error will not exceed 2σ with high probability. Therefore, most of the time, an individual’s body fat percentage will fall within 2σ of the line.

Third, notice that this quantity, 2σ , does not depend on X . That is, for any weight, we still expect an individual’s body fat percentage to be within 2σ of the line, regardless of the value of weight.

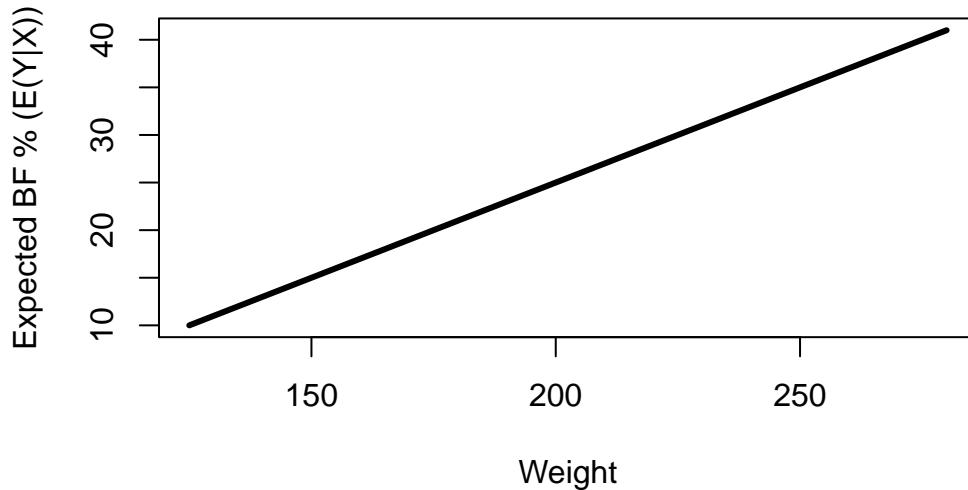
Fourth, if we knew β_0, β_1 , then given someone’s weight, we could try to predict their body fat percentage given their weight. That is, we could calculate the expected body fat $E[Y|X]$. There would still be their individual random error ϵ , so we would not be able to predict it exactly. However, if σ^2 isn’t too big, then we could produce an accurate prediction.

Therefore, if the model assumptions are correct, we assume there exists some line, around which the body fat percentages are scattered uniformly.

Next, we will simulate data from the normal simple linear regression model to gain a better understanding of this model. Suppose that $\beta_0 = -15$, $\beta_1 = .2$ and $\sigma = 5$. Then we would observe the following.

```
#####
# Simulation
set.seed(3252)

# Suppose that beta_0=-15 and beta_1=0.2 and sigma=5,
# then we would have that the mean function E(Y|X) is given by the following line:
curve(-15+.2*x, 125, 280, lwd=3, xlab="Weight", ylab="Expected BF % (E(Y|X))")
```



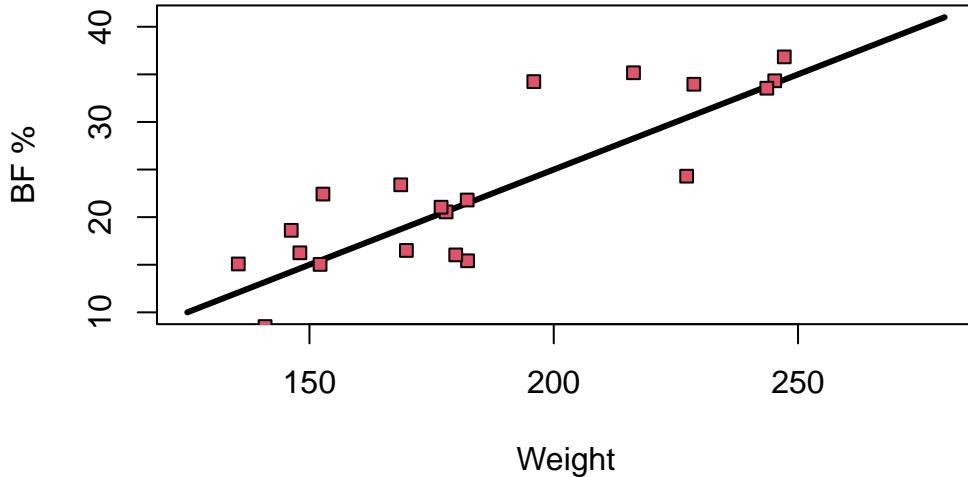
```
# Next, let's simulate some body weights from the uniform distribution
Weight2=runif(20,135,250)

# Then, we can simulate the population body fat percentages according to the model as follows

# Simulating 20 values of the random error,
epsilon=rnorm(n=20,mean=0,sd=5)

# Computing the simulated Body fat percentages:
Bfs=-15+.2*Weight2+epsilon

# Plot the simulated values, and the mean function
curve(-15+.2*x,125,280,lwd=3,xlab="Weight",ylab="BF %")
points(Weight2,Bfs,pch=22,bg=2)
```



Notice how the data are scattered around the line uniformly? This is what data from a simple linear regression model looks like. Try changing the value in `set.seed()` and re-running the code. Notice how the data changes, but it is always scattered around the line uniformly? This is what we expect to see if the data follow a simple linear regression model.

Notice how the data simulated from our model appears similar to the body fat percentage and weights data we observed? That means this model (set of assumptions) is a good fit for our data.

🔥 Caution

In this model, and in regression in general, the response Y is not exactly equal to some function of X given by $f(X)$. The model assumes that **on average** $Y = f(X)$. Therefore, knowing someones “ X ” value will not exactly give us their Y value, but it would give us a good guess at it. The error ϵ is used to model the fact that someones “ X ” value will not exactly give us their Y value. Notice above how the actual points are scattered around the line, and not exactly equal to it! This is due to the errors ϵ .

3.1.2 The multiple linear regression model

But what about matrices? Why did we study matrices then? We can write the regression model in terms of matrices and vectors, to make it more compact.

Now, recall

$$Y_i|X_i = \beta_0 + \beta_1 X_i + \epsilon_i,$$

with $\epsilon_i \sim \mathcal{N}(0, \sigma^2)$. It is more convenient mathematically to let $\mathbf{Y} = (Y_1, \dots, Y_n)^\top$,

$$\mathbf{X} = \begin{bmatrix} 1 & X_1 \\ \vdots & \vdots \\ 1 & X_n \end{bmatrix} = [1_n \mid (X_1, \dots, X_n)^\top],$$

$\beta = (\beta_0, \beta_1)^\top$ and $\epsilon = (\epsilon_1, \dots, \epsilon_n)^\top$. Then we can write

$$\mathbf{Y}|\mathbf{X} = \mathbf{X}\beta + \epsilon.$$

Often, we overload the notation Y , and use Y instead of \mathbf{Y} , and X instead of \mathbf{X} .

This form allows us to go beyond one explanatory variable very easily! Just add one column to X and one entry to β for each new variable. Observe the following model:

$$Y_i|(X_{i1}, \dots, X_{ik}) = \beta_0 + \beta_1 X_{i1} + \dots + \beta_k X_{ik} + \epsilon_i,$$

with $\epsilon_i \sim \mathcal{N}(0, \sigma^2)$ and $\epsilon_i \perp \epsilon_j$ for $i \neq j$, $i, j \in [n]$. This is known as the **multiple linear regression model** (MLR), or just the linear regression model for short. We can write this model in the same form as above: Let

$$\mathbf{X} = \begin{bmatrix} 1 & X_{11} & X_{1k} \\ \vdots & \vdots & \vdots \\ 1 & X_{n1} & \dots & X_{nk} \end{bmatrix},$$

and $\beta = (\beta_0, \dots, \beta_k)^\top$. Then we can write the MLR as

$$\mathbf{Y}|\mathbf{X} = \mathbf{X}\beta + \epsilon,$$

where $E[\epsilon] = 0$ and $\text{Var}[\epsilon] = \sigma^2 I$. Notice how compact this is! As in the simple case, there is also the **normal MLR**, which further assumes that $\epsilon \sim \mathcal{N}(0, \sigma^2 I)$.

We can then study the mathematical properties of

$$Y|X = X\beta + \epsilon$$

for general but fixed k , under the normal or vanilla MLR, which will cover many models.

3.1.3 Homework stop 1

Exercise 3.1. Try adjusting the parameters β_0, β_1, σ in the simulation, what happens to the data? What happens to the line?

Exercise 3.2. Is β an estimate or a population parameter? Why?

Exercise 3.3. Come up with another possible form of f that is not linear. Adjust the simulation to include this form of f .

Exercise 3.4. Write down the assumptions of the MLR and the normal MLR. What is the difference between the two models?

3.2 Least Squares

Now that we have settled on a model for the population, the next step is to use the data to estimate the model parameters. In particular, we need to estimate β . That will allow us to estimated $E[Y|X]$ for any value of X .

Recall that we want to study the **population** model:

$$Y|X = X\beta + \epsilon.$$

3.2.1 Notation

For the model $Y|X = X\beta + \epsilon$, we have

- $Y \in \mathbb{R}^n$ is the response variable (a continuous random variable).
- $X \in \mathbb{R}^{n \times p}$ is the covariate matrix (Note that the first column is often 1_n).
- $X_i \in \mathbb{R}^p$ is the i^{th} observed explanatory variable ($i = 1, \dots, n$) (not a random variable, in the sense that we condition on it).
- $\beta \in \mathbb{R}^{p \times 1}$ is the coefficient vector .
- $\epsilon \in \mathbb{R}^n$ is the random error (continuous random variable) .

We may also refer to the actual observed values (versus the abstract mathematical concept of a random variable) as follows:

- $y = (y_1, \dots, y_n)^\top \in \mathbb{R}^n$ is the observed response variable (fixed/observed)
- x_{ij} is the i^{th} observation of the j^{th} explanatory variable (fixed/observed) Data:

Observation	Observed data point
1	$(y_1, x_{11}, x_{12}, \dots, x_{1p})$
2	$(y_2, x_{21}, x_{22}, \dots, x_{2p})$
⋮	⋮
n	$(y_n, x_{n1}, x_{n2}, \dots, x_{np})$

We posit that

$$Y|X = X\beta + \epsilon,$$

where we assume that

- $\forall i \in [n], E[\epsilon_i] = 0.$
- $\forall i \in [n], \text{Var}[\epsilon_i] = \sigma^2$ (constant variance and is also known as homogeneity.)
- We also would assume that $\epsilon_i \perp \epsilon_j$ for $i \neq j, i, j \in [n].$
- $\beta \in \mathbb{R}^{p \times 1}$ is the unknown, population coefficient vector.
- $X \in \mathbb{R}^{n \times p}$ is a covariate matrix.

Let's talk about β . How do we interpret β ? Suppose we know β . Then:

Note that

$$E[Y_i|X_i] = E[\beta^\top X_i + \epsilon] = \beta^\top X_i = \beta_1 X_{1,1} + \dots + \beta_p X_{i,p}$$

What does each β_j mean? Suppose that X_j is a continuous covariate.

We can interpret (β_j) as follows:

Holding $X_{i,1}, \dots, X_{i,j-1}, X_{i,j+1}, \dots, X_{i,p}$ constant, a one unit increase in $X_{i,j}$ causes, on average, a β_j unit increase in Y_i .

From another angle, we have that $\partial E[Y]/\partial X = \beta$, therefore, the rate of change with respect to the j^{th} covariate is β_j .

🔥 Caution

The “on average” and “holding other covariates constant” are very important components of the interpretation. First, the on average acknowledges the random error ϵ . In other words, a one unit increase in $X_{i,j}$ will not certainly increase Y_i , but it will on average. Next, the “holding other covariates constant” is used to mention how correlations between covariates are handled by the model. Some of the covariates in the model may be correlated, so increases in a given covariate may often be associated with changes in another covariate. This is not accounted for in the coefficient vectors β . That is why we must specify “holding other covariates constant”.

For instance, if a model includes terms for years of education attained and income, we know that as the number of years of education increase we expect to see a rise in income levels. As a result, to interpret the effect of coefficient on income, we must “hold years of education constant”, comparing what is expected with income changes but education does not.

🔥 Caution

For now, we can assume that all of the covariates X_j are continuous variables. Later in the course, there may be categorical covariates. In this case, the β_j corresponding to the categorical covariates have a different interpretation. We will return to this later.

Recall Example 3.1. We assume $\forall i \in [20]$, it holds that

$$Y_i|X_i = \beta^\top X_i + \epsilon_i,$$

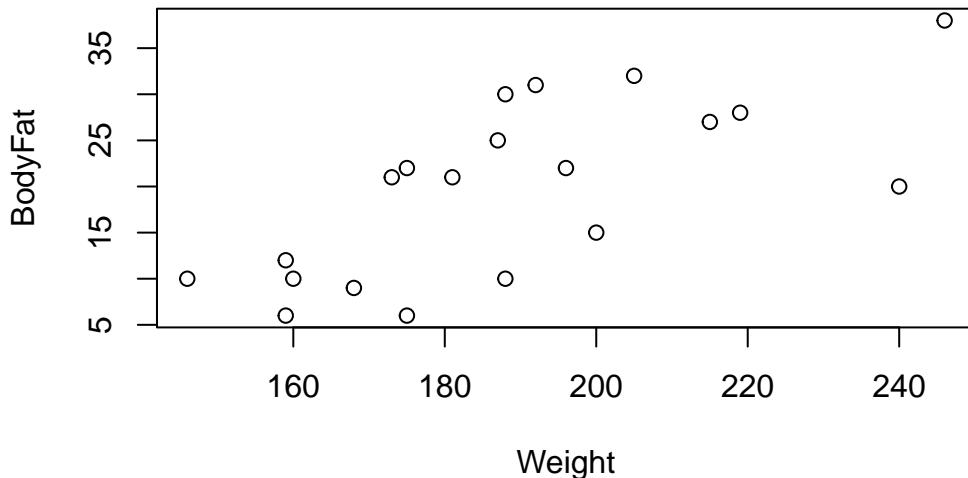
with $\epsilon_i \sim \mathcal{N}(0, \sigma^2)$, $\epsilon_i \perp \epsilon_j$ for $i \neq j$, $i, j \in [20]$. A one unit increase in weight causes, on average, a β_2 unit increase in body fat percentage. Since β_1 is the intercept, it has a special interpretation. β_1 is the average value of Y_i given $X_i = 0$. It is also helpful to note that $\text{cov}(Y) = \sigma^2 I$.

3.2.2 Least squares estimation

Okay, but we don't know β ! Just like we estimate the population mean with the sample mean, we need to estimate β . We would like an estimate $\hat{\beta}$, so that we can predict body fat percentage from weight. What is our best guess at β , given the data? One way to answer this, is through the method of **least squares**.

Returning to our example, recall that:

```
plot(df)
```

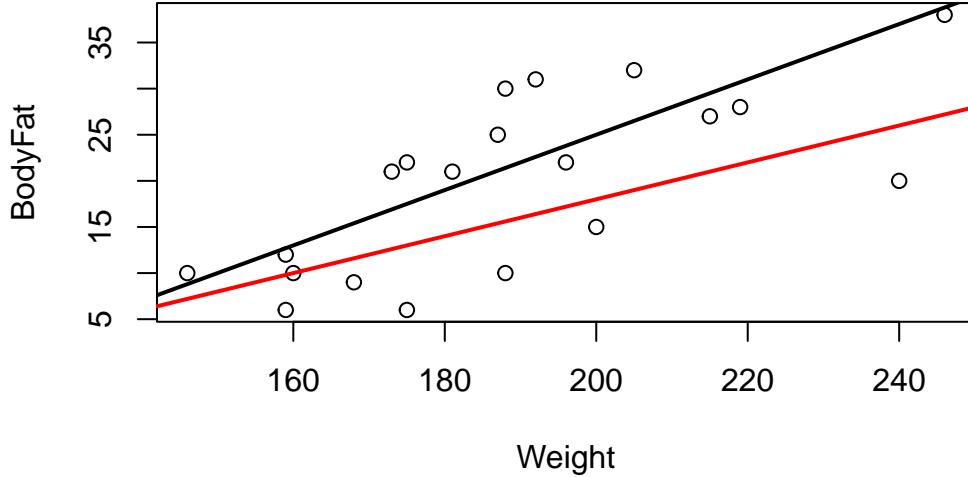


For example, suppose we want to determine if β is more likely to be $(-35, 0.3)^\top$ or $(-22, 0.2)^\top$. How can we say which line is a better fit to our data? One way is to graph them on top of the data and determine which one looks better. Let's plot these lines.

```

plot(df)
# plot Y=-35+0.3X
abline(-35,0.3,lwd=2)
# plot Y=-25+0.2X
abline(-22,0.2,col='red',lwd=2)

```



Its not clear which one fits the data better. Even if it was clear, obviously, we cannot plot all possible lines. So how can we determine which line fits the data the “best”?

To do this, we have to define what “best” means quantitatively. For instance, one might ask which line minimizes the sum of the squared distances of the observed data points to the line? This line is then said to be the “best” line. Mathematically, given a proposed value of β , say $\beta_0 \in \mathbb{R}^p$, the signed distance to the hyperplane $X\beta_0$ is $\epsilon_0 = Y - X\beta_0$. The squared distances to the hyperplane $X\beta_0$ is then $\epsilon_0^\top \epsilon_0 = (Y - X\beta_0)^\top (Y - X\beta_0)$. We can then formulate this as a math problem: Which $\beta_0 \in \mathbb{R}^p$ minimizes $\epsilon_0^\top \epsilon_0$? i.e., $\hat{\beta} = \operatorname{argmin}_{\beta_0 \in \mathbb{R}^p} \epsilon_0^\top \epsilon_0$. It is more convenient to just write

$$\hat{\beta} = \operatorname{argmin}_{\beta \in \mathbb{R}^p} (Y - X\beta)^\top (Y - X\beta).$$

In this framework, the “best” estimate is given by

$$\hat{\beta} = \operatorname{argmin}_{\beta \in \mathbb{R}^p} (Y - X\beta)^\top (Y - X\beta).$$

Note best is in the sense of minimizing the average squared distance to the hyperplane/line. We could also define best in terms of some other metric, such as average absolute distance to the hyperplane/line. For now, we will stick with this metric.

The next step is to solve:

$$\hat{\beta} = \underset{\beta \in \mathbb{R}^p}{\operatorname{argmin}} (Y - X\beta)^\top (Y - X\beta).$$

How do we minimize a function???

RECALL in calculus, to find the minimum of a function we:

1. Obtain the first two derivatives of the function.
2. Set the first derivative to zero and solve for the critical value.
3. Use the second derivative to verify the critical value minimized the function.

Goal: Compute $\hat{\beta}$ – Minimize $g(\beta) = (Y - X\beta)^\top (Y - X\beta)$. (It may be useful to review taking derivatives with respect to vectors [here](#).

Step 1a:

$$\begin{aligned} \frac{\partial g}{\partial \beta} &= \frac{\partial g}{\partial \beta} (Y - X\beta)^\top (Y - X\beta) \\ &= \frac{\partial g}{\partial \beta} [Y^\top Y - 2(X\beta)^\top Y + (X\beta)^\top X\beta] && \text{(Transpose and distribute)} \\ &= -2 \frac{\partial g}{\partial \beta} \beta^\top X^\top Y + \frac{\partial g}{\partial \beta} \beta^\top X^\top X\beta && ((AB)^\top = B^\top A^\top) \\ &= -2X^\top Y + 2X^\top X\beta && (\frac{\partial}{\partial x} x^\top Ax = 2A \text{ if } A \text{ symmetric}, \frac{\partial}{\partial x} x^\top a = a) \\ &= -2X^\top (Y - X\beta). \end{aligned}$$

Step 1b: (Do this for homework)

$$\frac{\partial^2 g}{\partial \beta \partial \beta^\top} = 2X^\top X.$$

Step 2: We now need $X^\top X$ to be invertible, so we will assume that X is full rank and $n \geq p$.

$$\begin{aligned} -2X^\top (Y - X\beta) &= 0 \\ \implies X^\top Y &= X^\top X\beta \\ \implies \beta &= (X^\top X)^{-1} X^\top Y. \end{aligned}$$

Step 3:

Recall that **if the Hessian matrix is positive definite at a critical point, then that critical point is a local minimum.** Since we have assumed X is full rank, this implies that $X^\top X$ is positive definite.

To summarize, the steps have proceeded as follows:

- Step 1a: $\frac{\partial g}{\partial \beta} = -2X^\top(Y - X\beta)$
- Step 1b: $\frac{\partial^2 g}{\partial \beta \partial \beta^\top} = 2X^\top X$ (Do this for homework)
- Step 2: $-2X^\top(Y - X\beta) = 0 \implies X^\top Y = X^\top X\beta \implies \beta = (X^\top X)^{-1}X^\top Y$
- Step 3: $2X^\top X$ is positive definite, and so

$$\hat{\beta} = (X^\top X)^{-1}X^\top Y.$$

The estimate $\hat{\beta}$ is known as the **least squares estimate** of the regression coefficients.

Definition 3.1. The **least squares estimate** of the regression coefficients is

$$\hat{\beta} = (X^\top X)^{-1}X^\top Y.$$

3.2.3 Example

Example 3.2. In the body weight example Example 3.1, write down X , Y and compute $\hat{\beta}$. Interpret $\hat{\beta}$.

First, we have that

$$Y = (6, 21, 15, 6, 22, 31, 32, 21, 25, 30, 10, 20, 22, 9, 38, 10, 27, 12, 10, 28)^\top$$

$$X = \left[1_{20} \mid (175, 181, 200, 159, 196, 192, 205, 173, 187, 188, 188, 240, 175, 168, 246, 160, 215, 159, 146, 219)^\top \right]$$

i Note

For matrices A, B which have the same number of rows, $C = [A|B]$ is horizontal concatenation of A and B . This notation indicates that the matrix C is formed by placing A and B side by side, joining them horizontally. Therefore, X is the matrix whose first column is made up of ones, and second column is made up of the body weights.

Let's use R to compute $\hat{\beta}$.

```
#Define X and Y
X=cbind(rep(1,nrow(df)), df$Weight)
Y=df$BodyFat

# cast to column vec
Y=matrix(Y,ncol=1)

#X'X
X_p_X=t(X)%*%X
```

```
#X'X inverse
X_p_X_inverse=solve(X_p_X)

#LS
beta_hat= X_p_X_inverse%*%t(X)%*%Y
beta_hat
```

```
[,1]
[1,] -27.3762623
[2,] 0.2498741
```

```
# We can also use R's lm() function to do this:
# This code is essential for the course.
# The first argument is the formula
model=lm(BodyFat ~ Weight, data=df)

#The summary function prints the model output.

summary(model)
```

```
Call:
lm(formula = BodyFat ~ Weight, data = df)

Residuals:
    Min      1Q  Median      3Q     Max 
-12.5935 -5.7904  0.6536  5.2731 10.4004 

Coefficients:
            Estimate Std. Error t value Pr(>|t|)    
(Intercept) -27.37626   11.54743  -2.371 0.029119 *  
Weight       0.24987    0.06065   4.120 0.000643 *** 
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 7.049 on 18 degrees of freedom
Multiple R-squared:  0.4853,    Adjusted R-squared:  0.4567 
F-statistic: 16.97 on 1 and 18 DF,  p-value: 0.0006434
```

```
# The least squares estimates are given in the Estimate column of the summary.
```

The `lm()` function is used to fit multiple linear regression models in R. The basic usage involves specifying a formula and a data frame. The syntax is given by `lm(formula, data, ...)`.

The data argument should be the data frame which contains your data. The formula argument is used to specify the model to be fitted. It provides a symbolic description of the model, indicating the response variable and the predictors/covariates, as well as the relationships between them. The left-hand side should be the name of your response variable, as it is named in your data frame. To see the names of your variables use the `names()` function, e.g., `names(df)`. The right-hand side contains the covariates you want to include in your model. For instance, above, the formula is given by `BodyFat ~ Weight`. Note that `BodyFat` is the response and `Weight` is the covariate.

We now list some important properties of the least squares estimator.

Exercise 3.5. Compute $E[\hat{\beta}]$ and $\text{cov}(\hat{\beta})$.

Solution 3.1. It holds that $E[\hat{\beta}] = \beta$ and $\text{cov}(\hat{\beta}) = \sigma^2 I$.

Recall that an estimator is **unbiased** if its expectation equals the population parameter it is trying to estimate. After completing Exercise 3.5 you will see that $\hat{\beta}$ is unbiased for the parameter β .

The least squares estimator is also the “best linear unbiased estimator”, or the BLUE. This is known as the **Gauss–Markov** theorem. This means that under the assumptions of the linear regression model, over any unbiased estimator of β we can construct, which is a linear combination of Y_1, \dots, Y_n , the estimator $\hat{\beta}$ has the smallest variance (and therefore, the smallest mean squared error). Recall that for an estimator $\hat{\alpha}$, the mean squared error is given by $E[||\beta - \hat{\alpha}||^2]$.)

The Gauss–Markov theorem does not require the random error to be normally distributed. If we are willing to assume that $\epsilon \sim \mathcal{N}(0, \sigma^2 I)$, then $\hat{\beta}$ is also the **maximum likelihood estimator** and the “uniformly minimum-variance unbiased estimator”, or **UMVUE**. This means that $\hat{\beta}$ has lower variance than any other unbiased estimator, no matter what the true value of β is.

One might ask, how can we use $\hat{\beta}$ to predict body fat percentage given weight? The estimate $\hat{\beta}$ gives us a best guess at the coefficients. Therefore, our best guess at someone's body fat is given by

$$\text{Best Guess} = -27.3762623 + 0.2498741 \times \text{Weight}.$$

For instance, for someone who is 170 pounds, we would guess that their body fat percentage is $-27.3762623 + 0.2498741 \times 170 = 15.1023347$.

3.2.4 Homework stop 2

Exercise 3.6. Why do we need $\hat{\beta}$, why not use β ?

Exercise 3.7. Is $\hat{\beta}$ an estimate or a population parameter? What about β ?

Exercise 3.8. Compute, X , Y and $\hat{\beta}$ in the following real data example:

It is challenging to assess a student's understanding of a subject without administering an exam. However, we can easily record the number of hours a student studies. A researcher would like to know if the number of hours studied and exam scores are related. This researcher collected the following data:

Student	Hours Studied	Exam Score (%)
1	5	55
2	8	65
3	12	78
4	6	58
5	10	72
6	9	68
7	15	85
8	7	60
9	11	74
10	13	80
11	14	82
12	20	90
13	5	55
14	6	59
15	18	88
16	7	62
17	16	86
18	4	50
19	3	45
20	19	89

To help you, here is some R code the dataset:

```
# Data
study_data <- data.frame(
  Student = 1:20,
  Hours_Studied = c(5, 8, 12, 6, 10, 9, 15, 7, 11, 13, 14, 20, 5, 6, 18, 7, 16, 4, 3, 19),
```

```

Exam_Score = c(55, 65, 78, 58, 72, 68, 85, 60, 74, 80, 82, 90, 55, 59, 88, 62, 86, 50, 45,
)

```

3.3 Least squares inference

Recall we **estimate** the parameter β using least squares:

Recall that $\hat{\beta} = (X^\top X)^{-1} X^\top Y$. We can predict a new weight $Y_{new}|X = x$ with $\hat{y}_{new} = x^\top \hat{\beta}$. We may be interested in the following questions: How good is \hat{y}_{new} as a prediction, on average? How will new observations vary about the line? For example, given a specific weight, how will does body fat percentage vary around the regression line? How does $\hat{\beta}$ vary around β ? Is there strong evidence that Y has a relationship with X ? Is X adding information about Y at all?

To answer these questions, we need to look at the variation of our estimates and our data.

3.3.1 Important quantities: Residuals and fitted values

We now introduce some very important quantities: We call the estimated values given our observed X the fitted values: $\hat{Y} = X\hat{\beta}$. The fitted values are what our model would estimate the vector Y to be. We call $\hat{\epsilon} = Y - \hat{Y}$ is the **residual vector**. The i th entry of $\hat{\epsilon}$, say $\hat{\epsilon}_i$, is the i th **residual**. The residuals are the signed distances from the response variable to the estimated regression hyperplane. The **sum of squared error** or **sum of squared residuals** (SSE) is given by $\hat{\epsilon}^\top \hat{\epsilon} = \sum_{i=1}^n \hat{\epsilon}_i^2$. Note that since we estimated β using the least squares method, $\hat{\epsilon}^\top \hat{\epsilon}$ is minimized (with respect to varying β).

Example 3.3. Recall Example 3.1. What is the residual of individual 3? How can we interpret this value?

```
residuals=Y-X%*%beta_hat; residuals
```

```

[,1]
[1,] -10.3517117
[2,]  3.1490434
[3,] -7.5985652
[4,] -6.3537255
[5,]  0.4009314
[6,] 10.4004279
[7,]  8.1520641
[8,]  5.1480365
[9,]  5.6497986

```

```

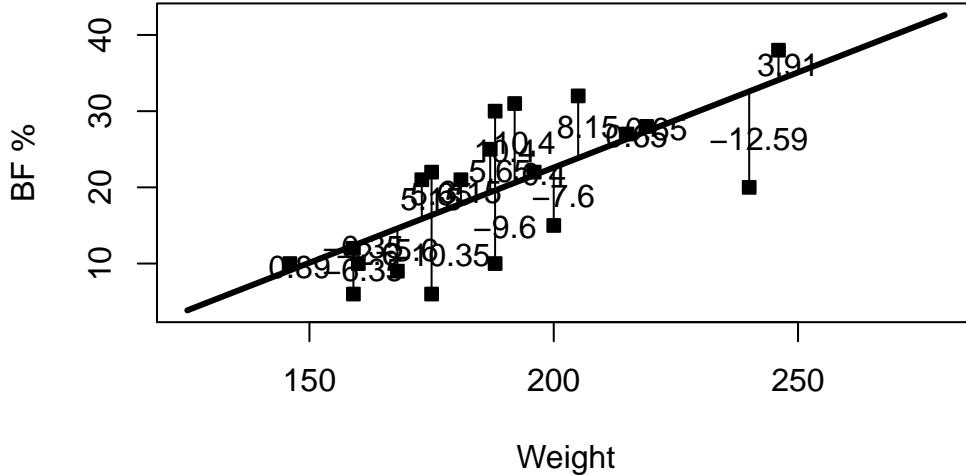
[10,] 10.3999245
[11,] -9.6000755
[12,] -12.5935307
[13,] 5.6482883
[14,] -5.6025928
[15,] 3.9072245
[16,] -2.6035997
[17,] 0.6533228
[18,] -0.3537255
[19,] 0.8946383
[20,] 0.6538262

# This means that individual 3's body fat is 7.5 percentage points lower than the fitted line
residuals[3]

[1] -7.598565

# We can go further and and plot all of the residuals
curve(beta_hat[1]+beta_hat[2]*x,125,280,lwd=3,xlab="Weight",ylab="BF %")
points(Weight,BodyFat,pch=22,bg=1)
Yvals=cbind(BodyFat,model$fitted.values)
Xvals=cbind(Weight,Weight)
for(i in 1:nrow(Yvals)){
  lines(Xvals[i,],Yvals[i,])
  text(Xvals[i,1]+2,mean(Yvals[i,]),round(residuals[i],2))
}

```



```
# Then, the population body fat percentages, given weights will look like this:
#
# Bfs=-15+.2*Weight+rnorm(20,0,sd=5)
```

3.3.2 Variation decomposition

Variance decomposition is a fundamental concept that explains how the total variation in the response variable can be partitioned into different sources. This decomposition is crucial for evaluating the performance of the regression model and understanding the contributions of various factors.

The residuals describe one type of variation of the response values. We can also consider the total variation of the response. The total variation of the response, or the **sum of squares total/total sum of squares (SST)** is given by $SST = (n - 1)\hat{\sigma}_y^2 = \sum_{i=1}^n (Y_i - \bar{Y})^2 = (Y - \bar{Y}1)^T(Y - \bar{Y}1)$. It can be shown that the SST can be decomposed as follows:

$$SST = (Y - \bar{Y}1)^T(Y - \bar{Y}1) = (Y - \hat{Y})^T(Y - \hat{Y}) + (\hat{Y} - \bar{Y})^T(\hat{Y} - \bar{Y}) = \hat{\epsilon}^T\hat{\epsilon} + (\hat{Y} - \bar{Y})^T(\hat{Y} - \bar{Y}).$$

That is, $SST = SSE + SSModel$ where

- $SSModel$, OR SSM measures the total variations of the response explained by the covariates X via the model based on $\hat{\beta}$.

- SSE measures the total variations of the response unexplained by the covariates X via the model based on $\hat{\beta}$.
- Note there are sometimes other names for SSE and $SSModel$, such as $SSRegression$, $SSwithin$ and $SSbetween$, etc.

So, we have that the total variation in the response can be broken down into that which is explained by the X values, and that which is unexplained.

An interesting observation is given as follows: The first column of the X matrix is given by 1_n , which implies that

$$\bar{Y}1 = X \begin{bmatrix} \bar{Y} \\ 0 \end{bmatrix}.$$

This means that if we let $\hat{\beta}_* = (\bar{Y}, 0, \dots, 0)^\top$, then $(Y - \bar{Y}1)$ would be the signed distances to (or the residuals of) the regression hyperplane corresponding to $\hat{\beta}_*$. Since $\hat{\beta}$ minimizes the sum of squared residuals, we must have that the hyperplane corresponding to $\hat{\beta}$ has a smaller sum of squared residuals than the regression hyperplane corresponding to $\hat{\beta}_*$. Therefore, we must have that $\hat{\epsilon}^\top \hat{\epsilon} \leq (Y - \bar{Y}1)^\top (Y - \bar{Y}1)$.

Each of these terms in the decomposition is associated with a certain number of **degrees of freedom**.

- Total: $dfT = n - 1$.
- Model: $dfM = \# \text{ non-zero } \beta - 1$.
- Error: $dfE = n - \# \text{ non-zero } \beta$.

Intuitively, since the SSE is the variance unexplained by the model/covariates, the SSE is related to the error variance σ^2 . In fact, to estimate σ^2 , we use

$$\hat{\sigma}^2 = MSE = \frac{SSE}{dfE}.$$

The null model is defined as $Y|X = \beta_0 + \epsilon$. This is the model where the last $p - 1$ terms in the true vector β are 0. This model says that Y does not depend on X . In the null model, we only need to estimate the mean, so $df = n - 1$. Therefore, under the null model,

$$\begin{aligned} \hat{\sigma}^2 &= (n - 1)^{-1} SST = \hat{\sigma}_Y^2 \\ &= (n - 1)^{-1} \sum_{i=1}^n (Y_i - \bar{Y})^2 = (n - 1)^{-1} (Y - \bar{Y}1)^\top (Y - \bar{Y}1). \end{aligned}$$

Therefore, in the null model, the estimate of σ^2 via the MSE is just the usual estimate of the variance of the response. This is intuitive!

The following table can be used to summarize the variation in the response:

Source	SS	df	MS
Model	SSM	dfM	$MSModel = SSM/dfM$
Residual	SSE	dfE	$MSE = SSE/dfE$
Total	SST	dfT	

i Note

It is very important to be able to interpret these terms! The derivation is also important. However, we can use a machine to compute anything for us, so memorizing the formula is not helpful.

3.3.3 Coefficients of determination

A model is a good model if it can explain a fair amount of the variation in the response. (You can think that the model explains “changes” in the response.) In other words, $SSModel$ should be as close to $SSTotal$ as possible; or equivalently, $SSError$ should be as close to 0 as possible. Now, “close” is a relative term, and so we need another value to reference to. This is where the R^2 comes in:

$$R^2 = \frac{SSModel}{SST},$$

and is the proportion of variation explained by the model. It is clear that $0 \leq R^2 \leq 1$, and so rescaling the data will not affect R^2 (like it would affect the sum of squares terms SST, SSE, SSM). If R^2 is close to 1, it is large – “close to 1” is a subjective/area dependent. Generally, the larger the R^2 , the better the model!

To compare different models, we could potentially add different covariates and see if R^2 improves. However, every time you add any variable, R^2 will always increase. Therefore, it is common to use the adjusted coefficient of determination:

$$\bar{R}^2 = 1 - (1 - R^2) \frac{n - 1}{n - p}.$$

Thus, the (adjusted) coefficient of determination can be used as a measure of how well the regression model fits the data (how much variance is explained). It could also be used to compare models.

3.3.4 The F test

The coefficients of determination are summary statistics which give an idea of the fit of the model. We would also like a significance test that tells us whether the covariates explain Y , or what we observed was simply due to sampling variation.

If $\beta = (\beta_1, \dots, \beta_p)^\top$ then let $\tilde{\beta} = (\beta_2, \dots, \beta_p)^\top$. That is $\tilde{\beta}$ is the regression coefficients without the intercept term. Similarly, let $\tilde{\hat{\beta}} = (\hat{\beta}_2, \dots, \hat{\beta}_p)^\top$. Now, we want to avoid the situation where $\tilde{\beta} = 0$ but $\tilde{\hat{\beta}} \neq 0$ due to sampling variation.

To do this, we perform a significance test:

$$H_0 : \tilde{\beta} = 0 \quad vs \quad H_1 : \tilde{\beta} \neq 0.$$

First, we need the normality assumption to perform significance test: Assume $\epsilon_i \sim \mathcal{N}(0, \sigma^2)$. With this assumption, the model is then known as the **Normal Multiple Linear Regression Model**. It is important to note that the least squares method does not require this assumption, and this assumption is required only for the significance test to be valid. To test the hypothesis stated above, we use the overall F test and the observed test statistic is $F_{obs} = MSModel/MSE$. Why?

With the extra normality assumption, we have the following holds:

- $Y|X$ is normally distributed.
- We have that $SSM/\sigma^2 \sim \chi^2_{dfM}$ and $SSE/\sigma^2 \sim \chi^2_{dfE}$.
- Furthermore, $SSM \perp SSE$.

Recall that the ratio of two independent χ^2 distributions divided by their respective degrees of freedom follows an F distribution. Therefore, we have that $F_{obs} \sim F_{dfM, dfE}$. The corresponding p-value is $\Pr(W > F_{obs})$ where $W \sim F_{dfM; dfE}$. We can alternatively reject the null hypothesis if $F_{obs} > F_{dfM; dfE, 1-\alpha}$, where $F_{dfM; dfE, 1-\alpha}$ is the $1 - \alpha$ quantile of the $F_{dfM, dfE}$ distribution.

We can now present the complete ANOVA table

Source	SS	df	MS	F	p-value
Model	SSM	dfM	$MSModel = \frac{SSR}{dfM}$	$F = \frac{MSModel}{MSE}$	$\Pr(W > F_{obs})$
Residual	SSE	dfE	$MSE = \frac{SSE}{dfE}$		
Total	SST	dfT			

Example 3.4. In Example 3.1, compute and interpret the coefficients of determination. Compute and interpret the ANOVA table. Test whether the regression model is significant. (This means perform the F test.)

```
# recall
head(df)
```

```

Weight BodyFat
1    175      6
2    181     21
3    200     15
4    159      6
5    196     22
6    192     31

# The F test results are given in the summary
summary(model)

```

```

Call:
lm(formula = BodyFat ~ Weight, data = df)

Residuals:
    Min      1Q  Median      3Q     Max 
-12.5935 -5.7904  0.6536  5.2731 10.4004 

Coefficients:
            Estimate Std. Error t value Pr(>|t|)    
(Intercept) -27.37626   11.54743  -2.371 0.029119 *  
Weight       0.24987    0.06065   4.120 0.000643 *** 
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 7.049 on 18 degrees of freedom
Multiple R-squared:  0.4853,    Adjusted R-squared:  0.4567 
F-statistic: 16.97 on 1 and 18 DF,  p-value: 0.0006434

```

```

# The ANOVA table is given below

# First define the null model object using lm()
# This line fits a model with only the intercept term
null_model=lm(BodyFat~1,data=df)

# This line gets the ANOVA table
anova(null_model,model)

```

Analysis of Variance Table

```

Model 1: BodyFat ~ 1
Model 2: BodyFat ~ Weight
  Res.Df      RSS Df Sum of Sq      F    Pr(>F)
1       19 1737.75
2       18  894.42  1     843.33 16.972 0.0006434 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

```
# We can also do this by hand:
```

```

# Store sample size
n=nrow(df)
p=2

# Compute sum of squares
SST=t(Y-mean(Y)*rep(1,n))%*%(Y-mean(Y)*rep(1,n))
Yhat=X%*%beta_hat
res=Y-Yhat
SSE=t(res)%*%res
SSM=SST-SSE

dfe=n-p
dfm=p-1
MSM=SSM/dfm

MSE=SSE/dfe

Fv=MSM/MSE

p.val=1-pf(Fv,dfm,dfe)

# ANOVA Table:
ANOVA_Table=rbind(c(SSM,dfe,MSM,Fv,p.val),c(SSE,dfe,MSE,NA,NA),c(SST,n-1,NA,NA,NA))
rownames(ANOVA_Table)=c("Model","Error","Total")
colnames(ANOVA_Table)=c("SS","df","MS","F","p-value")
ANOVA_Table

```

	SS	df	MS	F	p-value
Model	843.3252	18	843.32521	16.97164	0.0006434484
Error	894.4248	18	49.69027	NA	NA

Total 1737.7500 19 NA NA

3.3.5 Homework stop 3

Exercise 3.9. In the following real data example: **Compute and interpret** the coefficient of determination, the adjusted coefficient of determination and perform the F test for model significance. Including printing the ANOVA table, the null and alternative hypothesis, an interpretation of the p-value and the conclusion of the test.

It is challenging to assess a student's understanding of a subject without administering an exam. However, we can easily record the number of hours a student studies. A researcher would like to know if the number of hours studied and exam scores are related. This researcher collected the following data:

Student	Hours Studied	Exam Score (%)
1	5	55
2	8	65
3	12	78
4	6	58
5	10	72
6	9	68
7	15	85
8	7	60
9	11	74
10	13	80
11	14	82
12	20	90
13	5	55
14	6	59
15	18	88
16	7	62
17	16	86
18	4	50
19	3	45
20	19	89

To help you, here is some R code the dataset:

```
# Data
study_data <- data.frame(
  Student = 1:20,
```

```

Hours_Studied = c(5, 8, 12, 6, 10, 9, 15, 7, 11, 13, 14, 20, 5, 6, 18, 7, 16, 4, 3, 19),
Exam_Score = c(55, 65, 78, 58, 72, 68, 85, 60, 74, 80, 82, 90, 55, 59, 88, 62, 86, 50, 45,
)

```

Exercise 3.10. Write down the interpretations of: SSE , MSE , R^2 , \bar{R}^2 , SSM .

Exercise 3.11. What is the interpretation of the p-value in the ANOVA table?

Exercise 3.12. What extra assumption is needed to perform the F -test?

3.3.6 Significance of one variable

So far, we have learned that the least squares method yields the following estimate of $\hat{\beta} = (X^\top X)^{-1} X^\top Y$ with $E[\hat{\beta}] = \beta$ and $\text{cov}(\hat{\beta}) = (X^\top X)^{-1} \sigma^2$. Moreover, we use MSE to estimate σ^2 . Next, we learned that we can summarize the SS , df , and MS in an ANOVA table. We used the F test and the coefficient of determination to evaluate the quality of the model, i.e., to see the amount of information X provides about Y .

When the model is a significant model, then, at least one of the individual explanatory variables is useful in explaining the response. We may be interested in whether a specific covariate, or set of covariates is useful in explaining the response variable. We now learn how we can test for the significance of each individual explanatory variable separately and how we can test for the significance of a subset of explanatory variables. Note that these tests also require that the random error is normally distributed.

To test for significance and compute confidence intervals of a single variate, we have to compute the distribution of $\hat{\beta}_j$. We first compute the mean and variance of $\hat{\beta}_j$. First, given that $E(\hat{\beta}) = \beta$, we have $E(\hat{\beta}_j) = \beta_j$. Next, $\text{Var}[\hat{\beta}_j]$ is the $(j, j)^{th}$ entry of $\text{cov}(\hat{\beta})$. In addition, we have derived that $\text{cov}(\hat{\beta}) = (X^\top X)^{-1} \sigma^2$.

Now, recall that if Z is multivariate normal, i.e., $Z \sim \mathcal{N}(\mu, \Sigma)$, then $b + AZ \sim \mathcal{N}(b + A\mu, A\Sigma A^\top)$, i.e., $b + AZ$ is also multivariate normal. Therefore, since we have assumed that $\epsilon \sim \mathcal{N}_n(0, \sigma^2 I)$ and that $Y|X = X\beta + \epsilon$, it follows that $Y|X \sim \mathcal{N}_n(X\beta, \sigma^2 I)$. Next, we may recall that $\hat{\beta} = (X^\top X)^{-1} XY$. Let $A = (X^\top X)^{-1} X$. Then $\hat{\beta} = AY$. It follows that $\hat{\beta}$ is also multivariate normal! Putting everything together, we have that $\hat{\beta} \sim \mathcal{N}_p(\beta, (X^\top X)^{-1} \sigma^2)$.

Theorem 3.1. Under the assumptions of the **normal linear regression model** it holds that $\hat{\beta} \sim \mathcal{N}_p(\beta, (X^\top X)^{-1} \sigma^2)$.

Now that we have the distribution of $\hat{\beta}$, we can use it to compute the confidence intervals for β_j s.

Recall from introductory statistics (MATH 1131) that you learned that if we want to compute a confidence interval for the sample mean and the sample variance was unknown, we had to estimate the variance. Similarly, here, the variance of $\hat{\beta}_j$ contains σ , an unknown parameter. Recall that, we estimate σ^2 by MSE , and so we can estimate the variance of $\hat{\beta}_j$ by $\widehat{\text{Var}}[\hat{\beta}_j] = (X^\top X)_{j,j}^{-1}MSE$.

It can be shown that $\hat{\beta} \perp MSE$. Therefore, we have that

$$\frac{\hat{\beta}_j - \beta_j}{\sqrt{\widehat{\text{Var}}(\hat{\beta}_j)}} \sim t_{dfE}.$$

Now that we know the distribution of $\hat{\beta}_j$, we can perform significance testing and compute confidence intervals.

If we want to test

$$H_0: \beta_j = \beta_j^0 \quad vs \quad \beta_j \neq \beta_j^0$$

we can do the following.

The observed test statistic is $TS = \frac{\hat{\beta}_j - \beta_j^0}{\sqrt{\widehat{\text{Var}}(\hat{\beta}_j)}}$. Note that, under the null hypothesis, we have that

$\frac{\hat{\beta}_j - \beta_j^0}{\sqrt{\widehat{\text{Var}}(\hat{\beta}_j)}} \sim t_{dfE}$. Thus, the corresponding p-value is obtained based on the t_{dfE} distribution. Specifically, we can compute the p-value $\Pr(-|TS| < Z) + \Pr(|TS| > Z) = 2 * \Pr(|TS| > Z)$, where $Z \sim t_{dfE}$.

The test proceeds as follows:

1. State the hypotheses

$$H_0: \beta_j = \beta_j^0 \quad vs \quad H_1: \beta_j \neq \beta_j^0.$$

2. Compute the test statistic $\frac{\hat{\beta}_j - \beta_j^0}{\sqrt{\widehat{\text{Var}}(\hat{\beta}_j)}}$ and the p-value.
3. Interpret the p-value, and use it to decide whether you reject the null hypothesis.

Often, one may choose a threshold α , and reject the null hypothesis if the p-value falls below that threshold. Other times, we use the p-value as a description of evidence against the null. If it is larger than 0.05, but still small, then that still constitutes some evidence against the null hypothesis.

Let's now discuss one-sided hypotheses. First, consider:

$$H_0: \beta_j \leq \beta_j^0 \quad vs \quad H_1: \beta_j > \beta_j^0$$

Then, if the alternative hypothesis is true, we expect TS to be positive. The p-value is given by $\Pr(TS > Z)$, where $Z \sim t_{dfE}$. Notice that the p-value is measuring how extremely positive TS is. Using the threshold method, we can also check if $TS > t_{dfE,1-\alpha}$. Next, if we want to test

$$H_0: \beta_j \geq \beta_j^0 \quad vs \quad H_1: \beta_j < \beta_j^0,$$

then if the alternative hypothesis is true, we expect TS to be negative. The p-value is given by $\Pr(TS < Z)$, where $Z \sim t_{dfE}$. Notice that the p-value is measuring how extremely negative TS is. Using the threshold method, we can also check if $TS < t_{dfE,\alpha}$.

i Note

We use $t_{k,p}$ to denote the p th quantile of the t distribution with k degrees of freedom. For $p = 0.025$ and large k , this is approximately equal to 2.

In Example 3.1, test if the coefficient for weight is not equal to 1. Next, test if the coefficient for weight is greater than 1. Lastly, test if the coefficient for weight is not equal to 0.

First, we have that

$$H_0: \beta_1 = 15 \quad vs \quad H_1: \beta_1 \neq 15.$$

Now, let's execute the test:

```
#changing matrix to scalar
MSE=c(MSE)
hvar_beta=solve(t(X) %*% X)*MSE

TS=beta_hat[2]/sqrt(hvar_beta[2,2])

# not equal
# pt(x,df) is the CDF of a t distributed RV with df degrees of freedom at x.
p_val=2*(1-pt(abs(TS),dfe))
p_val
```

[1] 0.0006434484

```
# We can also use the model object to test if it is not equal to 0:
# The test statistic and the pvalue are given in the t value and Pr(>|t|) columns, respectively
summary(model)
```

Call:

```

lm(formula = BodyFat ~ Weight, data = df)

Residuals:
    Min      1Q  Median      3Q     Max 
-12.5935 -5.7904  0.6536  5.2731 10.4004 

Coefficients:
            Estimate Std. Error t value Pr(>|t|)    
(Intercept) -27.37626   11.54743  -2.371 0.029119 *  
Weight       0.24987    0.06065   4.120 0.000643 *** 
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 7.049 on 18 degrees of freedom
Multiple R-squared:  0.4853,    Adjusted R-squared:  0.4567 
F-statistic: 16.97 on 1 and 18 DF,  p-value: 0.0006434

```

Based on the concepts that you have learned in 1131, and what we have reviewed in previous lectures, it also follows from the above analysis that a $(1 - \alpha)100$ confidence interval for β_j is

$$\hat{\beta}_j \pm t_{dfE,\alpha/2} \sqrt{\widehat{var}(\hat{\beta}_j)}.$$

:::{#exm-3-4-2} In Example 3.1, compute a 99% and a 95% confidence interval for the coefficient for weight. Which one is longer? Why? Interpret these intervals. :::

```
# By hand
beta_hat[2]+c(-1,1)*qt(0.975,dfe)*sqrt(hvar_beta[2,2])
```

```
[1] 0.1224448 0.3773035
```

```
beta_hat[2]+c(-1,1)*qt(0.995,dfe)*sqrt(hvar_beta[2,2])
```

```
[1] 0.07528522 0.42446306
```

```
# Auto software/using lm:
confint(model, level=0.95)
```

	2.5 %	97.5 %
(Intercept)	-51.6365090	-3.1160157
Weight	0.1224448	0.3773035

```
confint(model, level=0.99)
```

	0.5 %	99.5 %
(Intercept)	-60.61484736	5.8623227
Weight	0.07528522	0.4244631

If we took many samples of size 20 and computed a 95% (99%) confidence interval for each sample, then 95% (99%) of them would contain the true coefficient for the weight variable. We can conclude that with 95% (99%) confidence, the true coefficient for weight likely falls within (0.12, 0.38) ((0.08,0.42)).

🔥 Caution

The key to understanding a confidence interval is to realize that the end points of the interval depend on the sample, and are therefore, random. On the other hand, the population parameter is not random, it is fixed. Therefore, if we drew a different sample, the interval would move, and there is a $(1 - 100\alpha)\%$ chance that that interval catches the population parameter. Most of the time it will contain the parameter, but not always.

Recall that the point of computing a confidence interval is to report the uncertainty in our estimate that resulted from drawing a sample. We expect the true parameter to be somewhere in that range, and our best guess at the parameter is given by the center of the interval.

3.3.7 Inference for the mean response and prediction intervals

We may wish to estimate the average response at a specific set of the covariates x . Given x , the theoretical mean response is $x^\top \beta$. Given x , we can estimate the mean response as $x^\top \hat{\beta}$. For instance, what is the average body fat percentage at 160 pounds? How accurate is our estimate? We can use a confidence interval to answer this question.

Note that the expectation and variance of the estimate of the mean response are given by $E[x^\top \hat{\beta}] = x^\top \beta$ and $\text{Var}[x^\top \hat{\beta}] = x^\top (X^\top X)^{-1} x \sigma^2$. Again, we must estimate σ and we can write $\hat{\text{Var}}[x^\top \hat{\beta}] = x^\top (X^\top X)^{-1} x MSE$.

Exercise 3.13. Under the assumptions of the normal linear regression model, show that for a fixed covariate vector $x \in \mathbb{R}^p$, $x^\top \hat{\beta}$ has a multivariate normal distribution and find its mean and variance. Argue that $\frac{x^\top \hat{\beta} - x^\top \beta}{\sqrt{\hat{\text{Var}}[x^\top \hat{\beta}]}} \sim t_{dfE}$.

It can be shown that a $(1 - \alpha)100\%$ confidence interval for the mean response $E[Y|X = x]$ is

$$x^\top \hat{\beta} \pm t_{dfE, \alpha/2} \sqrt{\hat{\text{Var}}[x^\top \hat{\beta}]}.$$

Similarly, if we want to test

$$H_0: E[Y|X = x] = \mu_0 \quad vs \quad E[Y|X = x] \neq \mu_0$$

we can do the following:

The observed test statistic is $TS(x, \mu_0) = \frac{x^\top \hat{\beta} - \mu_0}{\sqrt{\hat{\text{Var}}[x^\top \hat{\beta}]}}$. Observe that under the null hypothesis, we have that $TS(x, \mu_0) \sim t_{dfE}$. Therefore, the p-value is given by $2 * \Pr(|TS(x, \mu_0)| > Z)$.

Similar to the previous section, we can also perform one-sided tests:

- Right-sided test ($H_1: x^\top \beta > \mu_0$): p-value $\Pr(TS(x, \mu_0) > Z)$.
- Left-sided test ($H_1: x^\top \beta < \mu_0$): p-value $\Pr(TS(x, \mu_0) < Z)$.

We may also wish to predict what the response will be, given a new set of covariates. On top of that, we may again wish to quantify how much error there is in our prediction. For instance, what is the predicted body fat percentage of someone who is 160 pounds? Note that this differs from the previous section. In the previous section, we were interested in the average body fat percentage of someone who is 160 pounds. Here, we are interested in predicting the body fat percentage of a single, specific person, and not the average of the whole population.

Specifically, suppose that we have a subject whose covariates are given by z , but we do not know the value of the subjects response, which we can denote by Y_{new} . Then the true response is $(Y_{new}|Z = z) = z^\top \beta + \epsilon_{new}$.

Suppose we want to predict Y_{new} and give an idea of how much error is in our prediction. The predicted response is known, and is given by $E[Y_{new}|Z = z] = z^\top \hat{\beta}$. We have $\text{Var}[Y_{new}|Z = z] = \text{Var}[z\hat{\beta}] + \text{Var}[\epsilon_{new}] = z^\top (X^\top X)^{-1} z \sigma^2 + \sigma^2$. Therefore, the variation in a new response is the variation in our estimate of β plus the inherent population variation, σ^2 . We have that this can be estimated with: $\hat{\text{Var}}[Y_{new}|Z = z] = z^\top (X^\top X)^{-1} z MSE + MSE$.

Exercise 3.14. Under the assumptions of the normal linear regression model, show that for a fixed covariate vector $z \in \mathbb{R}^p$, $Y_{new}|Z = z$ has a multivariate normal distribution and find its mean and variance. Argue that given $Z = z$,

$$\frac{Y_{new} - z^\top \beta}{\sqrt{\hat{\text{Var}}[Y_{new}]}} \sim t_{dfE}.$$

Therefore, the $(1 - \alpha)100\%$ prediction interval for Y_{new} is given by:

$$z\hat{\beta} \pm t_{dfE,\alpha/2} \sqrt{z^\top (X^\top X)^{-1} z MSE + MSE}.$$

Note that the prediction interval is wider than that of the mean response interval for the same covariate vector z . That is because it is more difficult to predict the response for a specific person than it is to estimate a mean of a population. Furthermore, the interpretation of a prediction interval is different. A $(1 - \alpha)100\%$ prediction interval can be interpreted it as follows. Given a $(1 - \alpha)100\%$ prediction interval for $Y_{new}|Z = z$, say (a, b) , we say that the probability Y_{new} is in (a, b) is $(1 - \alpha)100\%$. Note that this differs substantially from a confidence interval!

Example 3.5. In Example 3.1, execute the following: What is a 95% confidence interval for the mean of someone who weighs 165 pounds? What is a 95% confidence interval for predicted BF% of someone who weighs 165 pounds? Interpret these intervals.

```
# Intervals are given as follows:

z <- data.frame(Weight=165)
predict(model, newdata = z, interval = 'confidence')

      fit      lwr      upr
1 13.85297 9.379675 18.32627

predict(model, newdata = z, interval = 'prediction')

      fit      lwr      upr
1 13.85297 -1.617547 29.32349
```

We are 95% confident the mean body fat of a person who weighs 165 pounds is in 13.8529704, 9.3796749, 18.3262658. There is a 95% probability that the body fat of a person who weights 165 pounds is in 13.8529704, -1.6175473, 29.323488 . Note that the prediction interval is wider!

3.3.8 Homework stop 4

Exercise 3.15. What is the difference between a prediction interval and an interval for the mean response ?

Exercise 3.16. Code the confidence intervals for the mean response and prediction interval without using the predict function.

Exercise 3.17. Do the chapter 3 practice problems from the problem list.

3.3.9 Partial testing

We may be interested in executing the following hypothesis test:

$$H_0: (\beta_1, \dots, \beta_k) = 0 \quad vs \quad (\beta_1, \dots, \beta_k) \neq 0.$$

This amounts to testing whether the subset of variables $(\beta_1, \dots, \beta_k)$ adds anything to the model beyond $(\beta_{k+1}, \dots, \beta_p)$. For example, you may be interested in whether location related covariates affect the price of Airbnb. The overall idea is to compare the reduced (null) model with $p - k$ covariates to the complete (saturated, full) model (which contains all covariates).

Let's first review the F -test. We learned about the F test, which compares the following models:

$$Y|X = \beta^\top X + \epsilon \quad vs \quad Y|X = \beta_1 + \epsilon.$$

Here, the complete model is given by $Y|X = \beta^\top X + \epsilon$ and the reduced model is given by $Y|X = \beta_1 + \epsilon$. Recall that the test statistic is given by

$$\frac{SSM/dfM}{SSE/dfE} = \frac{(SST - SSE)/(dfT - dfE)}{SSE/dfE},$$

where the degrees of freedom are in terms of the full model (not the null model). We could then rewrite this test statistic as

$$\frac{SSM_C/dfM_C}{SSE_C/dfE_C} = \frac{(SST_C - SSE_C)/(dfT_C - dfE_C)}{SSE_C/dfE_C},$$

where C stands for the complete model. (All that has changed is the notation, we added a C subscript.)

Now, note that $SST = \sum_{i=1}^n (Y_i - \bar{Y})^2$ has nothing to do with what covariates are in the model. In other words, SST is always the same, not matter what covariates are in the model. Therefore, $SST_C = SST_R = SST$, where SST_R stands for the “sum of squares total” in the reduced model. In our example of the F test, the least squares estimate of β_1 in the reduced model is $\hat{\beta}_1 = \bar{Y}$ and the associated residual vector is given by $\hat{\epsilon} = Y - \bar{Y}\mathbf{1}_n$. But wait, observe that in this case, we have that $\hat{\epsilon}^\top \hat{\epsilon} = SST$! Therefore, putting everything together, in this example, we have that $SSM_C = SST_C - SSE_C = SSE_R - SSE_C$. That is, the model sum of squares for the complete model is the difference between the sum-squared error in the reduced model and the sum-squared error in the complete model. We can then rewrite the test statistic as

$$\frac{(SSE_R - SSE_C)/(dfT_C - dfE_C)}{SSE_C/dfE_C}.$$

The difference $SSE_R - SSE_C$ can be interpreted as the extra information gained from adding the covariates into the model OR total explained variations lost by going from the full model to the reduced model.

This idea can be generalized to develop a general method for testing hypotheses of the type:

$$H_0: (\beta_2, \dots, \beta_k) = 0 \quad vs \quad (\beta_2, \dots, \beta_k) \neq 0.$$

We complete the test as follows. Given a full model (which contains β_1, \dots, β_p) and reduced model (which contains $\{\beta_1, \beta_{k+1}, \dots, \beta_p\}$), define:

- $SSE_R - SSE_C = SSdrop$
- $dfE_R - dfE_C = dfdrop$
- $MSdrop = SSdrop/dfdrop$

Then the test statistic and p-value are given by: $TS = MSdrop/MSE_C$ and $\Pr(F_{dfdrop, dfE_C} \geq TS)$, respectively.

We can interpret $SSE_R - SSE_C$ as the extra info gained from adding the extra covariates into the model OR total explained variations lost by going from the full model to the reduced model. In addition, $dfE_R - dfE_C = k - 1$, or the number of covariates dropped from the full model to obtain the reduced model.

i Note

If you take $k = 1$, then this is equivalent to the t -test!

3.3.10 Partial coefficient of determination

We can define the **partial coefficient of determination** as follows:

$$\begin{aligned} R^2(X_1, \dots, X_{k-1}|X_k, \dots, X_p) &= (SSE_R - SSE_C)/SSE_R \\ &= SSdrop/SSE_R. \end{aligned}$$

You might also see the partial correlation coefficient:

$$R(X_1, \dots, X_{k-1}|X_k, \dots, X_p) = \sqrt{R^2(X_1, \dots, X_{k-1}|X_k, \dots, X_p)}.$$

This quantity is the extra proportion of variation explained from adding the covariates X_1, \dots, X_{k-1} to the model which already contains X_k, \dots, X_p .

Example 3.6. A researcher ran an experiment to see if YouTube, Facebook and newspaper ads would improve sales. Run the partial F test to see how online advertising affects sales. Compute and interpret the following quantities:

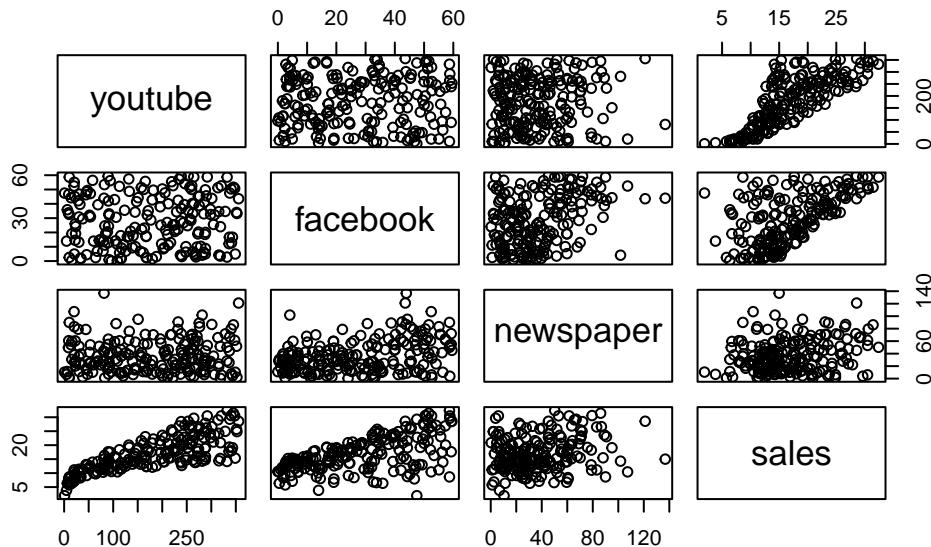
- $SSE_R - SSE_C = SSdrop$

- $dfE_R - dfE_C = dfdrop$
- $MSdrop = SSdrop/dfdrop$
- Test stat: $TS = MSdrop/MSE_C$
- p-value: $\Pr(F_{dfdrop, dfE_C} \geq TS)$
- Partial coefficient of determination

```
# install.packages('datarium')
data("marketing", package = "datarium")
#printing out first few rows
head(marketing, 4)
```

	youtube	facebook	newspaper	sales
1	276.12	45.36	83.04	26.52
2	53.40	47.16	54.12	12.48
3	20.64	55.08	83.16	11.16
4	181.80	49.56	70.20	22.20

```
plot(marketing)
```



```
#setting n to be a variable (sample size)
n=nrow(marketing)
```

```
# Estimation: How to get an estimate  $\hat{\beta}$  of  $\beta$ ?
# lm( sales~ , data= marketing)
full_model<- lm(sales ~ youtube+facebook+newspaper, data = marketing)
summary(full_model)
```

Call:

```
lm(formula = sales ~ youtube + facebook + newspaper, data = marketing)
```

Residuals:

Min	1Q	Median	3Q	Max
-10.5932	-1.0690	0.2902	1.4272	3.3951

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	3.526667	0.374290	9.422	<2e-16 ***
youtube	0.045765	0.001395	32.809	<2e-16 ***
facebook	0.188530	0.008611	21.893	<2e-16 ***
newspaper	-0.001037	0.005871	-0.177	0.86

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 2.023 on 196 degrees of freedom

Multiple R-squared: 0.8972, Adjusted R-squared: 0.8956

F-statistic: 570.3 on 3 and 196 DF, p-value: < 2.2e-16

```
summ=summary(full_model)
```

```
full_model$coefficients
```

(Intercept)	youtube	facebook	newspaper
3.526667243	0.045764645	0.188530017	-0.001037493

```
MSE=var(full_model$residuals); MSE
```

[1] 4.029288

```

MSE=summ$sigma^2

SSE_C=sum(summ$residuals^2)

# Inference: What is the error of  $\hat{\beta}$ ? Is  $f$  degenerate? I.e., is  $\beta=0$ ?

#regular ANOVA
summary(full_model)

```

Call:

```
lm(formula = sales ~ youtube + facebook + newspaper, data = marketing)
```

Residuals:

	Min	1Q	Median	3Q	Max
	-10.5932	-1.0690	0.2902	1.4272	3.3951

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)		
(Intercept)	3.526667	0.374290	9.422	<2e-16 ***		
youtube	0.045765	0.001395	32.809	<2e-16 ***		
facebook	0.188530	0.008611	21.893	<2e-16 ***		
newspaper	-0.001037	0.005871	-0.177	0.86		

Signif. codes:	0 '***'	0.001 '**'	0.01 '*'	0.05 '.'	0.1 ' '	1

Residual standard error: 2.023 on 196 degrees of freedom

Multiple R-squared: 0.8972, Adjusted R-squared: 0.8956

F-statistic: 570.3 on 3 and 196 DF, p-value: < 2.2e-16

```
#confidence intervals for beta coefficients
confint.lm(full_model)
```

	2.5 %	97.5 %
(Intercept)	2.78851474	4.26481975
youtube	0.04301371	0.04851558
facebook	0.17154745	0.20551259
newspaper	-0.01261595	0.01054097

```

#Partial F Test
model_red=lm(sales ~ newspaper, data = marketing)
sum_reduced=summary(model_red)
MSE_R=sum_reduced$sigma^2
SSE_R=sum(sum_reduced$residuals^2)

SSdrop=SSE_R-SSE_C

MSEdrop=SSdrop/2
Fstat=MSEdrop/MSE

1-pf(Fstat,2,196)

```

[1] 0

```
part_test=anova(model_red,full_model); part_test
```

Analysis of Variance Table

```

Model 1: sales ~ newspaper
Model 2: sales ~ youtube + facebook + newspaper
  Res.Df   RSS Df Sum of Sq    F    Pr(>F)
1     198 7394.1
2     196 801.8  2   6592.3 805.71 < 2.2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

```
partial_c_det=SSdrop/SSE_R
```

```
SSER=sum(model_red$residuals*model_red$residuals); SSER
```

[1] 7394.119

```
dfer=model_red$df.residual; dfer
```

[1] 198

```
SSEC=sum(full_model$residuals*full_model$residuals); SSEC
```

```
[1] 801.8284
```

```
dfeC=full_model$df.residual; dfeC
```

```
[1] 196
```

```
SSdrop=SSER-SSEC; SSdrop
```

```
[1] 6592.29
```

```
dfdrop=dfer-dfeC
```

```
MSdrop=SSdrop/dfdrop; MSdrop
```

```
[1] 3296.145
```

```
R_online=SSdrop/SSER; R_online
```

```
[1] 0.8915586
```

```
part_test$F
```

```
[1] NA 805.7141
```

```
part_test$`Pr(>F)`
```

```
[1] NA 2.812622e-95
```

```
# Prediction: Predict any values if necessary.  
# What if we have a 300$ budget and we only can pick one advertising method?  
new_data=marketing[1:3,1:3]  
new_data[1:3,]=diag(300,3)  
predict(full_model,new_data)
```

1	2	3
17.256061	60.085672	3.215419

```
# It's best to put our money in FB... meta?

# What about intervals?

predict(full_model,new_data, interval = 'confidence')
```

	fit	lwr	upr
1	17.256061	16.56191879	17.950203
2	60.085672	55.25061022	64.920734
3	3.215419	-0.09445737	6.525296

It's a good time to stop and do another example to review the topics covered so far.

Example 3.7. In the dataset `mtcars` we have the following variables:

- mpg: Miles/(US) gallon
- cyl: Number of cylinders
- disp: Displacement (cu.in.)
- hp: Gross horsepower
- drat: Rear axle ratio
- wt: Weight (1000 lbs)
- qsec: 1/4 mile time
- vs: V/S
- am: Transmission (0 = automatic, 1 = manual)
- gear: Number of forward gears
- carb: Number of carburetors

The data was extracted from the 1974 Motor Trend US magazine, and comprises fuel consumption and 10 aspects of automobile design and performance for 32 automobiles (1973–74 models). Overall, we would like to investigate the relationship between `mpg` and the following variables: `cyl`, `disp`, `hp`, `drat`, `wt`, `qsec`, `gear`, `carb`. Let's investigate the following questions:

1. Assume the normal MLR model. Store the covariate matrix and response in a variable.
Fit a normal MLR model to the data. – That is use `lm()` to fit the model.
2. What are the least squares estimates? What is the *MSE*?
3. Generate the ANOVA table. Is the model significant?
4. Test if `drat` contributes anything to the model, adjusting for the other covariates. Test if `drat` is related to `mpg`, without adjusting for the other covariates.
5. Test if the subset of variables `gear`, `carb` contribute to the model jointly, adjusting for the remaining covariates. What is the partial coefficient of determination? Interpret the partial coefficient of determination. Test if the subset of variables `gear`, `carb` contribute to the model jointly, without adjusting for the remaining covariates.

6. Compute a confidence interval for the mean mpg of cars with the following set of covariate values `rmtcars[1,-1]*1.1`. Compute a prediction interval for the mpg of a car with the above set of covariate values.
7. Compute a confidence interval for the coefficient for disp.
8. Compute and interpret the coefficient of determination.

```
data("mtcars")
head(mtcars)
```

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
Mazda RX4	21.0	6	160	110	3.90	2.620	16.46	0	1	4	4
Mazda RX4 Wag	21.0	6	160	110	3.90	2.875	17.02	0	1	4	4
Datsun 710	22.8	4	108	93	3.85	2.320	18.61	1	1	4	1
Hornet 4 Drive	21.4	6	258	110	3.08	3.215	19.44	1	0	3	1
Hornet Sportabout	18.7	8	360	175	3.15	3.440	17.02	0	0	3	2
Valiant	18.1	6	225	105	2.76	3.460	20.22	1	0	3	1

```
dim(mtcars)
```

[1] 32 11

```
# 1.
# response~all variables minus the two variables we will not include
model=lm(mpg~.-vs-am,data=mtcars)
summ=summary(model)
summ
```

Call:
`lm(formula = mpg ~ . - vs - am, data = mtcars)`

Residuals:

Min	1Q	Median	3Q	Max
-3.0230	-1.6874	-0.4109	0.9640	5.4400

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	17.88964	17.81996	1.004	0.3259
cyl	-0.41460	0.95765	-0.433	0.6691
disp	0.01293	0.01758	0.736	0.4694
hp	-0.02085	0.02072	-1.006	0.3248

```

drat      1.10110  1.59806  0.689  0.4977
wt       -3.92065  1.86174 -2.106  0.0463 *
qsec      0.54146  0.62122  0.872  0.3924
gear     1.23321  1.40238  0.879  0.3883
carb    -0.25510  0.81563 -0.313  0.7573
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 2.622 on 23 degrees of freedom
Multiple R-squared:  0.8596,   Adjusted R-squared:  0.8107
F-statistic: 17.6 on 8 and 23 DF,  p-value: 4.226e-08

```

```

X=model.matrix(model)
Y=mtcars$mpg
X[1:5,]

```

	(Intercept)	cyl	disp	hp	drat	wt	qsec	gear	carb	
Mazda RX4		1	6	160	110	3.90	2.620	16.46	4	4
Mazda RX4 Wag		1	6	160	110	3.90	2.875	17.02	4	4
Datsun 710		1	4	108	93	3.85	2.320	18.61	4	1
Hornet 4 Drive		1	6	258	110	3.08	3.215	19.44	3	1
Hornet Sportabout		1	8	360	175	3.15	3.440	17.02	3	2

```

Y

```

```

[1] 21.0 21.0 22.8 21.4 18.7 18.1 14.3 24.4 22.8 19.2 17.8 16.4 17.3 15.2 10.4
[16] 10.4 14.7 32.4 30.4 33.9 21.5 15.5 15.2 13.3 19.2 27.3 26.0 30.4 15.8 19.7
[31] 15.0 21.4

```

```

# 2.
LSE=coef(model)
LSE

```

(Intercept)	cyl	disp	hp	drat	wt
17.88963741	-0.41459575	0.01293240	-0.02084886	1.10109551	-3.92064847
	qsec	gear	carb		
0.54145693	1.23321026	-0.25509911			

```

MSE=summ$sigma^2
MSE

```

```
[1] 6.874941
```

```
# 3.  
null_model=lm(mpg~1,data=mtcars)  
anova(null_model,model)
```

Analysis of Variance Table

```
Model 1: mpg ~ 1  
Model 2: mpg ~ (cyl + disp + hp + drat + wt + qsec + vs + am + gear +  
    carb) - vs - am  
Res.Df   RSS Df Sum of Sq    F    Pr(>F)  
1     31 1126.05  
2     23  158.12  8    967.92 17.599 4.226e-08 ***  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
# 4.  
# Notice the p value is 0.5 , not sign.  
summ$coefficients['drat',]
```

Estimate	Std. Error	t value	Pr(> t)
1.1010955	1.5980601	0.6890201	0.4977032

```
drat=lm(mpg~drat,,data=mtcars)  
# Notice the p value is 1.78e-05 , sig! explain this difference!  
summary(drat)
```

Call:

```
lm(formula = mpg ~ drat, data = mtcars)
```

Residuals:

Min	1Q	Median	3Q	Max
-9.0775	-2.6803	-0.2095	2.2976	9.0225

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-7.525	5.477	-1.374	0.18
drat	7.678	1.507	5.096	1.78e-05 ***

```
---
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
Residual standard error: 4.485 on 30 degrees of freedom
Multiple R-squared: 0.464, Adjusted R-squared: 0.4461
F-statistic: 25.97 on 1 and 30 DF, p-value: 1.776e-05
```

```
# 5.
red_model=lm(mpg~.-vs-am-gear-carb,data=mtcars)
anova(red_model,model)
```

Analysis of Variance Table

```
Model 1: mpg ~ (cyl + disp + hp + drat + wt + qsec + vs + am + gear +
carb) - vs - am - gear - carb
Model 2: mpg ~ (cyl + disp + hp + drat + wt + qsec + vs + am + gear +
carb) - vs - am
  Res.Df   RSS Df Sum of Sq    F Pr(>F)
1     25 163.48
2     23 158.12  2      5.3532 0.3893 0.6819
```

```
ob=anova(red_model,model)
ob$`Sum of Sq`[2]/ob$RSS[1]
```

```
[1] 0.0327457
```

```
# 3.7% of the variation in mpg is explained from adding the covariate gear and carb to the model
```

```
# 6.
new_ob=c(6.6,176,121,4.29,2.882,18.106,0,1.1,4.4,4.4)
new_ob=matrix(new_ob,nrow=1,ncol=length(new_ob))
colnames(new_ob)=names(mtcars[1,-1])
new_ob=data.frame(new_ob)
predict(model,new_ob, interval = 'confidence')
```

```
       fit      lwr      upr
1 22.43839 18.49468 26.38211
```

```
predict(model,new_ob, interval = 'prediction')
```

```
fit      lwr      upr  
1 22.43839 15.7322 29.14459
```

```
# 7.  
confint(model)
```

	2.5 %	97.5 %
(Intercept)	-18.97375462	54.75302945
cyl	-2.39565252	1.56646102
disp	-0.02343129	0.04929609
hp	-0.06371601	0.02201829
drat	-2.20474377	4.40693480
wt	-7.77195651	-0.06934042
qsec	-0.74362628	1.82654014
gear	-1.66782660	4.13424711
carb	-1.94235037	1.43215215

```
#8.  
summ$r.squared
```

```
[1] 0.8595764
```

```
# 85% of the variation in mpg is explained by cyl, disp, hp, drat, wt, qsec, gear and carb
```

Exercise 3.18. Interpret all of the above quantites.

3.4 Checking model assumptions

We learned how to test significance of one or multiple variables, compute confidence intervals for the estimated coefficients, mean response, and predicted response. All the methods rely on the assumptions! Recall that we assume 1. The relationship is linear $Y|X = X\beta + \epsilon$, 2. $\forall i \in [n], \epsilon_i \sim \mathcal{N}(0, \sigma^2)$ 3. $\epsilon_i \perp \epsilon_j$ for $i \neq j, i, j \in [n]$.

We now briefly discuss how to use the data to check if these assumptions are appropriate. We will cover this in more detail in the next chapter.

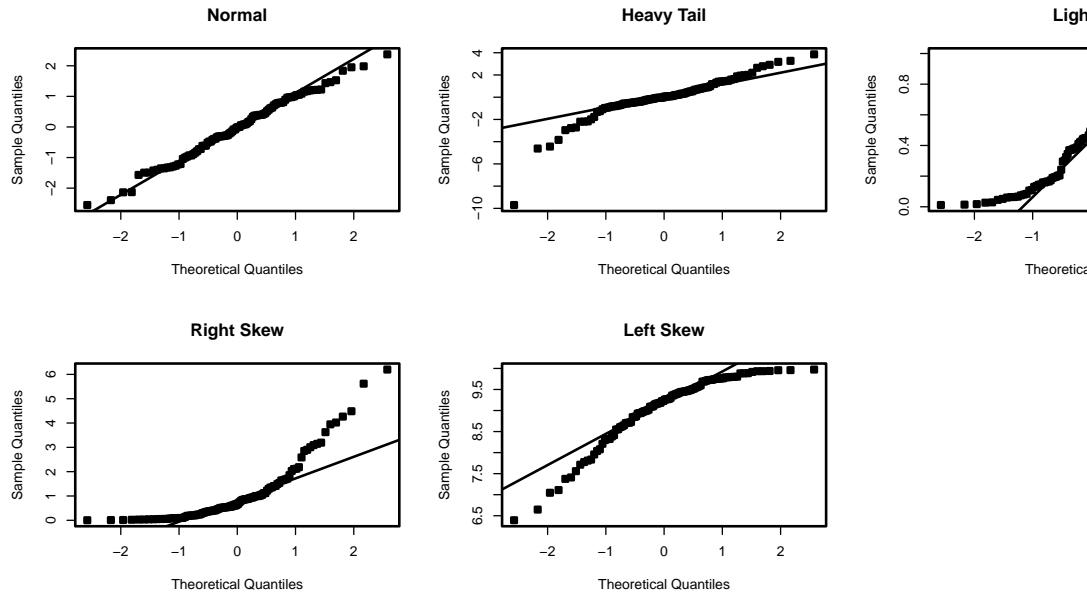
3.4.1 Checking normality

We do not know ϵ , however, we do know $\hat{\epsilon}$, which is our best proxy for the true random error vector ϵ . To check if the true random error vector is normally distributed we can use histograms and quantile-quantile plots. More specifically, if the histogram of the residuals looks more or less bell-shaped, with tails similar to the normal PDF, then the assumption of normality is valid.

Recall that a qq-plot compares the quantiles of the sample to the quantiles of the theoretical normal distribution. The x-axis represents the theoretical quantiles. The y-axis represents the sample quantiles. If the sample follows a normal distribution, the points in the qq-plot will approximately lie on a line.

Interpretation:

- Straight Line: If the points lie on or near the straight line, the sample appears normal.
- Heavy Tails: Points deviating upwards or downwards at the ends suggest the sample has heavier or lighter tails than the normal distribution.
- S-Shape: Points forming an S-shape indicate the sample has lighter tails and a heavier center than the normal distribution.



See below for an example:

Note that you will always have some deviation at the ends of the line in the qq-plot.

Example 3.8. In examples Example 3.1 and Example 3.6, check that the normality assumption is valid.

```

# Make the data frame
Weight=c(175 , 181 , 200 , 159 , 196 , 192 , 205 , 173 , 187 , 188 ,
       188 , 240 , 175 , 168 , 246 , 160 , 215 , 159 , 146 , 219 )
BodyFat =c(6 , 21 , 15 , 6 , 22 , 31 , 32 , 21 , 25 , 30 ,
          10 , 20 , 22 , 9 , 38 , 10 , 27 , 12 , 10 , 28 )

df=data.frame(cbind(Weight=Weight,BodyFat=BodyFat))
model= lm(BodyFat ~Weight, data = df)
summary(model)

```

Call:
`lm(formula = BodyFat ~ Weight, data = df)`

Residuals:

Min	1Q	Median	3Q	Max
-12.5935	-5.7904	0.6536	5.2731	10.4004

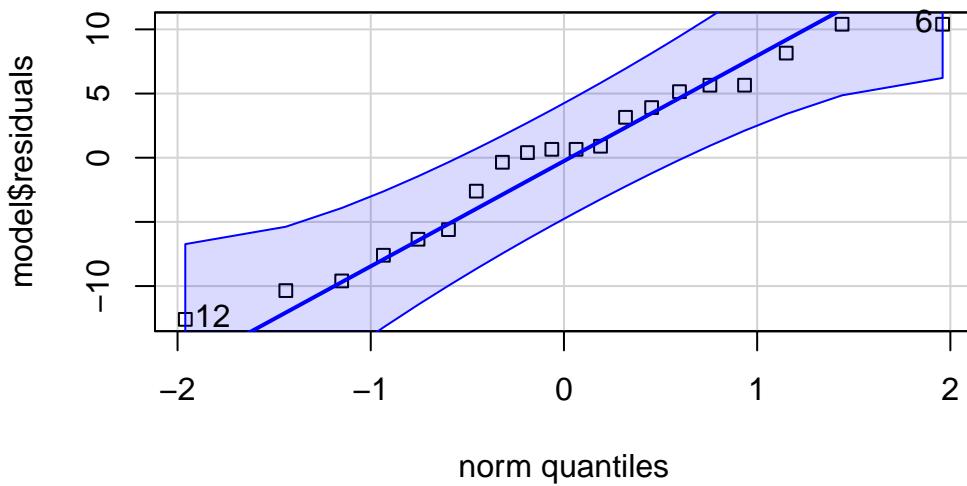
Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-27.37626	11.54743	-2.371	0.029119 *
Weight	0.24987	0.06065	4.120	0.000643 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

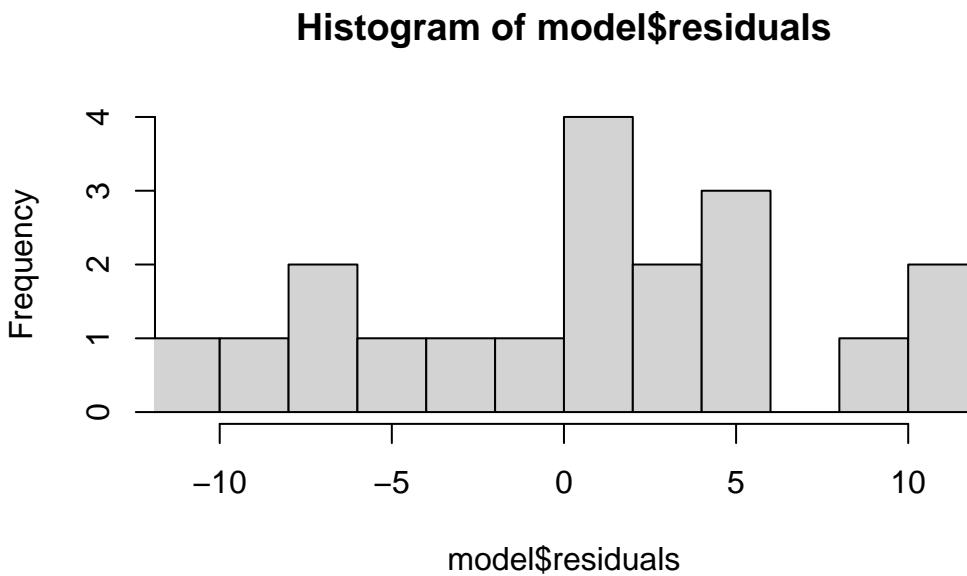
Residual standard error: 7.049 on 18 degrees of freedom
Multiple R-squared: 0.4853, Adjusted R-squared: 0.4567
F-statistic: 16.97 on 1 and 18 DF, p-value: 0.0006434

```
car::qqPlot(model$residuals,pch=22)
```



```
[1] 12 6
```

```
hist(model$residuals, breaks=10, xlim=c(-11,11))
```



```

# This appears okay!

# Let's do the next example
# install.packages('datarium')
data("marketing", package = "datarium")

# lm( sales~    , data= marketing)
full_model<- lm(sales ~ youtube+facebook+newspaper, data = marketing)
summary(full_model)

```

Call:

```
lm(formula = sales ~ youtube + facebook + newspaper, data = marketing)
```

Residuals:

Min	1Q	Median	3Q	Max
-10.5932	-1.0690	0.2902	1.4272	3.3951

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)		
(Intercept)	3.526667	0.374290	9.422	<2e-16 ***		
youtube	0.045765	0.001395	32.809	<2e-16 ***		
facebook	0.188530	0.008611	21.893	<2e-16 ***		
newspaper	-0.001037	0.005871	-0.177	0.86		

Signif. codes:	0 '***'	0.001 '**'	0.01 '*'	0.05 '.'	0.1 ' '	1

Residual standard error: 2.023 on 196 degrees of freedom

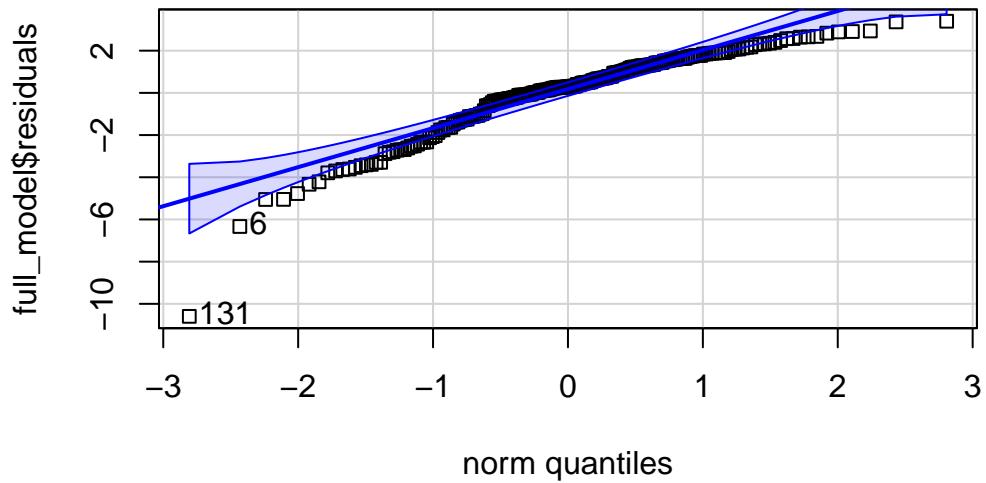
Multiple R-squared: 0.8972, Adjusted R-squared: 0.8956

F-statistic: 570.3 on 3 and 196 DF, p-value: < 2.2e-16

```

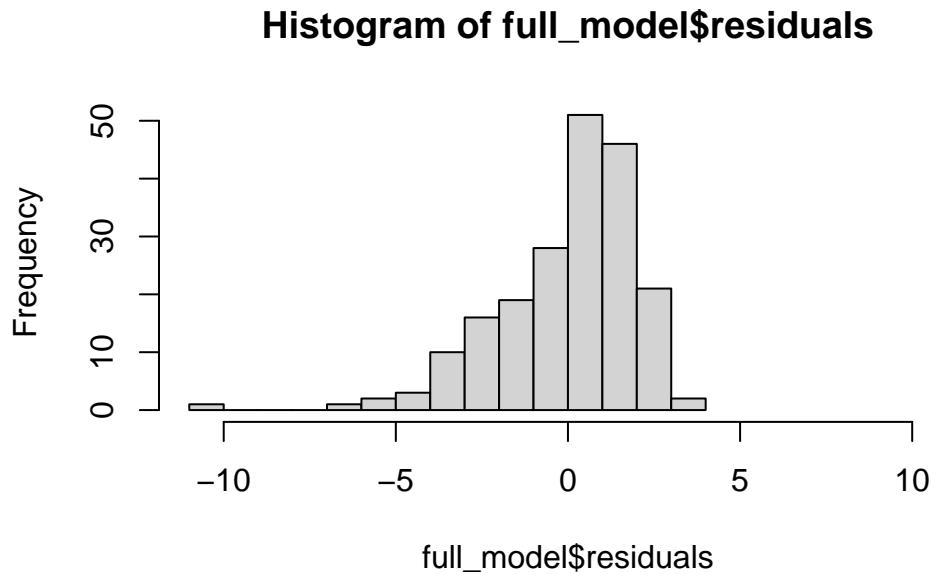
# Not great.
car::qqPlot(full_model$residuals,pch=22)

```



```
[1] 131    6
```

```
hist(full_model$residuals, breaks=10, xlim=c(-11,11))
```



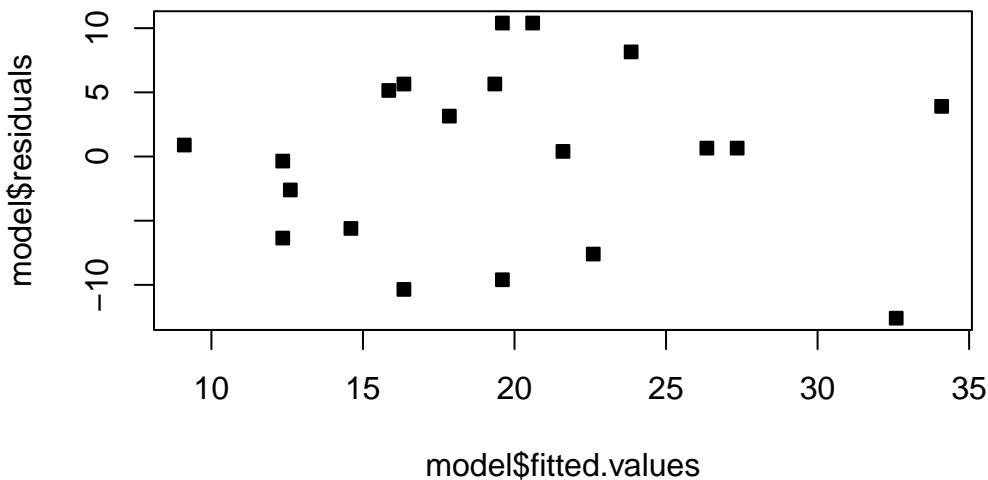
3.4.2 Checking the other assumptions

To check the remaining assumptions (constant variance, independence of residuals, zero mean and linear relationship), we can use some other diagnostic plots.

One plot is that of the fitted values \hat{Y} (x -axis) against the residuals $\hat{\epsilon}$ (y -axis). If the error depends on \hat{y} , then the identically distributed assumption on the errors is probably not valid. If the assumptions are valid, we should observe on the plots that at all levels of the response, the mean of the residuals is 0 and the variance remains the same. Thus, we should see a horizontal band centered at 0 containing the observations.

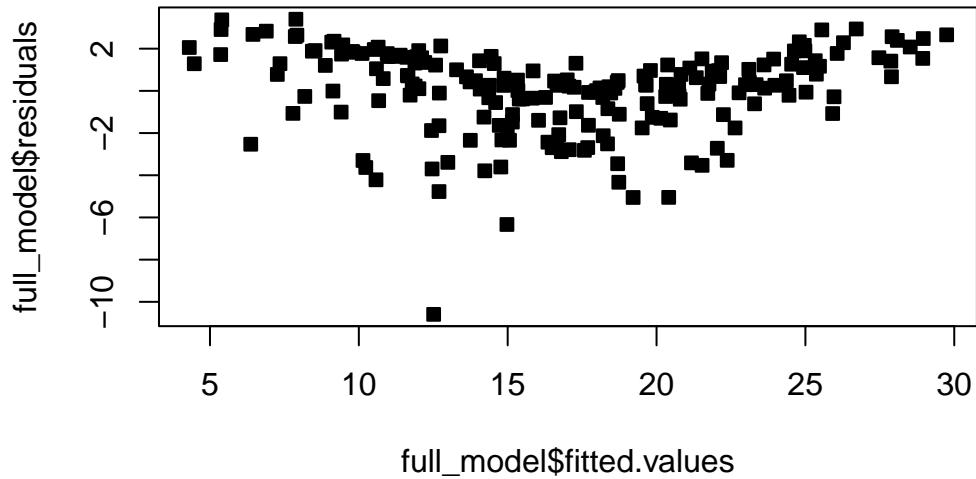
This appears to be the case in the body fat example:

```
plot(model$fitted.values, model$residuals, pch=22, bg=1)
```



Observe that in the marketing example, the residuals admit a pattern. This usually indicates either a non-linear relationship with the covariates, or an important covariate is missing. In this case, we would say the assumption of identically distributed errors is violated.

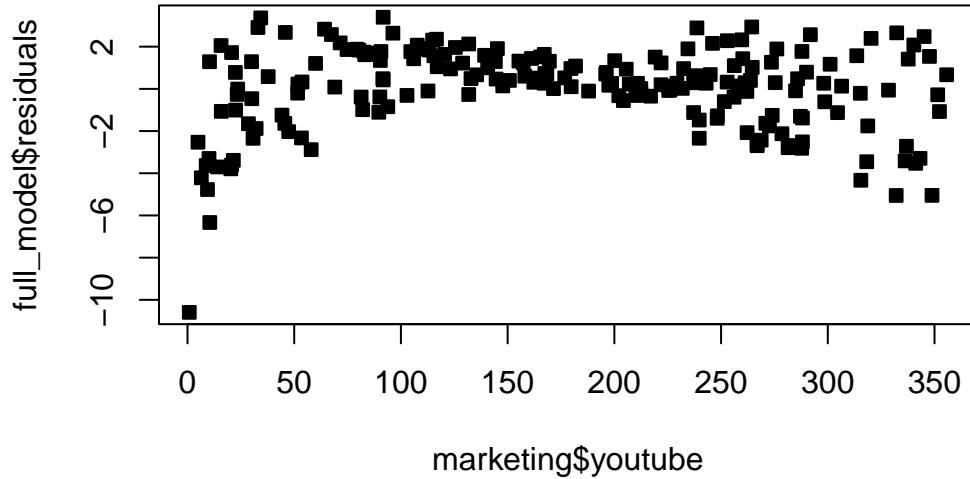
```
plot(full_model$fitted.values, full_model$residuals, pch=22, bg=1)
```



Plotting the residuals against the covariates can reveal dependence between the errors. For instance, if time is a covariate, you can plot the residuals over time to see if they have any relationship with time. If there appears to be dependence among the residuals, then the assumptions of the model are violated. That is, in these plots we should also see a horizontal band centered at 0 containing the observations. If not, then the residuals have a relationship with the given covariate.

Be VERY careful about the scale of your plot, as it can affect your interpretation. Zooming out or in too much can make everything look fine. In addition, the y -axis not being centered at 0 can cause you to misinterpret the plot.

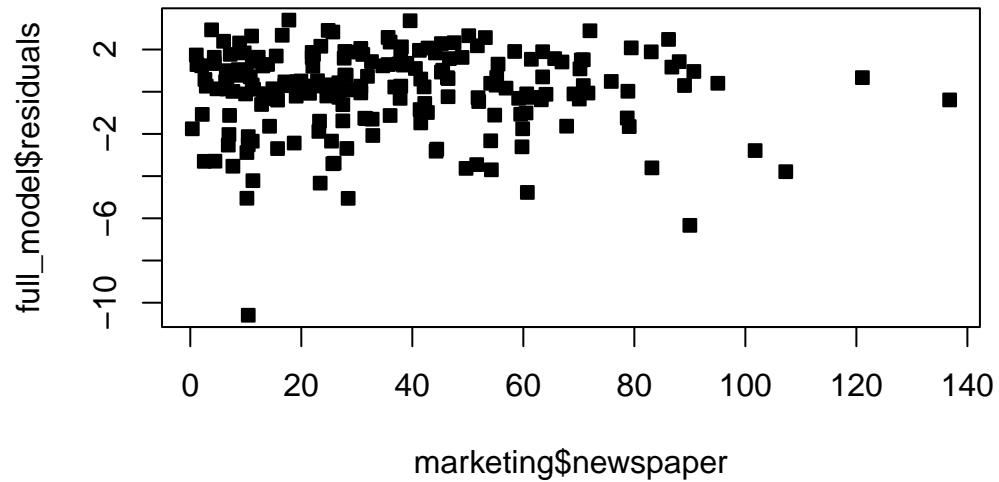
```
plot(marketing$youtube,full_model$residuals,pch=22,bg=1)
```



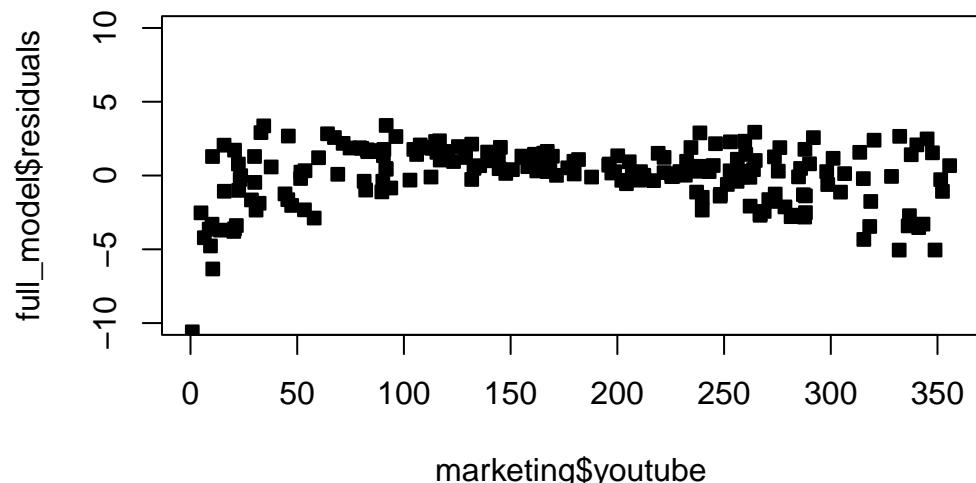
```
plot(marketing$facebook,full_model$residuals,pch=22,bg=1)
```



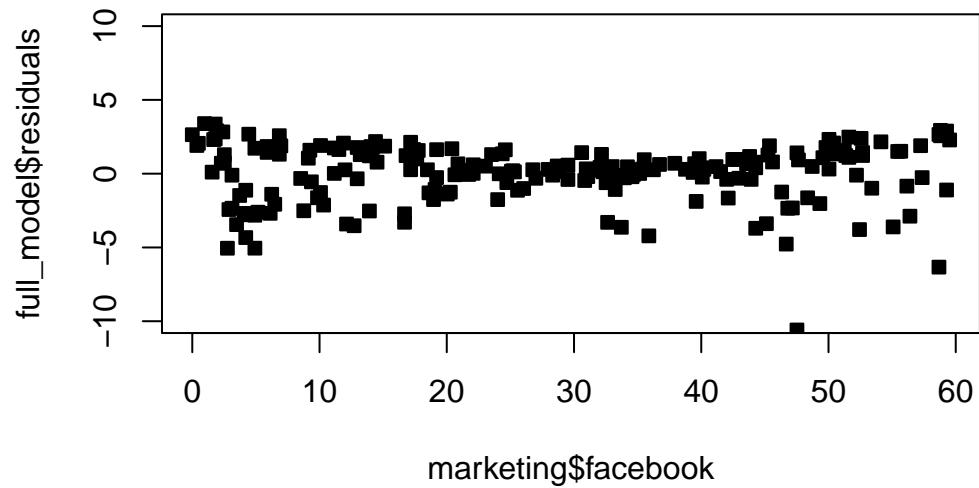
```
plot(marketing$newspaper,full_model$residuals,pch=22, bg=1)
```



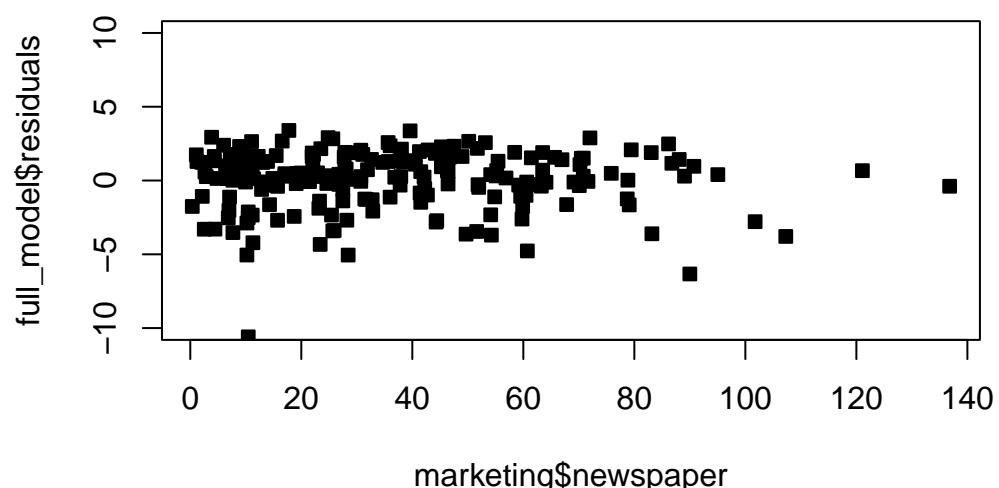
```
plot(marketing$youtube,full_model$residuals,pch=22, bg=1,ylim=c(-10,10))
```



```
plot(marketing$facebook,full_model$residuals,pch=22, bg=1, ylim=c(-10,10))
```



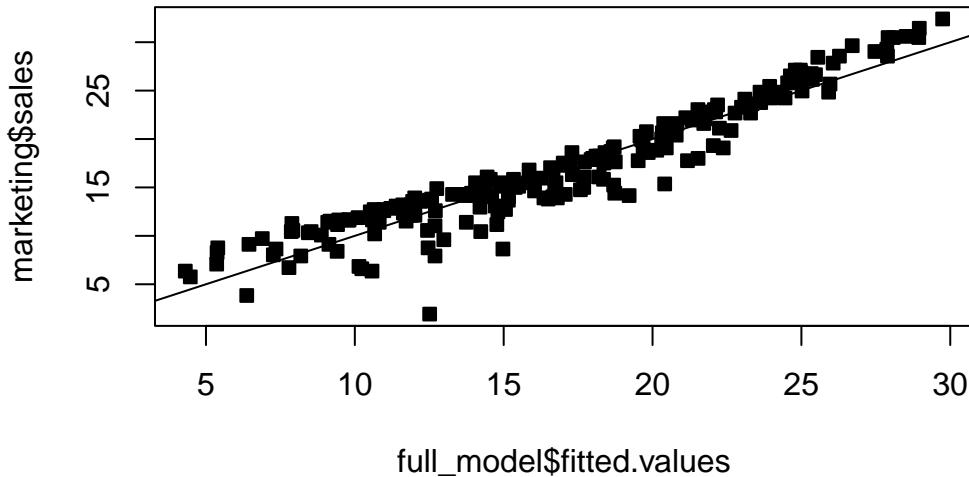
```
plot(marketing$newspaper,full_model$residuals,pch=22, bg=1, ylim=c(-10,10))
```



Notice how the newspaper plot changes with the new axis limits. It appears that the variance of the error is changing with the value of the facebook and youtube budgets.

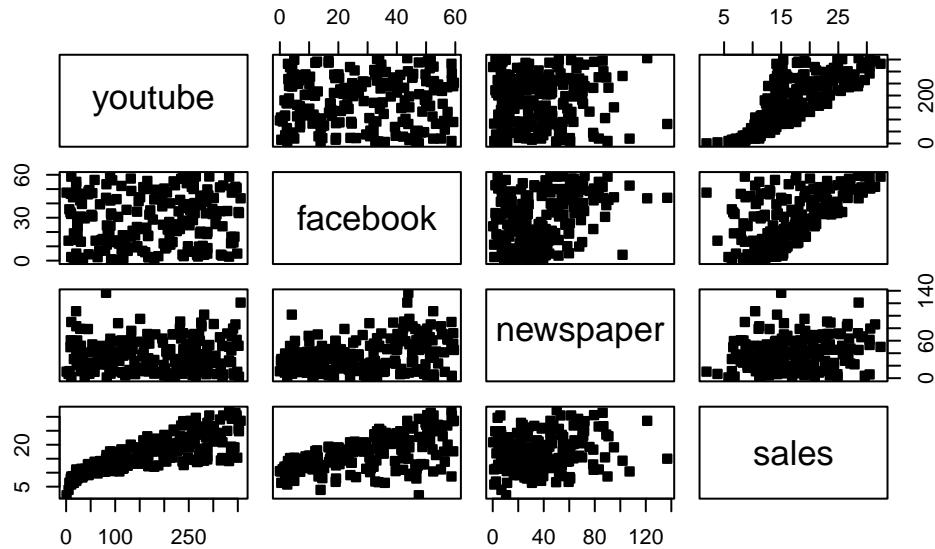
Another plot is that of the fitted values against the residuals. This gives an idea of the overall fit of the model. We should observe the points scatters around the line $y = x$.

```
plot(full_model$fitted.values,marketing$sales,pch=22, bg=1)
abline(0,1)
```



Notice that the line is slightly curved above the line at the ends. This means that at high and low values, the actual sales are empirically greater than as predicted by the model. Let's plot the actual data.

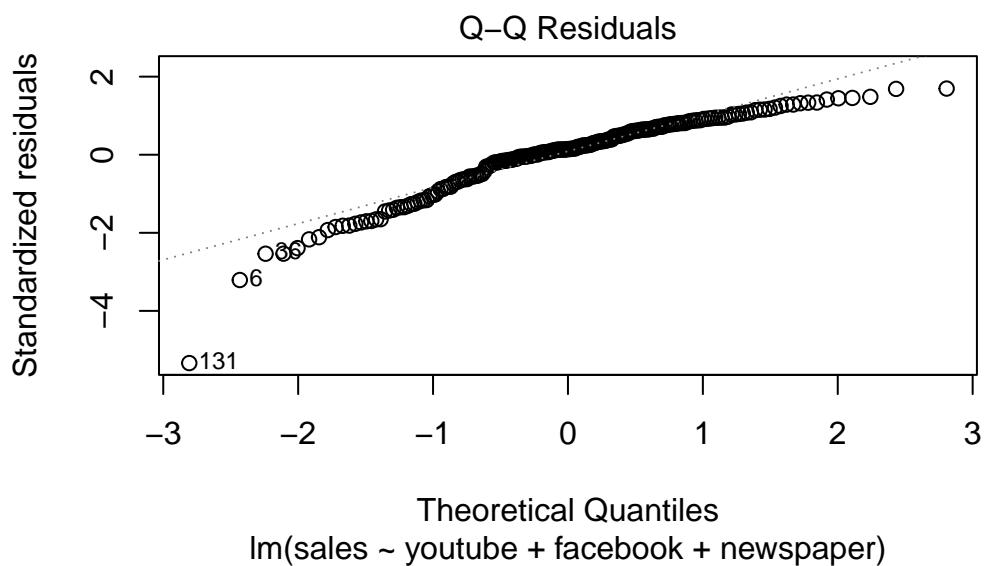
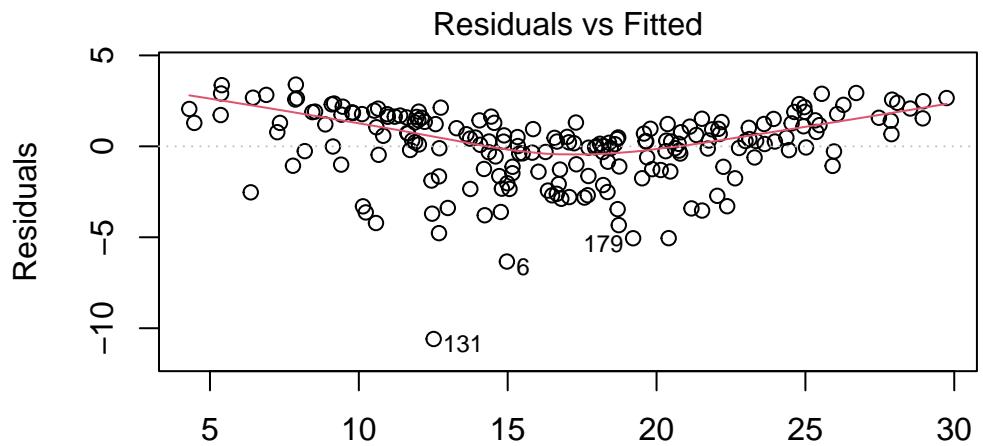
```
plot(marketing,pch=22,bg=1)
```

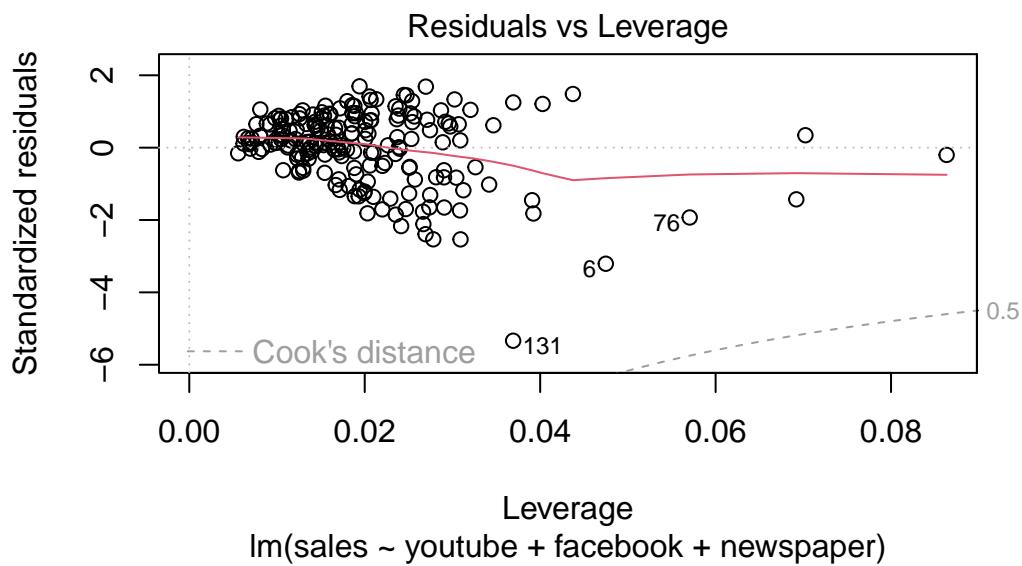
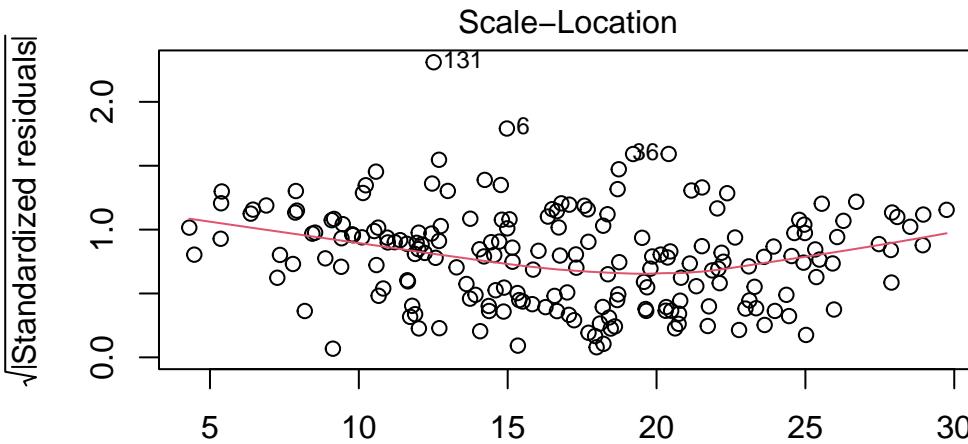


In this case, Youtube and facebook spending seems to have a nonlinear relationship with sales. We will see how to remedy this in later chapters.

As a final note, observe that we can put the `model` object in the `plot()` function to obtain the diagnostic plots.

```
plot(full_model)
```





We will learn in later chapters how to check the assumptions more thoroughly and how to remedy violations of the assumptions.

3.4.3 Homework stop 5

Complete the assigned textbook problems for Chapter 4.

Exercise 3.19. List the assumptions for the normal MLR model and the MLR model. Write down how you would check each assumption.

3.5 Simple linear regression

A special case of the multiple linear regression is **simple linear regression**. A simple linear regression model is a regression model with **one explanatory variable**: $Y_i = \beta_0 + \beta_1 X_i + \epsilon_i$.

$$y = \begin{pmatrix} y_1 \\ \vdots \\ y_n \end{pmatrix}, X = \begin{pmatrix} 1 & x_1 \\ \vdots & \vdots \\ 1 & x_n \end{pmatrix}, \beta = \begin{pmatrix} \beta_0 \\ \beta_1 \end{pmatrix}, \epsilon = \begin{pmatrix} \epsilon_1 \\ \vdots \\ \epsilon_n \end{pmatrix}.$$

3.5.1 Estimated Coefficients

In this case, following some matrix manipulations (verify this for homework), we have

$$X^\top X = \begin{pmatrix} n & \sum_{i=1}^n x_i \\ \sum_{i=1}^n x_i & \sum_{i=1}^n x_i^2 \end{pmatrix}, X^\top y = \begin{pmatrix} \sum_{i=1}^n y_i \\ \sum_{i=1}^n x_i y_i \end{pmatrix}.$$

Now, recall if

$$A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$$

then

$$A^{-1} = \frac{1}{ad - bc} \begin{bmatrix} d & -b \\ -c & a \end{bmatrix}.$$

From MATH 1131 (or simple algebraic manipulation), we know

$$\begin{aligned} \sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y}) &= \sum_{i=1}^n x_i y_i - n\bar{x}\bar{y} = \sum_{i=1}^n x_i y_i - n^{-1} \left(\sum_{i=1}^n x_i \right) \left(\sum_{i=1}^n y_i \right) \\ \sum_{i=1}^n (x_i - \bar{x})^2 &= \sum_{i=1}^n x_i^2 - n\bar{x}^2 = \sum_{i=1}^n x_i^2 - n^{-1} \left(\sum_{i=1}^n x_i \right)^2. \end{aligned}$$

Therefore

$$\begin{aligned}(X^\top X)^{-1} &= \frac{1}{n \sum_{i=1}^n x_i^2 - (\sum_{i=1}^n x_i)^2} \begin{pmatrix} \sum_{i=1}^n x_i^2 & -\sum_{i=1}^n x_i \\ -\sum_{i=1}^n x_i & n \end{pmatrix} \\ &= \frac{1}{n \sum_{i=1}^n (x_i - \bar{x})^2} \begin{pmatrix} \sum_{i=1}^n x_i^2 & -\sum_{i=1}^n x_i \\ -\sum_{i=1}^n x_i & n \end{pmatrix}.\end{aligned}$$

To summarize:

$$\begin{aligned}X^\top X &= \begin{bmatrix} n & \sum_{i=1}^n x_i \\ \sum_{i=1}^n x_i & \sum_{i=1}^n x_i^2 \end{bmatrix} \\ X^\top y &= \begin{bmatrix} \sum_{i=1}^n y_i \\ \sum_{i=1}^n x_i y_i \end{bmatrix} \\ (X^\top X)^{-1} &= \frac{1}{n \sum_{i=1}^n (x_i - \bar{x})^2} \begin{bmatrix} \sum_{i=1}^n x_i^2 & -\sum_{i=1}^n x_i \\ -\sum_{i=1}^n x_i & n \end{bmatrix}\end{aligned}$$

Now, we have that

$$\begin{aligned}\hat{\beta} &= \begin{pmatrix} \hat{\beta}_0 \\ \hat{\beta}_1 \end{pmatrix} = (X^\top X)^{-1} X^\top y \\ &= \frac{1}{n \sum_{i=1}^n (x_i - \bar{x})^2} \begin{pmatrix} \sum_{i=1}^n x_i^2 \sum_{i=1}^n y_i - \sum_{i=1}^n x_i \sum_{i=1}^n x_i y_i \\ -\sum_{i=1}^n x_i \sum_{i=1}^n y_i + n \sum_{i=1}^n x_i y_i \end{pmatrix}.\end{aligned}$$

Now,

$$\hat{\beta}_1 = \frac{1}{n \sum_{i=1}^n (x_i - \bar{x})^2} \left(-\sum_{i=1}^n x_i \sum_{i=1}^n y_i + n \sum_{i=1}^n x_i y_i \right).$$

Exercise 3.20. Let's show that

$$\hat{\beta}_1 = \frac{n \sum_{i=1}^n x_i y_i - \sum_{i=1}^n x_i \sum_{i=1}^n y_i}{n \sum_{i=1}^n (x_i - \bar{x})^2} = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sum_{i=1}^n (x_i - \bar{x})^2}.$$

Does this look familiar? We see that,

$$\hat{\beta}_1 = \text{cov}(X, Y) \frac{\hat{\sigma}_y}{\hat{\sigma}_x},$$

where $\text{cov}(X, Y)$ is the estimated correlation between X and Y . Let's interpret this:

1. If $\text{cov}(X, Y) \approx 0$ then $\hat{\beta}_1 \approx 0$ - low correlation implies an estimated slope close to 0.
2. The estimated coefficient $\hat{\beta}_1$ is the product of the estimated correlation between X and Y and the ratio of the estimated standard deviation of Y to that of X .

Now, looking at the intercept term, we have

$$\hat{\beta}_0 = \frac{1}{n \sum_{i=1}^n (x_i - \bar{x})^2} \left(\sum_{i=1}^n x_i^2 \sum_{i=1}^n y_i - \sum_{i=1}^n x_i \sum_{i=1}^n x_i y_i \right).$$

Exercise 3.21. Show that

$$\hat{\beta}_0 = \bar{y} - \hat{\beta}_1 \bar{x}.$$

Observe that the intercept is the mean of Y minus the mean of X times the estimated slope. In essence, it tells us that the intercept ($\hat{\beta}_0$) represents the value of (X) when (X) is at its mean value ((\bar{X})) and that (\bar{X}) is adjusted by subtracting the contribution of $(\hat{\beta}_1 \bar{X})$.

This adjustment ensures that the regression line passes through the point $((\bar{X}, \bar{X}))$, which is the point of averages for the data.

3.5.2 Inference in SLR

We can also simplify the values used for inference in the SLR model. Recall that $\text{Var}[\hat{\beta}] = (X^\top X)^{-1}\sigma^2$, and so we have

$$\begin{aligned} \text{Var}[\hat{\beta}_0] &= \frac{\sum_{i=1}^n x_i^2}{n \sum_{i=1}^n (x_i - \bar{x})^2} \sigma^2 = \frac{\sum_{i=1}^n x_i^2 - n\bar{x}^2 + n\bar{x}^2}{n \sum_{i=1}^n (x_i - \bar{x})^2} \sigma^2 \\ &= \left[\frac{1}{n} + \frac{\bar{x}^2}{\sum_{i=1}^n (x_i - \bar{x})^2} \right] \sigma^2 \\ \text{Var}[\hat{\beta}_1] &= \frac{1}{\sum_{i=1}^n (x_i - \bar{x})^2} \sigma^2 \\ \text{cov}(\hat{\beta}_0, \hat{\beta}_1) &= -\frac{\bar{x}}{\sum_{i=1}^n (x_i - \bar{x})^2} \sigma^2. \end{aligned}$$

We know from previous sections that a $(1 - \alpha)100$ confidence interval of β_i , where $i = 0, 1$, is

$$\hat{\beta}_i \pm t_{df_E, \alpha/2} \sqrt{\widehat{\text{var}}(\hat{\beta}_i)}.$$

Similarly, let β_i^0 be a hypothesized value of β_i , for $i = 0, 1$. If we want to test whether $\beta_i = \beta_i^0$, then the observed test statistic is given by

$$\frac{\hat{\beta}_i - \beta_i^0}{\sqrt{\widehat{\text{var}}(\hat{\beta}_i)}},$$

and the corresponding p -value is obtained via the t_{df_E} distribution as usual.

i Note

Similarly, inference for the mean response and predictions can be obtained. We can also simplify the ANOVA table, R^2 , etc. For instance, the R^2 is the square of the sample correlation coefficient between X and Y .

3.5.3 Inference for the correlation coefficient

If we are interested in doing a hypothesis test, or constructing confidence intervals for the correlation between two variables, say X and Y , we can use the simple linear regression model.

We have already derived the relationship between the estimated correlation coefficient and the estimated slope of the simple linear regression model. More specifically, if the estimated correlation coefficient is 0, then the estimated slope of the simple linear regression is 0. One can show that the same relationship holds at the population level: $\beta_1 = \rho\sigma_y/\sigma_x$, where $\rho = \text{corr}[X, Y]$.

Now, suppose that we want to test if $H_0 : \rho = 0$ versus $H_a : \rho \neq 0$. Using the fact that $\beta_1 = \rho\sigma_y/\sigma_x$, the above test is equivalent to the statement $H_0 : \beta_1 = 0$ versus $H_a : \beta_1 \neq 0$. Therefore, we can just test if the slope parameter in the model $Y|X = \beta_0 + \beta_1 X + \epsilon$ is 0.

Letting $\hat{\rho} = \text{corr}(X, Y)$ The observed test statistic is then:

$$\frac{\hat{\beta}_1}{\sqrt{\widehat{\text{var}}(\hat{\beta}_1)}} = \frac{\hat{\rho}\sqrt{n-2}}{\sqrt{1-\hat{\rho}^2}},$$

and the corresponding p -value is obtained based on the t_{dfE} distribution.

However, when the hypothesized value for ρ is non-zero, the problem becomes very complicated. The exact distribution of $\hat{\rho}$ is extremely difficult to obtain under the null hypothesis. The following procedure gives an approximation of the distribution of a function of $\hat{\rho}$ under the null hypothesis. In particular, Fisher suggested the transformation for $\rho \in (0, 1)$,

$$\theta = \frac{1}{2} \log \frac{1+\rho}{1-\rho}.$$

Then

$$\hat{\theta} = \frac{1}{2} \log \frac{1+\hat{\rho}}{1-\hat{\rho}},$$

is an estimate of θ , where $\hat{\theta}$ is approximately distributed as normal with mean θ and variance $\frac{1}{n-3}$. Hence, an approximate $(1 - \alpha)100$ confidence interval of θ is

$$\hat{\theta} \pm z_{\alpha/2} \sqrt{\frac{1}{n-3}},$$

and the corresponding confidence interval of ρ can be obtained by the inverse transformation. Similarly, if the hypothesized value of ρ is ρ_0 , then the hypothesized value of θ is $\theta_0 = \frac{1}{2} \log \frac{1+\rho_0}{1-\rho_0}$. The observed test statistic can be obtained and the corresponding p -value can be obtained based on the standard normal distribution.

Example 3.9. In Example 3.1 test if the correlation between body fat and weight is 0. Next, test if the correlation is greater than 1/2. Construct a 95% CI for ρ .

```
#####
# Exploratory
Weight=c(175 , 181 , 200 , 159 , 196 , 192 , 205 ,
       173 , 187 , 188 , 188 , 240 , 175 , 168 ,
       246 , 160 , 215 , 159 , 146 , 219 )
BodyFat =c(6 , 21 , 15 , 6 , 22 , 31 , 32 , 21 , 25 ,
          30 , 10 , 20 , 22 , 9 , 38 , 10 , 27 , 12 , 10 , 28 )

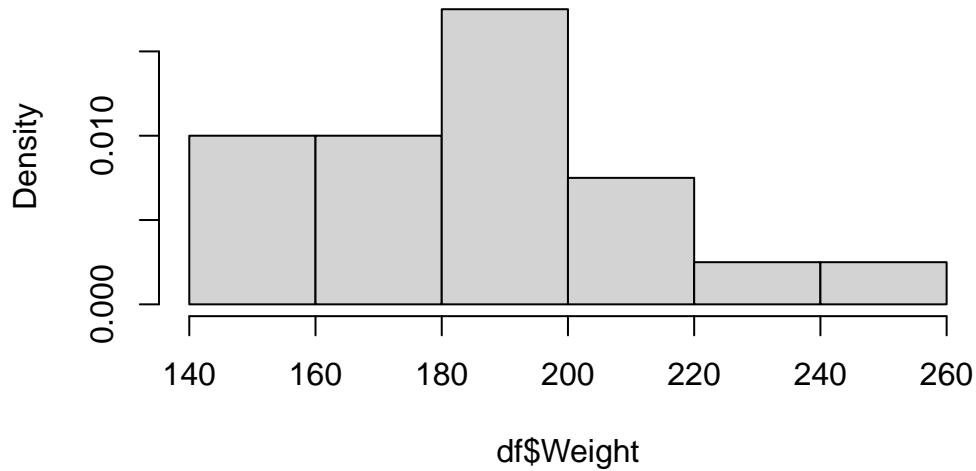
df=data.frame(cbind(Weight=Weight,BodyFat=BodyFat))

cor(df)

      Weight   BodyFat
Weight  1.0000000 0.6966328
BodyFat 0.6966328 1.0000000

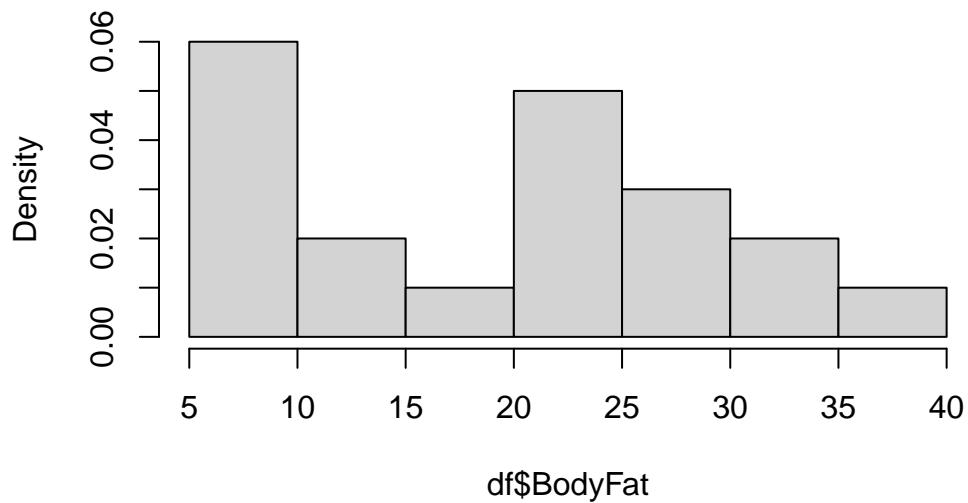
hist(df$Weight,freq=F)
```

Histogram of df\$Weight



```
hist(df$BodyFat,freq=F)
```

Histogram of df\$BodyFat



```
summary(df)
```

	Weight	BodyFat
Min.	:146.0	Min. : 6.00
1st Qu.	:171.8	1st Qu.:10.00
Median	:187.5	Median :21.00
Mean	:188.6	Mean :19.75
3rd Qu.	:201.2	3rd Qu.:27.25
Max.	:246.0	Max. :38.00

```
cor(df)[1,2]
```

```
[1] 0.6966328
```

```
X=cbind(rep(1,nrow(df)), df$Weight)
Y=df$BodyFat

beta_hat= solve(t(X) %*% X) %*% t(X) %*% Y
beta_hat
```

```
[,1]
[1,] -27.3762623
[2,] 0.2498741
```

```
model=lm(BodyFat~ Weight,df)
model
```

```
Call:
lm(formula = BodyFat ~ Weight, data = df)
```

```
Coefficients:
(Intercept)      Weight
-27.3763       0.2499
```

```
summary(model)
```

```

Call:
lm(formula = BodyFat ~ Weight, data = df)

Residuals:
    Min      1Q  Median      3Q     Max 
-12.5935 -5.7904  0.6536  5.2731 10.4004 

Coefficients:
            Estimate Std. Error t value Pr(>|t|)    
(Intercept) -27.37626   11.54743  -2.371 0.029119 *  
Weight        0.24987    0.06065   4.120 0.000643 *** 
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 7.049 on 18 degrees of freedom
Multiple R-squared:  0.4853,    Adjusted R-squared:  0.4567 
F-statistic: 16.97 on 1 and 18 DF,  p-value: 0.0006434

```

```
cor(df)[1,2]^2
```

```
[1] 0.4852972
```

```
cor(df)[1,2]
```

```
[1] 0.6966328
```

```
a=function(x){  
  (exp(2*x)-1)/(exp(2*x)+1)  
}  
a(1.36)
```

```
[1] 0.8763931
```

3.5.4 Homework stop 6

- Complete the Chapter 2 questions in the textbook.

Exercise 3.22. For

$$Y_i = \beta_0 + \beta_1 X_i + \epsilon_i$$

$$y = \begin{pmatrix} y_1 \\ \vdots \\ y_n \end{pmatrix}, X = \begin{pmatrix} 1 & x_1 \\ \vdots & \vdots \\ 1 & x_n \end{pmatrix}, \beta = \begin{pmatrix} \beta_0 \\ \beta_1 \end{pmatrix}, \epsilon = \begin{pmatrix} \epsilon_1 \\ \vdots \\ \epsilon_n \end{pmatrix}$$

- Compute $\hat{\beta}$, $\text{Var}[\hat{\beta}_1]$, $\text{Var}[\hat{\beta}_0]$, $\text{cov}[(\hat{\beta}_0, \hat{\beta}_1)]$
- Show $\hat{\beta}_1 = r \frac{\hat{\sigma}_y}{\hat{\sigma}_x}$

3.6 Additional concepts & examples

Here we touch on a few important examples and notes about the MLR.

3.6.1 Beware scatter plots in MLR

Sometimes, scatter plots are misleading for determining the relationship between Y and a collection of p covariates. In the following example, it appears that $X1$ and Y do not have a relationship, when in fact they do. Generally, this phenomena goes away with higher sample sizes.

```
# Scatter diagram beware?
# x1=c(2,3,4,1,5,6,7,8)
# x2=c(2,3,4,1,5,6,7,8)
# x=c(2,3,4,1,5,6,7,8)

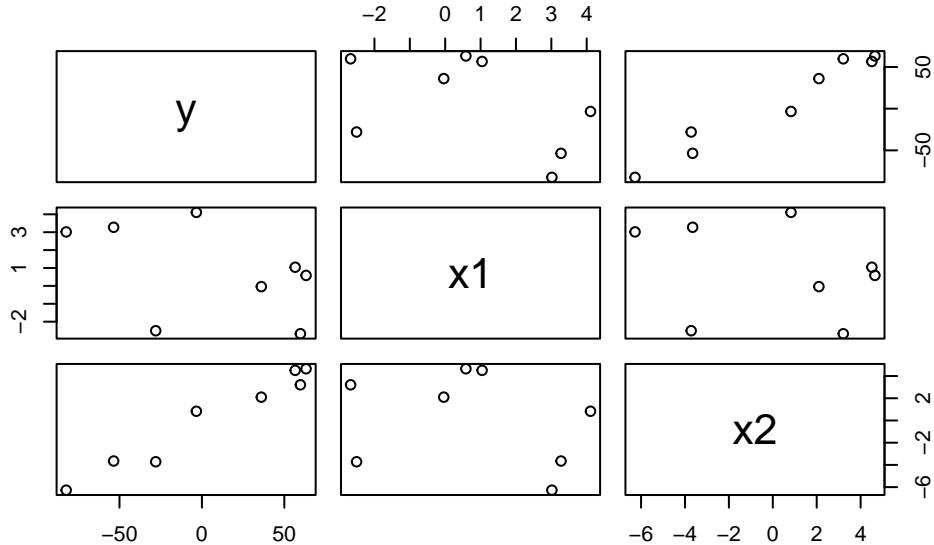
# x1=1:8
# x2=c(2,1:6,4)
# y=8-5*x1+12*x2+rnorm(8,0,2)

set.seed(445)

n=8
x1=rnorm(n,5,5)
x2=rnorm(n,3,5)
y=8-5*x1+12*x2+rnorm(n,0,2)

df=data.frame(cbind(y,x1,x2))
```

```
plot(df)
```



Next, we do an example from the textbook, which uses the NFL data. Specifically, we try to evaluate the relationship between number of wins and several explanatory variables.

Example 3.10. Using the following NFL data, complete 3.1-3.4, 4.1 and 4.2 in the textbook.

```
##### NFL example #####
# This gives you the data sets used in the textbook
# install.packages('MPV')
df=MPV::table.b1
# Note for more information, run ?MPV::table.b1

head(df)
```

	y	x1	x2	x3	x4	x5	x6	x7	x8	x9
1	10	2113	1985	38.9	64.7	4	868	59.7	2205	1917
2	11	2003	2855	38.8	61.3	3	615	55.0	2096	1575
3	11	2957	1737	40.1	60.0	14	914	65.6	1847	2175
4	13	2285	2905	41.6	45.3	-4	957	61.4	1903	2476
5	10	2971	1666	39.2	53.8	15	836	66.1	1457	1866
6	11	2309	2927	39.7	74.1	8	786	61.0	1848	2339

```

# names too long
names(df)

[1] "y"   "x1"  "x2"  "x3"  "x4"  "x5"  "x6"  "x7"  "x8"  "x9"

# rename to make it easier
names(df)=c("Wins","RushY","PassY","PuntA","FGP","TurnD","PenY","PerR","ORY","OPY")
names(df)

[1] "Wins"  "RushY" "PassY" "PuntA" "FGP"    "TurnD"  "PenY"  "PerR"  "ORY"
[10] "OPY"

# Wins~ beta_1+beta_2Passing_yrds+beta_3per_rush+beta_4ORY+epsilon
# summary(df)
# plot(df)
# run the model
regression_model=lm( Wins ~ PassY+PerR+ORY ,data= df )
summary(regression_model)

```

Call:

```
lm(formula = Wins ~ PassY + PerR + ORY, data = df)
```

Residuals:

Min	1Q	Median	3Q	Max
-3.0370	-0.7129	-0.2043	1.1101	3.7049

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)							
(Intercept)	-1.808372	7.900859	-0.229	0.820899							
PassY	0.003598	0.000695	5.177	2.66e-05 ***							
PerR	0.193960	0.088233	2.198	0.037815 *							
ORY	-0.004816	0.001277	-3.771	0.000938 ***							

Signif. codes:	0	'***'	0.001	'**'	0.01	'*'	0.05	'. '	0.1	' '	1

Residual standard error: 1.706 on 24 degrees of freedom

Multiple R-squared: 0.7863, Adjusted R-squared: 0.7596

F-statistic: 29.44 on 3 and 24 DF, p-value: 3.273e-08

```
# model=lm(Wins~PassY+PerR+ORY,data=df)
# get the confidence intervals.
confint(regression_model)
```

	2.5 %	97.5 %
(Intercept)	-18.114944410	14.498200293
PassY	0.002163664	0.005032477
PerR	0.011855322	0.376065098
ORY	-0.007451027	-0.002179961

What conclusions can you make from this output? - All variables seem important! For instance, we see that for every 1% increase in percentage rushing, there is a 0.193960 increase in number of wins, on average, holding passing yards and opponent rushing yards constant.

```
#### CI
# mean response of z'\beta , z=(2000,60,1900)'
new_data=data.frame( matrix(c(2000,60,1900),ncol=3) )
names(new_data)

[1] "X1" "X2" "X3"

names(new_data)=c( 'PassY','PerR','ORY' )
```

```
predict(regression_model, new_data , interval = 'confidence')
```

	fit	lwr	upr
1	7.875942	7.072672	8.679213

```
predict(regression_model, new_data , interval = 'predict')
```

	fit	lwr	upr
1	7.875942	4.263986	11.4879

```
## ANOVA

regression_model_reduced=lm( Wins ~ 1 ,data= df )
summary(regression_model_reduced)
```

```

Call:
lm(formula = Wins ~ 1, data = df)

Residuals:
    Min      1Q  Median      3Q     Max 
-6.9643 -2.9643 -0.4643  3.0357  6.0357 

Coefficients:
            Estimate Std. Error t value Pr(>|t|)    
(Intercept)  6.9643     0.6576   10.59 4.09e-11 ***  
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 3.48 on 27 degrees of freedom

```

```
anova(regression_model_reduced, regression_model)
```

Analysis of Variance Table

```

Model 1: Wins ~ 1
Model 2: Wins ~ PassY + PerR + ORY
  Res.Df   RSS Df Sum of Sq    F    Pr(>F)    
1       27 326.96
2       24  69.87 3     257.09 29.437 3.273e-08 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

```
# subset test

regression_model_reduced=lm( Wins ~ PassY ,data= df )
anova(regression_model_reduced, regression_model)
```

Analysis of Variance Table

```

Model 1: Wins ~ PassY
Model 2: Wins ~ PassY + PerR + ORY
  Res.Df   RSS Df Sum of Sq    F    Pr(>F)    
1       26 250.77
2       24  69.87 2     180.9 31.069 2.189e-07 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

```
# summary(df)

summary(regression_model)
```

Call:
lm(formula = Wins ~ PassY + PerR + ORY, data = df)

Residuals:
Min 1Q Median 3Q Max
-3.0370 -0.7129 -0.2043 1.1101 3.7049

Coefficients:
Estimate Std. Error t value Pr(>|t|)
(Intercept) -1.808372 7.900859 -0.229 0.820899
PassY 0.003598 0.000695 5.177 2.66e-05 ***
PerR 0.193960 0.088233 2.198 0.037815 *
ORY -0.004816 0.001277 -3.771 0.000938 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 1.706 on 24 degrees of freedom
Multiple R-squared: 0.7863, Adjusted R-squared: 0.7596
F-statistic: 29.44 on 3 and 24 DF, p-value: 3.273e-08

```
# anova(regression_model)
summ=summary(regression_model)
summ$r.squared
```

[1] 0.7863069

```
summ$adj.r.squared
```

[1] 0.7595953

```
regression_model2=lm(Wins~PassY+ORY,data=df)

SSER=sum(regression_model2$residuals*regression_model2$residuals); SSER
```

```
[1] 83.9382

dfer=regression_model2$df.residual; dfer

[1] 25

SSEC=sum(regression_model$residuals*regression_model$residuals); SSEC

[1] 69.87

dfeC=regression_model$df.residual; dfeC

[1] 24

SSdrop=SSER-SSEC; SSdrop

[1] 14.06819

dfddrop=dfer-dfeC

MSdrop=SSdropdfddrop; MSdrop

[1] 14.06819

R_prp=SSdrop/SSER; R_prp

[1] 0.1676018

MSdrop

[1] 14.06819

1-pf(MSdrop,dfddrop,dfeC)

[1] 0.000986662
```

```
cor(regression_model$fitted.values , df$Wins)^2
```

```
[1] 0.7863069
```

```
confint(regression_model2)
```

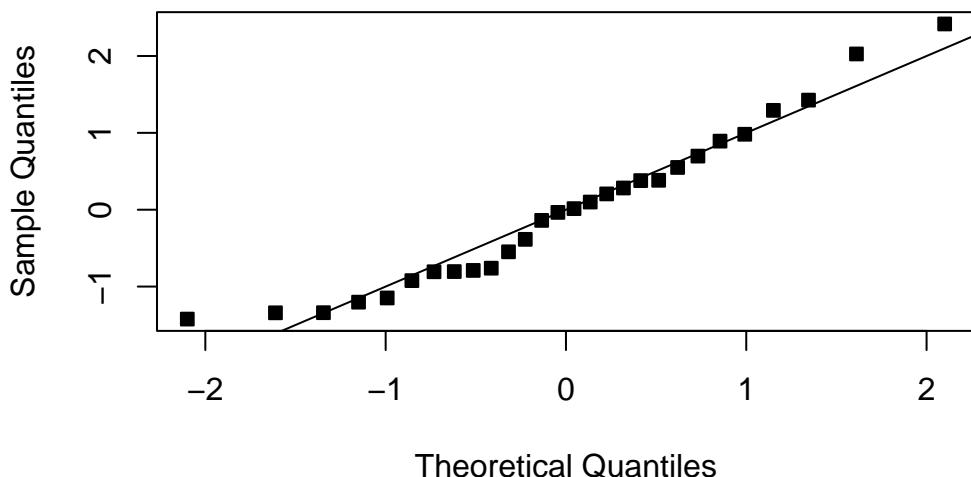
	2.5 %	97.5 %
(Intercept)	9.321778092	20.103571885
PassY	0.001654121	0.004568143
ORY	-0.008797465	-0.004819085

```
new_data=df[1,c(3,8,9)]  
new_data[1,]=c(2300 , 56 , 2100)  
predict(regression_model2,new_data,interval = 'confidence')
```

	fit	lwr	upr
1	7.5709	6.814662	8.327138

```
##### check the fit #####  
MSE=summ$sigma^2  
qqnorm(regression_model2$residuals/summ$sigma,pch=22,bg=1)  
abline(0,1)
```

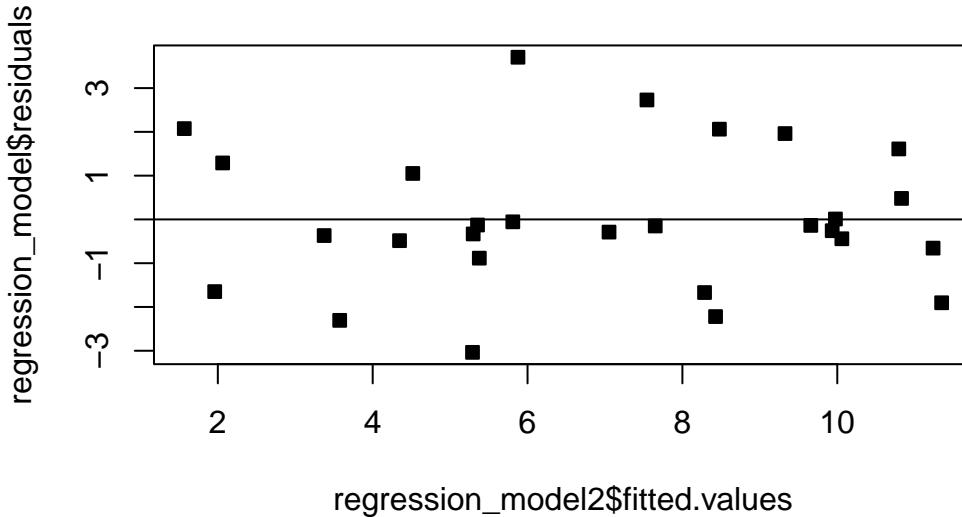
Normal Q-Q Plot



```
hist(regression_model2$residuals, breaks=6)
```



```
plot(regression_model2$fitted.values, regression_model2$residuals, pch=22, bg=1)  
abline(h=0)
```



```

n=nrow(df)
plot(1:n,regression_model2$residuals,pch=22,bg=1)
abline(h=0)

time=(1:n)
res=lm(regression_model2$residuals~time)
summary(res)

```

Call:
`lm(formula = regression_model2$residuals ~ time)`

Residuals:

Min	1Q	Median	3Q	Max
-2.36425	-1.04520	-0.07845	1.16457	2.40353

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	1.8479	0.5610	3.294	0.002852 **
time	-0.1274	0.0338	-3.771	0.000848 ***

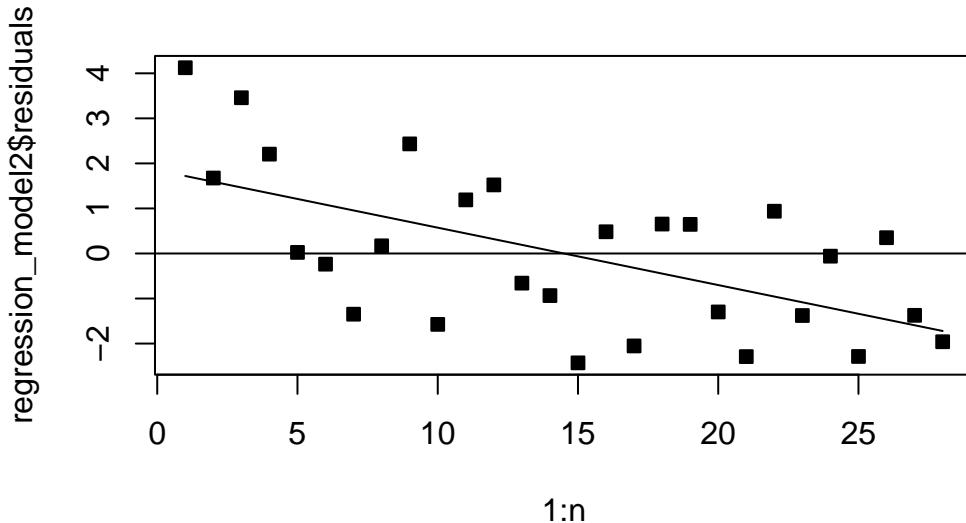
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

Residual standard error: 1.445 on 26 degrees of freedom
Multiple R-squared:  0.3535,   Adjusted R-squared:  0.3286
F-statistic: 14.22 on 1 and 26 DF,  p-value: 0.0008481

```

```
lines(time,res$fitted.values)
```



```

regression_model3=lm(Wins~PerR+ORY,data=df)
summ3=summary(regression_model3)
summ3

```

```

Call:
lm(formula = Wins ~ PerR + ORY, data = df)

```

```
Residuals:
```

Min	1Q	Median	3Q	Max
-3.7985	-1.5166	-0.5792	1.9927	4.5248

```
Coefficients:
```

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	17.944319	9.862484	1.819	0.08084 .

```
PerR          0.048371   0.119219   0.406   0.68839
ORY          -0.006537   0.001758  -3.719   0.00102 **  
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
  
Residual standard error: 2.432 on 25 degrees of freedom  
Multiple R-squared:  0.5477,    Adjusted R-squared:  0.5115  
F-statistic: 15.13 on 2 and 25 DF,  p-value: 4.935e-05
```

```
summ3$r.squared
```

```
[1] 0.5476628
```

```
summ3$adj.r.squared
```

```
[1] 0.5114759
```

```
confint(regression_model)
```

	2.5 %	97.5 %
(Intercept)	-18.114944410	14.498200293
PassY	0.002163664	0.005032477
PerR	0.011855322	0.376065098
ORY	-0.007451027	-0.002179961

```
confint(regression_model3)
```

	2.5 %	97.5 %
(Intercept)	-2.36784828	38.256485319
PerR	-0.19716429	0.293906022
ORY	-0.01015637	-0.002916818

```
new_data3=df[1,c(8,9)]  
new_data3[1,]=c(56 , 2100)  
predict(regression_model3,new_data3,interval = 'confidence')
```

	fit	lwr	upr
1	6.926243	5.828643	8.023842

```
predict(regression_model2,new_data,interval = 'confidence')
```

	fit	lwr	upr
1	7.5709	6.814662	8.327138

Be careful about extrapolating beyond the region containing the original observations. It is very possible that a model that fits well in the region of the original data will perform poorly outside that region. It is easy to inadvertently extrapolate, since the levels of the regressors jointly define a region containing the data which is impossible to visualize in its entirety beyond 2 dimensions. Ideally, we want to make inferences which lie inside the convex hull of the regressors.

We can use the diagonal of the hat matrix $H = X(X^\top X)^{-1}X^\top$. In general, the point that has the largest value of h_{ii} , say h_{max} , will lie on the boundary of the convex hull in a region of the x -space where the density of the observations is relatively low. Points that lie in the set $\{x^\top(X^\top X)^{-1}x \leq h_{max}\}$ enclose the convex hull. Thus, for a value we are interested in predicting, say y , we can check if we are extrapolating with $y^\top(X^\top X)^{-1}y \leq h_{max}$.

A serious problem that may dramatically impact the usefulness of a regression model is multicollinearity, or near - linear dependence among the regression variables. Multicollinearity implies near - linear dependence among the regressors. The regressors are the columns of the X matrix, so clearly an exact linear dependence would result in a singular $X^\top X$. This will impact our ability to estimate β .

We can check for this dependence with the **variance inflation factor** (VIF). The variance inflation factor can be written as $(1 - R_j^2)^{-1}$, where R_j^2 is the coefficient of determination obtained from regressing X_j on the other regressor variables. If VIF is large, say > 3 , then you will likely need to make some changes to your regression model.

Sometimes, you may observe that regression coefficients have the a sign that is unexpected, or contradicts nature. This is likely due to one of the following:

- The range of some of the regressors is too small – if the range of some of the regressors is too small, then the variance of $\hat{\beta}$ is high.
- Important regressors have not been included in the model.
- Multicollinearity is present.
- Computational errors have been made.

We close this Chapter with the following statement. Recall the modelling overview from Chapter 1:

- Posit the model: What is the linear regression model – what are all the assumptions of the linear regression model?
- Estimation: How can we estimate parameters of the linear regression model?

- Inference: How can we compute confidence intervals and run hypothesis tests associated with the linear regression model?
- Fit: Does our fitted line match up with the data? What about the normality assumption? Do the errors appear normal? Do the errors seem independent? Is the variance constant? How much variability is explained by our model?
- Prediction: How can we predict a new Y ? What is the error of this prediction

If you have learned the concepts of this chapter, you should be able to complete all of these steps! In the following chapters, we will discuss different problems that can arise in regression modelling and how to remedy them.

3.6.2 Homework questions

Exercise 3.23. Show $\text{Var} [\hat{Y}|X] = \sigma^2 H$.

Exercise 3.24. Check for multicollinearity in our past examples.

Exercise 3.25. Complete the problem sets from Chapter's 2, 3 and 4!

4 Residual analysis

Recall that we want to study the normal MLR:

$$Y|X = X\beta + \epsilon,$$

where - $\forall i \in [n]$, $\epsilon_i \sim \mathcal{N}(0, \sigma^2)$ and $\epsilon_i \perp \epsilon_j$ for $i \neq j$, $i, j \in [n]$. - $\beta \in \mathbb{R}^{p \times 1}$ is the unknown, population coefficient vector - $X \in \mathbb{R}^{n \times p}$ is a covariate matrix

We assume that: - The relationship is linear $Y|X = X\beta + \epsilon$, - $\forall i \in [n]$, $\epsilon_i \sim \mathcal{N}(0, \sigma^2)$. - $\epsilon_i \perp \epsilon_j$ for $i \neq j$, $i, j \in [n]$.

We have seen some methods for checking if these are appropriate, we will dive deeper now.

Recall that the residuals are defined as:

$$\hat{\epsilon} = Y - \hat{Y} = Y - X\hat{\beta}.$$

Given that a residual may be viewed as the deviation between the data and the fit, it is also a measure of the variability in the response variable not explained by the regression model. It is also convenient to think of the residuals as the realized or observed values of the model errors. Thus, it's reasonable to conclude that departures from the assumptions on the errors should show up in the residuals. Analysis of the residuals is an effective way to discover several types of model inadequacies.

4.1 Properties of residuals

The following are some properties of the residual vector. First, the sample mean of the residuals is zero: $\sum_{i=1}^n \hat{\epsilon}_i / n = \hat{\epsilon} \cdot 1/n = 0$. We also have that $E[\hat{\epsilon}] = 0$. Next, the sample variance of the residual vector is approximately the MSE: $\frac{1}{n-1} \sum_{i=1}^n \hat{\epsilon}_i^2 = \frac{n-p}{n-1} MSE$. Lastly, unlike the random error ϵ_i , the residuals **are not** independent. Sometimes we say that they are "approximately independent" if $p \ll n$, which we will touch on later.

4.2 Types of residuals

We will refer to $\hat{\epsilon}_i$ as simply the residuals, or ordinary residuals when we need to be extra clear.

The standardized residual is given by

$$d_i = \hat{\epsilon}_i / \sqrt{MSE}.$$

This is an approximate *Z*-score for the residuals, since the residuals have 0 mean, the *MSE* is approximately the variance of the random error and the residuals approximate the random error. We say that large $d_i (> 3)$ indicates an outlier, though, we may want to use a more robust measure of the variance. We will generally prefer to use a different type of residual, which we now present.

We now introduce the hat matrix: $H = X(X^\top X)^{-1}X^\top$. Note that H is symmetric and **idempotent**. The hat matrix appears often in regression analysis, and you should remember this quantity. It is called the hat matrix because $\hat{Y} = HY$.

Note that the eigenvalues of H , and any idempotent matrix A are either 0 or 1:

$$\lambda x = Ax = A^2x = A\lambda x = \lambda^2x,$$

which implies that $\lambda \in \{0, 1\}$.

Exercise 4.1. Verify that H is symmetric and idempotent and that $\hat{Y} = HY$, where one recalls that a matrix A is idempotent if $AA = A$.

Now, note that:

$$\hat{\epsilon} = (I - H)Y = (I - H)\epsilon.$$

Exercise 4.2. Verify that $\hat{\epsilon} = (I - H)Y = (I - H)\epsilon..$

Using this identity, we have that $\text{Var}[\hat{\epsilon}] = (I - H)\epsilon(I - H)^\top = (I - H)\sigma^2$.

The fact that H is symmetric and idempotent implies that its diagonal elements are between 0 and 1. It follows that the elements on the diagonal of $(I - H)$ are also between 0 and 1. Therefore, the *MSE* overestimates the variance of the residuals: the variance of residual i is given by $(1 - h_{ii})\sigma^2 < \sigma^2 \approx MSE$. Here, h_{ii} denotes the i th diagonal element of the matrix H .

Furthermore, h_{ii} is a measure of the location of the i th point in x -space, $\text{Var}[\hat{\epsilon}_i]$ depends on where X_i lies. Points near the center of the x -space have larger variance than residuals at more remote locations. What do you think about this?

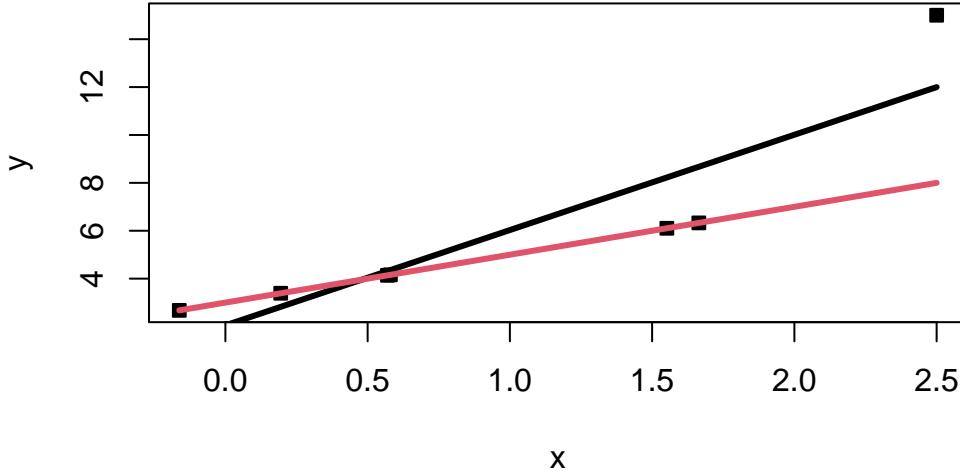
Now, intuitively, violations of model assumptions would be more likely to occur at remote points. However, the variance of the ordinary residuals is lower at these points. Therefore, these violations may be hard to detect from inspection of the ordinary residuals because their residuals will often be smaller.

Therefore, we will call points that are outlying in the x -space **leverage points**. We will refer to **influence points** as points that are not only remote in terms of the x -space, but also the observed response for that point is not consistent with the response that would be predicted for that point, using only the other data points.

In the example below, observe that the right-most point is both a leverage and influential point.

```
#####
# Simulate some data
set.seed(330)
x=c(rnorm(6),2.5)
y=x*2+3
y[7]=y[7]+7

# Plot the data and fitted lines
plot(x,y,pch=22,bg=1)
a=lm(y~x)
curve(a$coefficients[1]+x*a$coefficients[2],add=T,lwd=3)
curve(x*2+3,add=T,col=2,lwd=3)
```



```
a$coefficients
```

(Intercept)	x
2.048937	3.979977

Let \hat{Y}_n^* be the estimate of Y_n based on the other data and let $\delta_n = Y_n - \hat{Y}_n^*$. Note that one can show that $\hat{Y}_n = \hat{Y}_n^* + h_{nn}\delta_n$. Next, we know that if X_n is outlying, i.e., $\|X_n\|$ is large, then $h_{nn} \approx 1$. This implies that $\hat{Y}_n \approx Y_n$, which means that the regression line is dragged to pass through (X_n, Y_n) .

To detect these types of outlying points, it makes sense to then define the **studentized residuals**:

$$r_i = \frac{\hat{\epsilon}_i}{\sqrt{MSE(1 - h_{ii})}}.$$

The studentized residuals in the simple linear regression model reduce to

$$r_i = \frac{\hat{\epsilon}_i}{\sqrt{MSE} \left[1 - \left(\frac{1}{n} + \frac{(X_i - \bar{X})^2}{\sum(X - \bar{X})^2} \right) \right]}.$$

Observe that as X_i grows large, we have that $\frac{(X_i - \bar{X})^2}{\sum(X - \bar{X})^2} \rightarrow 1$, which implies that $\left[1 - \left(\frac{1}{n} + \frac{(X_i - \bar{X})^2}{\sum(X - \bar{X})^2} \right) \right] \rightarrow 0$ and $r_i \rightarrow \infty$. On the other hand, as $\hat{\epsilon}_i$ grows large, we

have that r_i grows large. Therefore, the studentized residual will be large for observations with large ordinary residuals, and for leverage observations.

Earlier, we presented δ_i , the difference between the response of the i th observation and the predicted response based on the observations with the i th points removed. These are known as the **PRESS residuals**. This seems hard computationally, but one can show that

$$\delta_i = \frac{\hat{\epsilon}_i}{1 - h_{ii}}.$$

Note that when h_{ii} is large, this indicates a highly influential point. Observe that a large PRESS residual δ_i , but small ordinary residual $\hat{\epsilon}_i$, indicates that the model fit without (X_i, Y_i) predicts Y_i poorly.

Exercise 4.3. Show that standardizing the PRESS residual, that is, dividing the PRESS residual by its standard deviation, results in $\hat{\epsilon}_i / \sqrt{\sigma^2(1 - h_{ii})}$. Compare this to the studentized residual.

Lastly, if we believe that (X_i, Y_i) is outlying, then we can also leave (X_i, Y_i) out in the MSE calculation. This results in the **R-studentized residuals**:

$$\tilde{r}_i = \frac{\hat{\epsilon}_i}{\sqrt{\widetilde{MSE}_i(1 - h_{ii})}},$$

where \widetilde{MSE}_i is the mean squared error computed from the regression model with (X_i, Y_i) excluded:

$$\widetilde{MSE}_i = \frac{(n - p + 1)MSE - \hat{\epsilon}_i^2 / (1 - h_{ii})}{n - p}.$$

4.3 Revisiting checking model assumptions

Recall from [Checking model assumptions](#) that we plot the residuals to check various assumptions. In this case, we can now use our upgraded residuals to make these plots. In general, any of the residuals that incorporate the values h_{ii} are acceptable. We will generally use the studentized residuals.

Recall that we may want to plot:

- QQplot of the studentized residuals
- Histogram of the studentized residuals
- Plot of studentized residuals against the fitted Values
- Studentized residuals against the covariates
- Studentized residuals against covariates that are not currently in the model

- Studentized residuals against time in some contexts

Example 4.1. Here, this data contains delivery times, the number of products in the delivery and the distance of the delivery. Perform a residual analysis on the model which regresses delivery times against the number of products in the delivery and the distance of the delivery. Compute all the different types of residuals.

```
##### Delivery Time

# Load and inspect the data
data(delivery, package="robustbase")
df=delivery
n=nrow(df)
head(df)
```

	n.prod	distance	delTime
1	7	560	16.68
2	3	220	11.50
3	3	340	12.03
4	4	80	14.88
5	6	150	13.75
6	7	330	18.11

```
# Fit the model
model=lm(delTime~., data=df)
s=summary(model); s
```

Call:
`lm(formula = delTime ~ ., data = df)`

Residuals:

Min	1Q	Median	3Q	Max
-5.7880	-0.6629	0.4364	1.1566	7.4197

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	2.341231	1.096730	2.135	0.044170 *
n.prod	1.615907	0.170735	9.464	3.25e-09 ***
distance	0.014385	0.003613	3.981	0.000631 ***

```
---
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
Residual standard error: 3.259 on 22 degrees of freedom
Multiple R-squared:  0.9596,    Adjusted R-squared:  0.9559
F-statistic: 261.2 on 2 and 22 DF,  p-value: 4.687e-16
```

```
# X matrix
X=model.matrix(model)

# Hat matrix
hat=X%*%solve(t(X)%*%X)%*%t(X)

# Compute h_ii
hii=diag(hat)
hii
```

1	2	3	4	5	6	7
0.10180178	0.07070164	0.09873476	0.08537479	0.07501050	0.04286693	0.08179867
8	9	10	11	12	13	14
0.06372559	0.49829216	0.19629595	0.08613260	0.11365570	0.06112463	0.07824332
15	16	17	18	19	20	21
0.04111077	0.16594043	0.05943202	0.09626046	0.09644857	0.10168486	0.16527689
22	23	24	25			
0.39157522	0.04126005	0.12060826	0.06664345			

```
max(hii)
```

```
[1] 0.4982922
```

```
# Notice 9 is large

##### ordinary residuals
regular_residuals=model$residuals
# or

# standardized residuals
stand_res=model$residuals/s$sigma

# studentized residuals
```

```

student_res=rstudent(model)

#PRESS residuals
press=model$residuals/(1-hii)

# Get the MSE_is
MSE_i=((n-2)*(s$sigma)^2-regular_residuals^2/(1-hii))/(n-3)

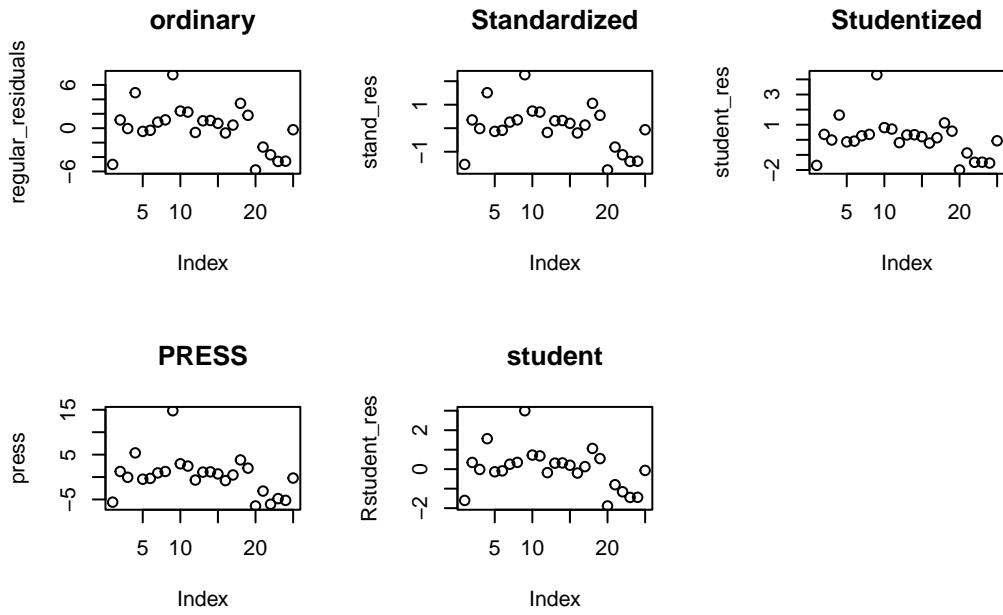
#r studentized residuals
Rstudent_res=model$residuals/sqrt(MSE_i)

# Plot them all and compare
par(mfrow=c(2,3))
plot(regular_residuals,main="ordinary")
plot(stand_res,main="Standardized")
plot(student_res,main="Studentized")
plot(press,main="PRESS")
plot(Rstudent_res,main="student")

# Notice 9 is much more outlying in the last 3 graphs.

# Reset plotting
par(mfrow=c(1,1))

```



```
# 9 is largest
which.max(student_res)
```

```
9
9
```

```
# Notice the standardized is half as large as the studentized.
student_res[9]
```

```
9
4.31078
```

```
stand_res[9]
```

```
9
2.276351
```

```
par(mfrow=c(2,2))
# Notice the difference !!!
```

```

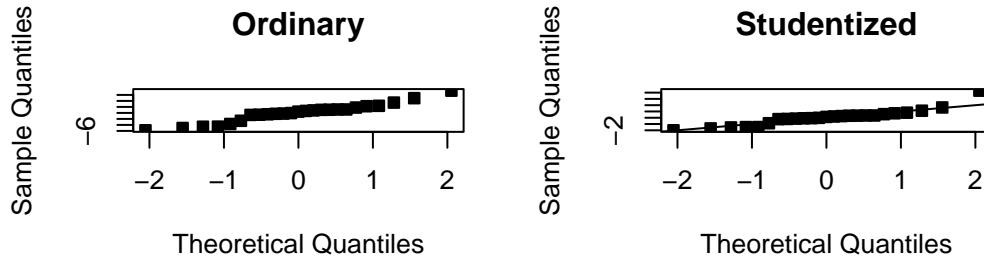
qqnorm(regular_residuals,pch=22, bg=1, main="Ordinary")

qqnorm(student_res,pch=22, bg=1, main="Studentized")
abline(0,1)

# Compare all

par(mfrow=c(2,2))

```



```

qqnorm(student_res,pch=22, bg=1, ylim=c(-5,5), main="Studentized")
abline(0,1)
# hist(student_res)

qqnorm(Rstudent_res,pch=22, bg=1, ylim=c(-3,3), main="R Studentized")
qqline(Rstudent_res,pch=22, bg=1, ylim=c(-10,10))
# abline(0,1)

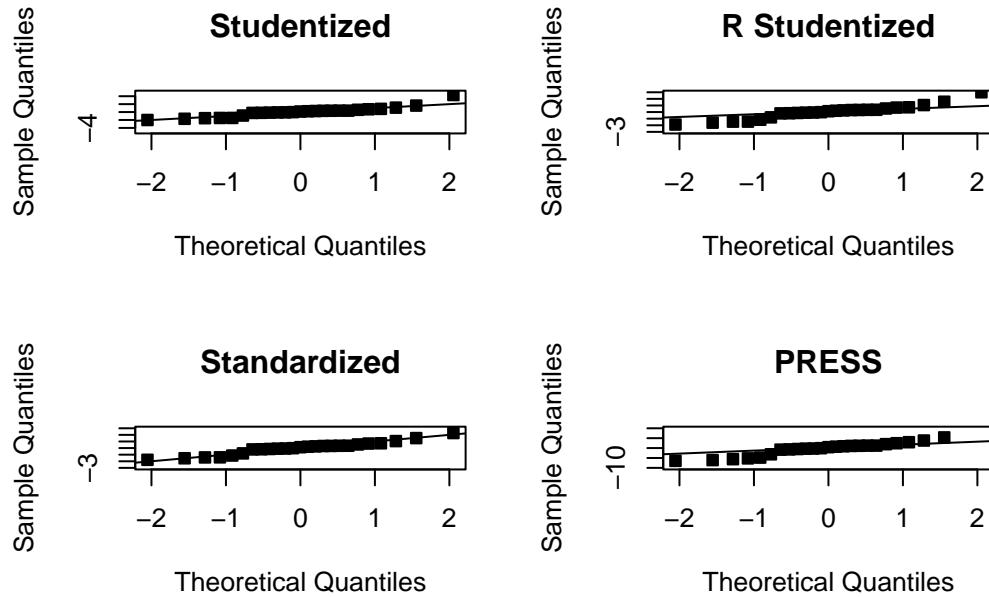
qqnorm(stand_res,pch=22, bg=1, ylim=c(-3,3), main="Standardized")
abline(0,1)

qqnorm(press,pch=22, bg=1, ylim=c(-10,10), main="PRESS")
qqline(press,pch=22, bg=1, ylim=c(-10,10))

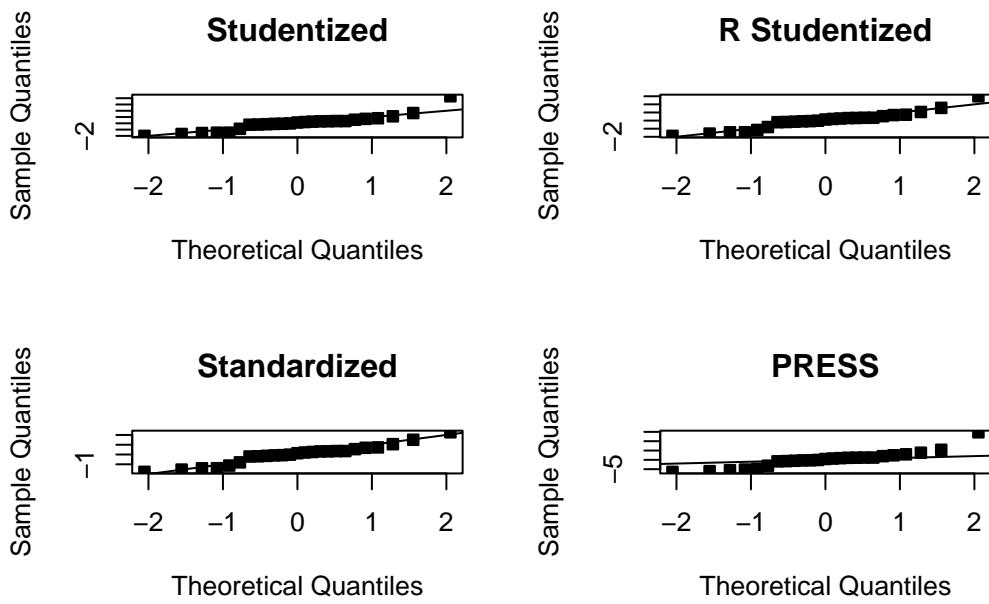
```

```
#careful of the scale!

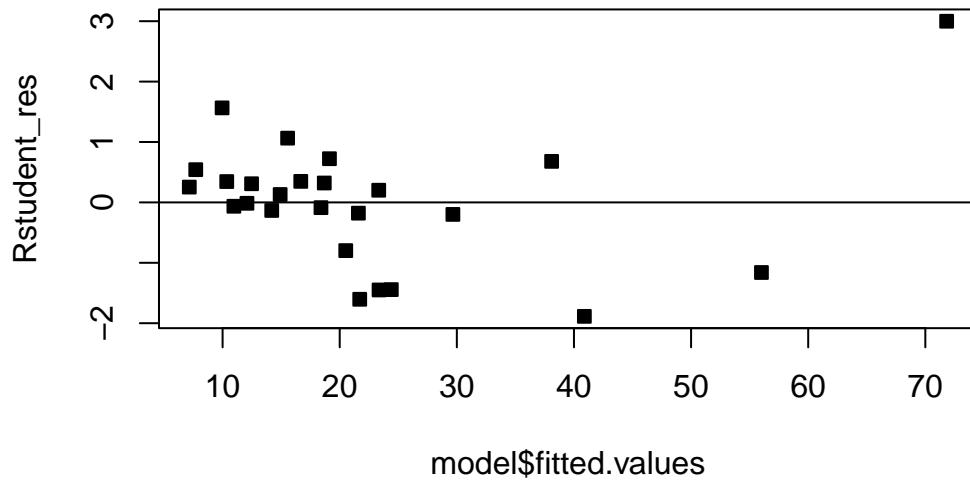
par(mfrow=c(3,2))
qqline(model$residuals,pch=22,bg=1,main="Ordinary")
```



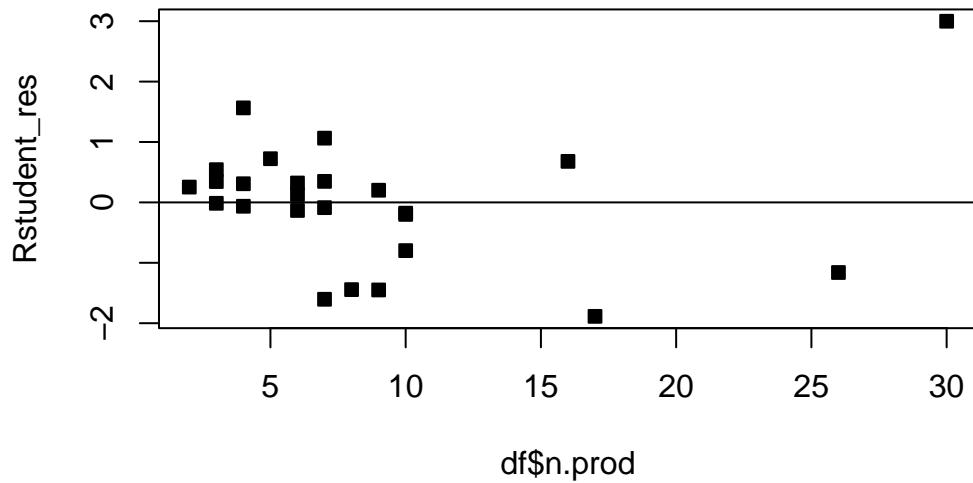
```
par(mfrow=c(2,2))
qqnorm(student_res,pch=22,bg=1,main="Studentized")
abline(0,1)
qqnorm(Rstudent_res,pch=22,bg=1,main="R Studentized")
abline(0,1)
qqnorm(stand_res,pch=22,bg=1,main="Standardized")
abline(0,1)
qqnorm(press,pch=22,bg=1,main="PRESS")
abline(0,1)
```



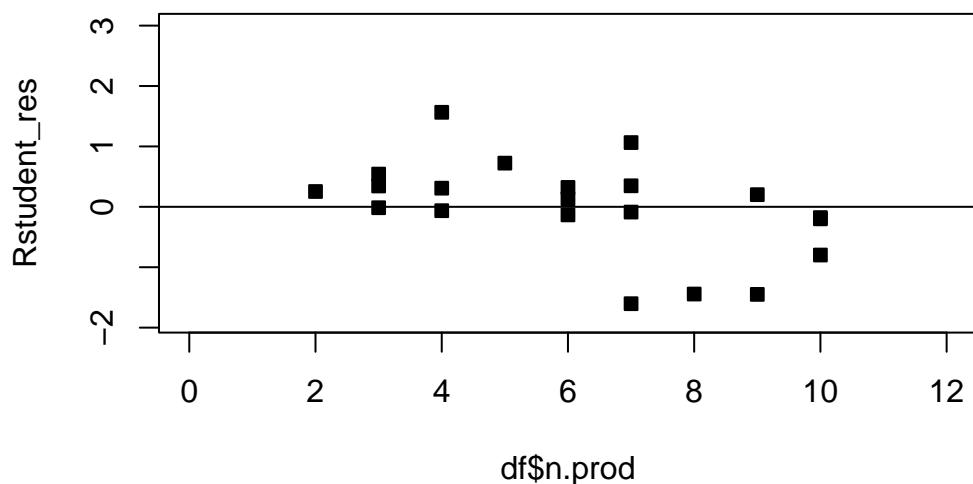
```
# Now we plot the fitted values against the R studentized residuals
par(mfrow=c(1,1),pch=22)
plot(model$fitted.values,Rstudent_res,bg=1)
abline(h=0)
```



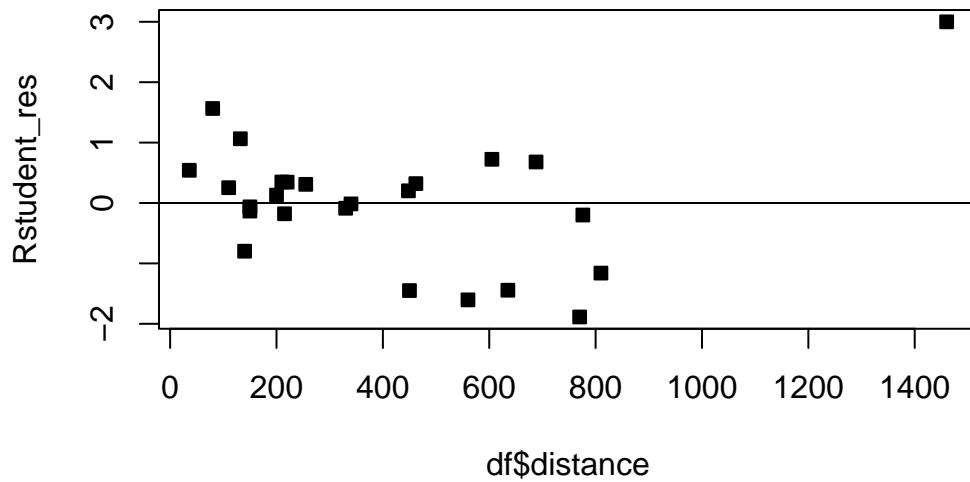
```
# Now we plot the number of products against the R studentized residuals
# There is one moderately large delivery!
plot(df$n.prod,Rstudent_res,bg=1)
abline(h=0)
```



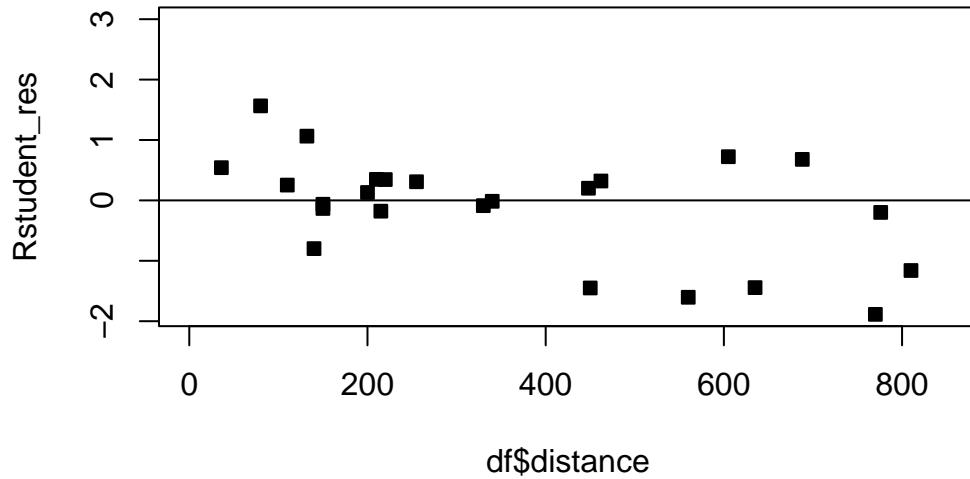
```
# Care for the scale
plot(df$n.prod,Rstudent_res, bg=1, xlim=c(0,12))
abline(h=0)
```



```
# There is one very far delivery!
plot(df$distance,Rstudent_res,bg=1)
abline(h=0)
```



```
# Care for the scale
plot(df$distance,Rstudent_res,bg=1,xlim=c(0,850))
abline(h=0)
```



```
# What happens to the model when we remove this outlying observation (the far distance delivery)
df2=df[-which.max(df$distance),]

# refit the model
model=lm(delTime~., data=df2)
s=summary(model); s
```

Call:
`lm(formula = delTime ~ ., data = df2)`

Residuals:

Min	1Q	Median	3Q	Max
-4.0325	-1.2331	0.0199	1.4730	4.8167

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	4.447238	0.952469	4.669	0.000131 ***
n.prod	1.497691	0.130207	11.502	1.58e-10 ***
distance	0.010324	0.002854	3.618	0.001614 **

```

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 2.43 on 21 degrees of freedom
Multiple R-squared: 0.9487, Adjusted R-squared: 0.9438
F-statistic: 194.2 on 2 and 21 DF, p-value: 2.859e-14

```

```

# X matrix
X=model.matrix(model)

# Hat matrix
hat=X%*%solve(t(X)%*%X)%*%t(X)

# Compute h_ii
hii=diag(hat)
hii

```

1	2	3	4	5	6	7
0.11083391	0.07741039	0.09998709	0.10097319	0.08066357	0.04290146	0.10024969
8	10	11	12	13	14	15
0.06537738	0.20438000	0.14675966	0.11367920	0.06437975	0.08033747	0.04661503
16	17	18	19	20	21	22
0.21115081	0.06254612	0.10128434	0.11992977	0.18537865	0.16642759	0.55671434
23	24	25				
0.04687996	0.13894064	0.07620000				

```
max(hii)
```

```
[1] 0.5567143
```

```

##### ordinary residuals
regular_residuals=model$residuals
# or

# standardized residuals
stand_res=model$residuals/s$sigma

# studentized residuals
student_res=rstudent(model)

```

```

#PRESS residuals
press=model$residuals/(1-hii)

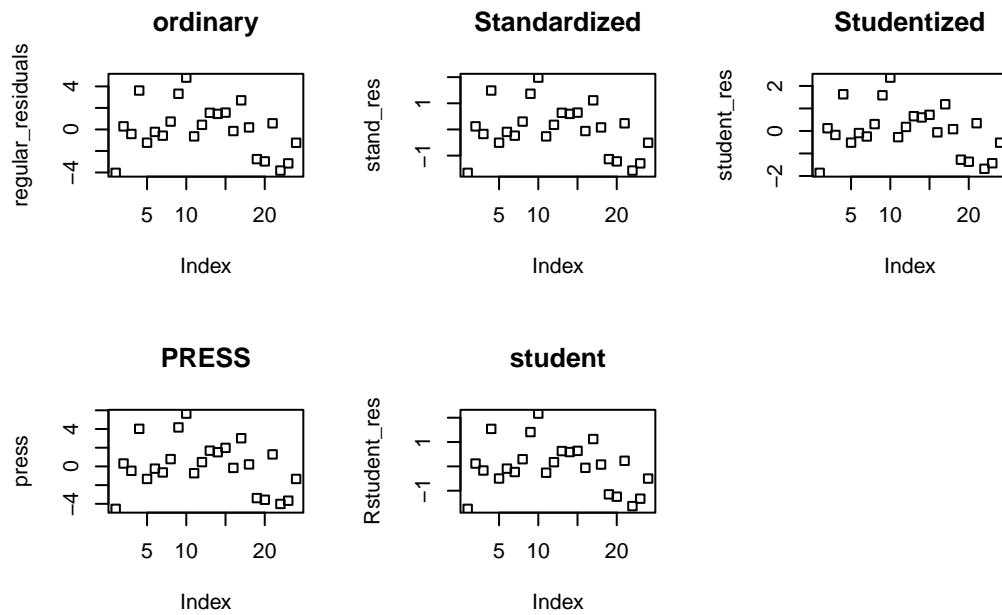
# Get the MSE_is
MSE_i=((n-2)*(s$sigma)^2-regular_residuals^2/(1-hii))/(n-3)

#r studentized residuals
Rstudent_res=model$residuals/sqrt(MSE_i)

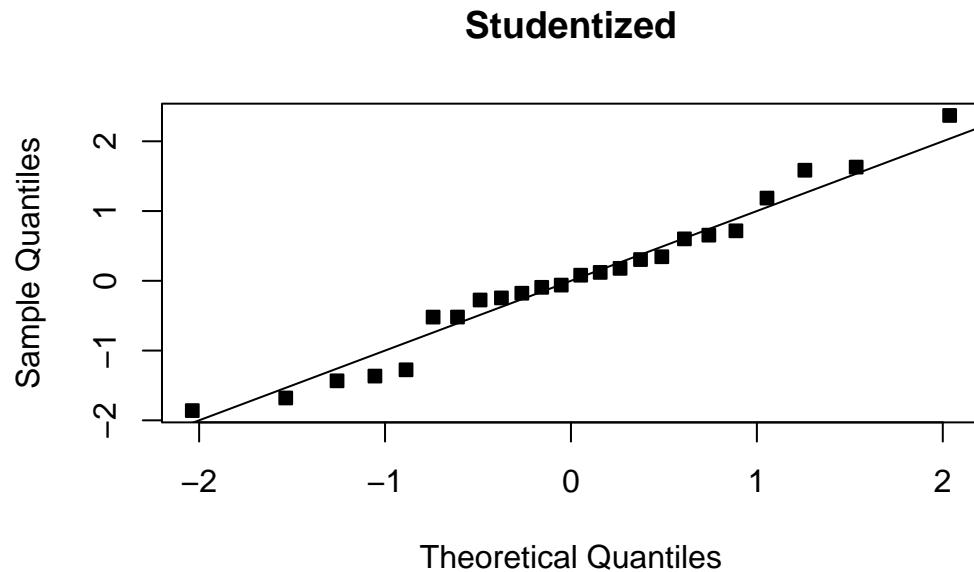
# Plot them all and compare - much better
par(mfrow=c(2,3))
plot(regular_residuals,main="ordinary")
plot(stand_res,main="Standardized")
plot(student_res,main="Studentized")
plot(press,main="PRESS")
plot(Rstudent_res,main="student")

# Notice that these graphs are fine now...
par(mfrow=c(1,1))

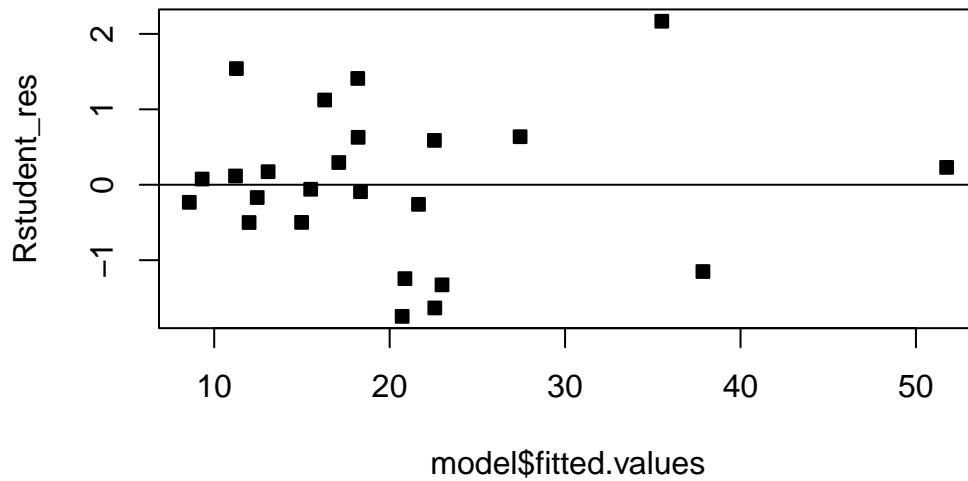
```



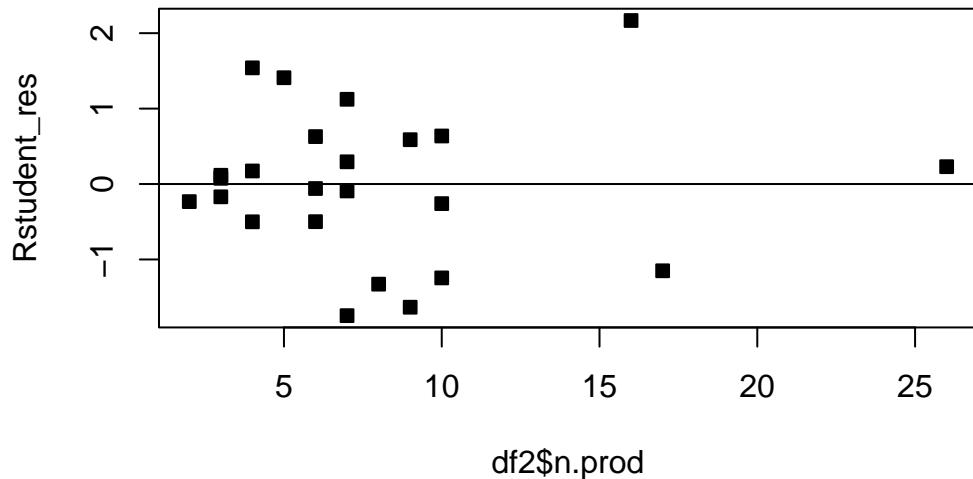
```
qqnorm(student_res,pch=22,bg=1,main="Studentized")
abline(0,1)
```



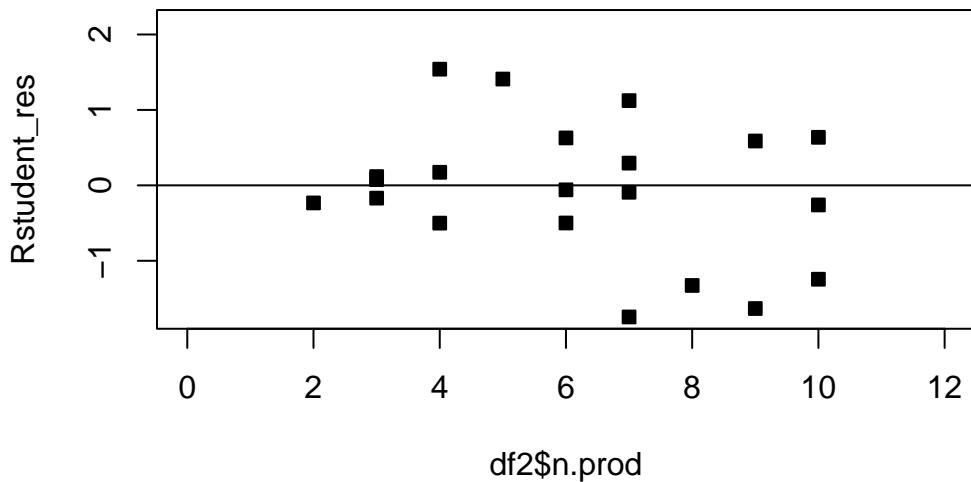
```
# Now we plot the fitted values against the R studentized residuals
par(mfrow=c(1,1),pch=22)
plot(model$fitted.values,Rstudent_res,bg=1)
abline(h=0)
```



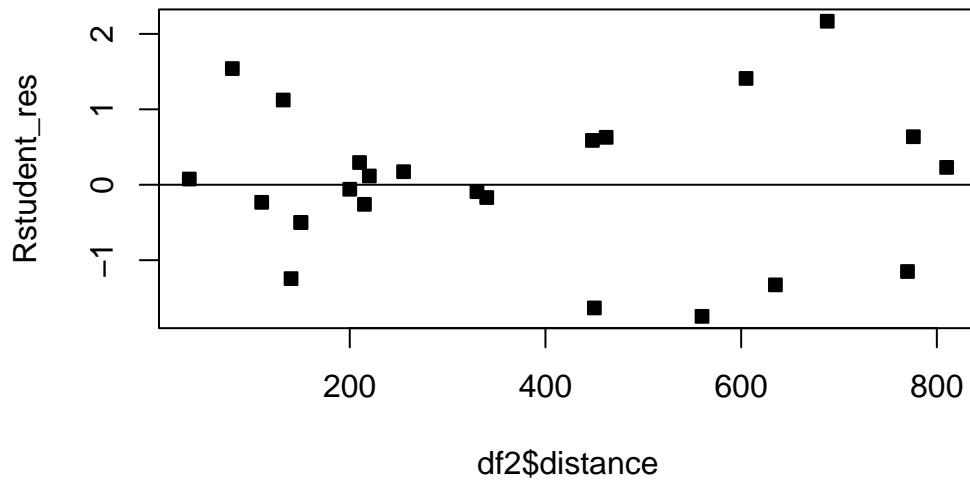
```
# Now we plot the number of products against the R studentized residuals
plot(df2$n.prod,Rstudent_res,bg=1)
abline(h=0)
```



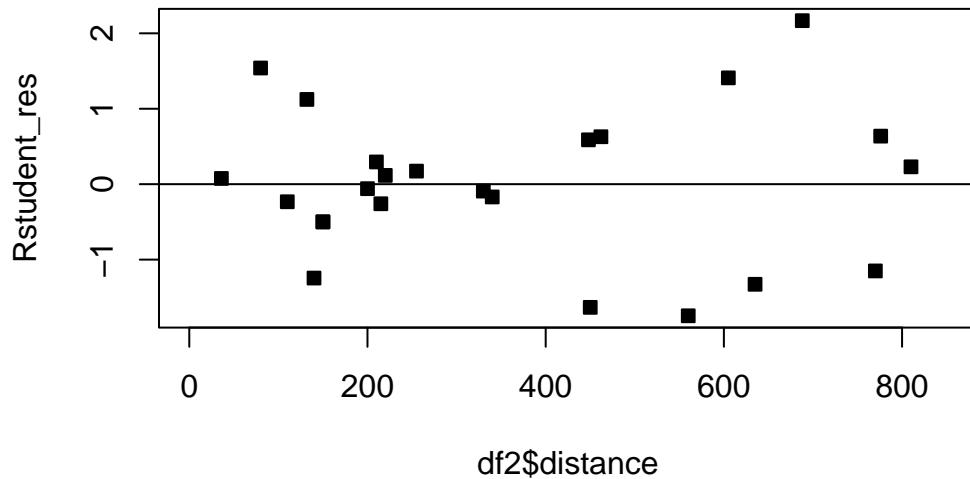
```
# Care for the scale  
plot(df2$n.prod,Rstudent_res,bg=1,xlim=c(0,12))  
abline(h=0)
```



```
plot(df2$distance,Rstudent_res,bg=1)  
abline(h=0)
```



```
# Care for the scale
plot(df2$distance,Rstudent_res,bg=1,xlim=c(0,850))
abline(h=0)
```



Now, we have introduced different types of residuals and the appropriate graphs to examine when checking for violations of the assumptions. When we observe violations of the assumptions - what do we do? That will be the topic of the next section.

Some of these remedies include: - Transformations of the response - Transformations of certain regressors - Robust methods/outlier removal - Inclusion of new regressors

4.4 Homework stop

Do the Chapter 4 questions from the textbook.

Exercise 4.4. In the context of a regression model, do you think a point outlying in the x -space is more problematic than a point outlying in the y -space?

Exercise 4.5. Make a table describing the differences between each type of residual.

Exercise 4.6. Perform a residual analysis on the marketing data from Example [Example 3.6](#).

Exercise 4.7. Perform a residual analysis on the data from Example [Example 3.7](#).

5 Transformations

5.1 Variance-stabilizing transformations

Recall that we assume that $\forall i \in [n], \epsilon_i \sim \mathcal{N}(0, \sigma^2)$. A common reason for a violation of this assumption is for Y to have a distribution in which the variance is related to its mean. For example, if the response Y is a Poisson random variable, i.e.,

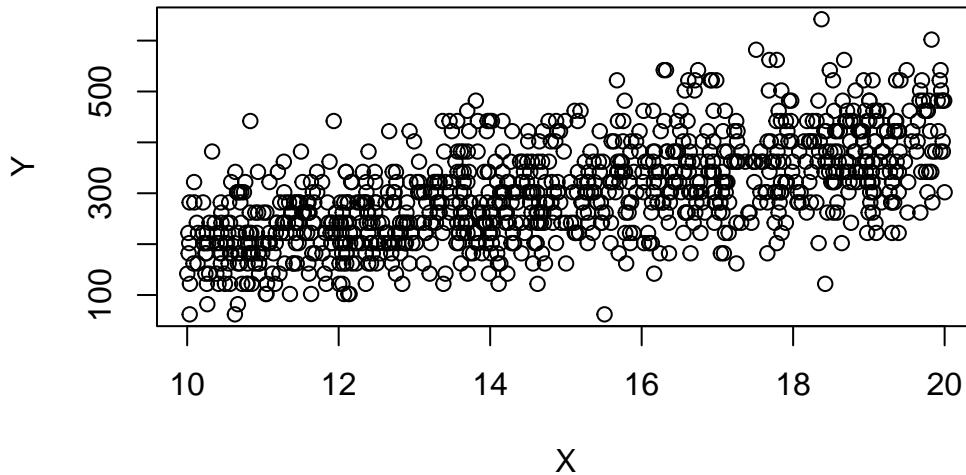
$$Y|X \sim \text{Pois}(X\beta),$$

then we have that $E[Y] = X\beta$, then $E[Y] = \text{Var}[Y] = X\beta$. In this case, the simple linear regression assumptions are violated. In particular, the variance is not the same for each observation. Here, it happens that taking the response to be roughly \sqrt{Y} fixes the problem. That is, performing the regression analysis with \sqrt{Y} as the response variable instead of Y , ensures that the regression assumptions are (approximately) satisfied. This example gives rise to the idea of **transformations**. If our data do not satisfy the assumptions for the MLR or the normal MLR, we might ask if there is some transformation of either the response, some of the covariates, or both that make the data suitable for a MLR analysis. Note that the assumptions are important. For instance, if the variance is not homogeneous, the OLS estimator will still be unbiased, but they will no longer have BLUE property. That means that some other estimator will work better for such data!

Which transformation should we choose? Sometimes, we can use prior experience or theoretical considerations to guide us in selecting an appropriate transformation. Other times, we must choose it empirically, i.e., based on the data. Often, the square root and the logarithm are popular choices. If your response is between 0 and 1, and the data appear to be “football shaped”, then you may like to take the $\text{arcsin}(\sqrt{Y})$.

We now demonstrate what one of these relationships looks like in simple linear regression. We now simulate a dataset where $\sigma^2 \propto E[Y|X]$, and plot X against Y . We use the Poisson example discussed previously.

```
set.seed(2352)
n=1000
X=runif(n,5,10)*2
Y=20*rpois(n,X)+2
plot(X,Y)
```



```
# Performing a regression analysis yields:
model=lm(Y~X)
# Notice the intercept is poorly estimated!
summary(model)
```

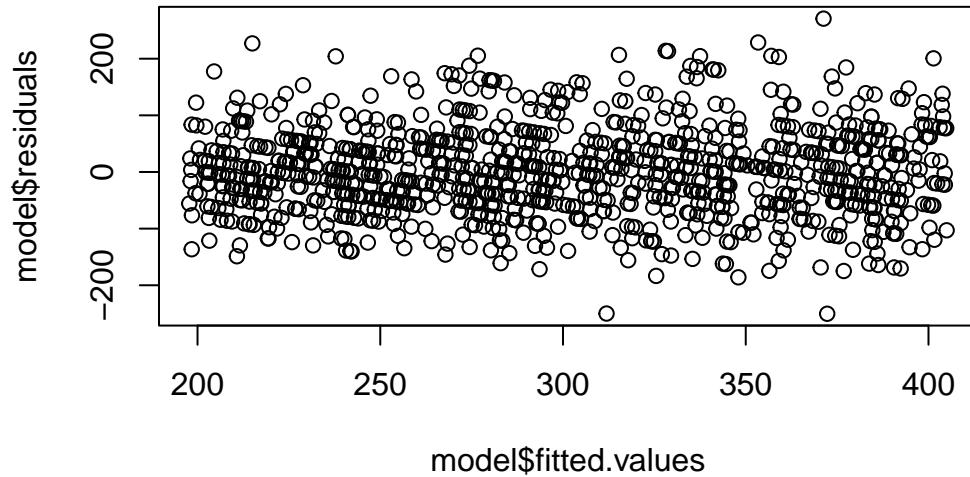
```
Call:
lm(formula = Y ~ X)

Residuals:
    Min      1Q  Median      3Q     Max 
-250.289 -53.392 -2.127  48.795 270.716 

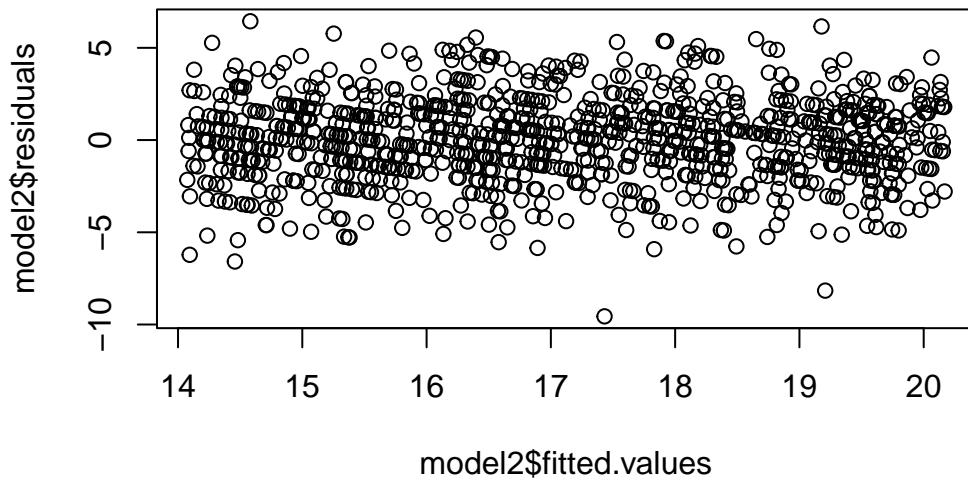
Coefficients:
            Estimate Std. Error t value Pr(>|t|)    
(Intercept) -9.5199    13.0735  -0.728   0.467    
X           20.7241     0.8599  24.101  <2e-16 ***  
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 77.61 on 998 degrees of freedom
Multiple R-squared:  0.3679,    Adjusted R-squared:  0.3673 
F-statistic: 580.9 on 1 and 998 DF,  p-value: < 2.2e-16
```

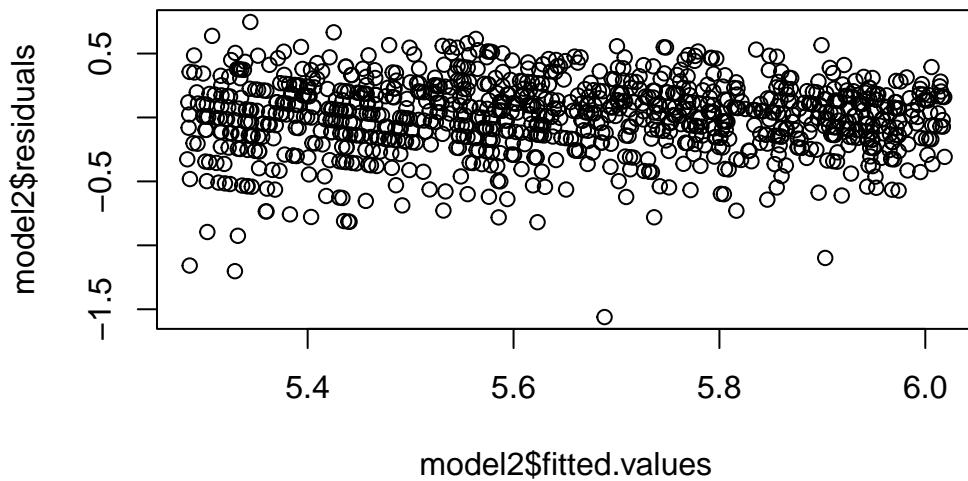
```
# Notice the fan shape in the residuals against the fitted values?  
plot(model$fitted.values,model$residuals)
```



```
# Let's perform the transformations  
  
model2=lm(sqrt(Y)~X)  
  
plot(model2$fitted.values,model2$residuals)
```



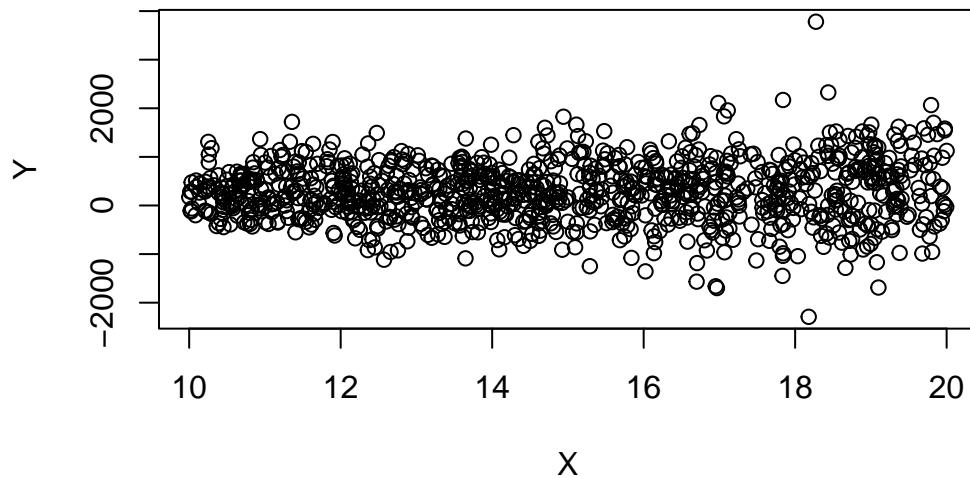
```
model2=lm(log(Y)~X)  
plot(model2$fitted.values,model2$residuals)
```



However, these transformations do not always work. Suppose we have that $Y \sim \mathcal{N}(X, 4*X^2)$. We then have that $\sigma = 2*X = 2*\text{E}[Y|X]$. Notice how the spread of the points is increasing with X ? This is a symptom of non-homogeneous variance. However, the proposed transformations do not work.

```
set.seed(2352)
# \sigma^2\propto \text{E}[Y]
Y=20*rnorm(n,X,X*2)+2

plot(X,Y)
```



```
# Performing a regression analysis yields:
model=lm(Y~X)

# notice the intercept is poorly estimated.
summary(model)
```

Call:
`lm(formula = Y ~ X)`

Residuals:

```

      Min       1Q   Median       3Q      Max
-2610.8 -375.3     -3.5    384.8  3460.5

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) 76.844    103.345   0.744  0.4573
X           13.367     6.797   1.966  0.0495 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

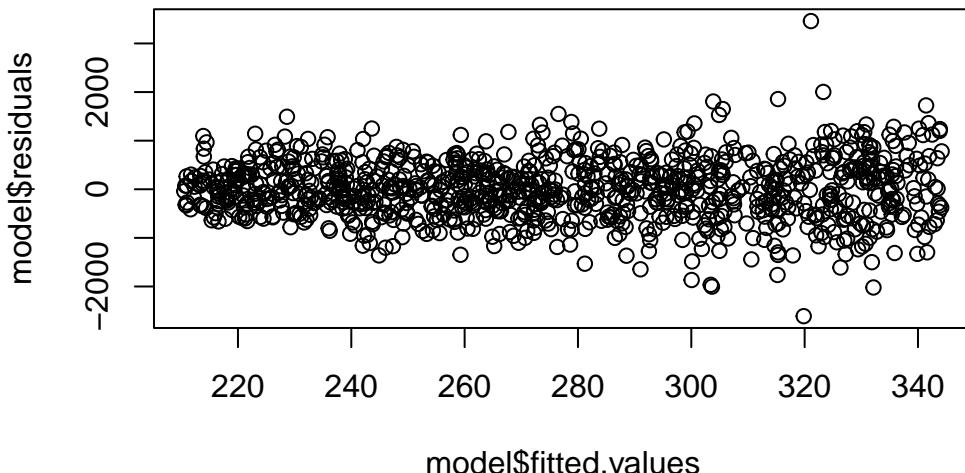
```

```

Residual standard error: 613.5 on 998 degrees of freedom
Multiple R-squared:  0.00386, Adjusted R-squared:  0.002861
F-statistic: 3.867 on 1 and 998 DF, p-value: 0.04953

```

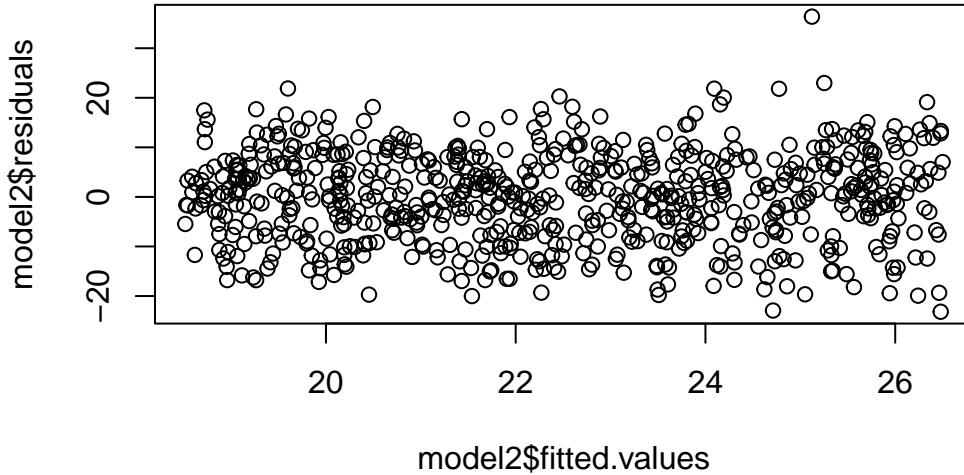
```
# Notice the fan shape in the residuals against the fitted values?
plot(model$fitted.values,model$residuals)
```



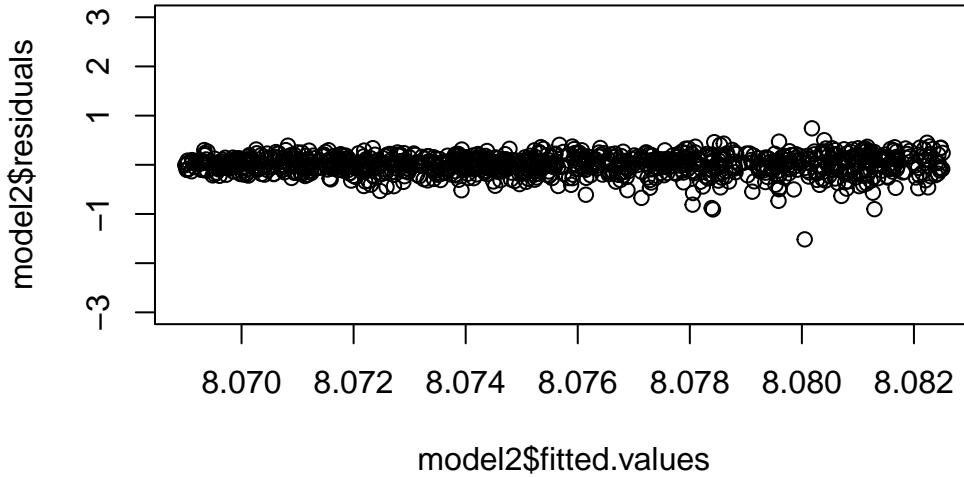
```
# Let's perform the transformation
# Performing a regression analysis yields:
model2=lm(sqrt(Y)~X)
```

```
Warning in sqrt(Y): NaNs produced
```

```
# Notice the fan shape in the residuals against the fitted values?  
plot(model2$fitted.values,model2$residuals)
```



```
# Performing a regression analysis yields:  
model2=lm(log(Y+3000)~X)  
  
# Notice the fan shape in the residuals against the fitted values?  
plot(model2$fitted.values,model2$residuals,ylim=c(-3,3))
```



In general, a good transformation to correct violated assumptions can improve estimates and test accuracy.

🔥 Caution

It is often necessary to convert any predicted values back to the original units. Applying the inverse transformation to predicted values gives an estimate of the median of the distribution of the (untransformed) response – instead of the mean. This implies that predictions are generally biased. Prediction and confidence intervals do not suffer this illness. They can be converted back to the original units via the inverse transformation and the interpretation will remain the same.

Let's expand on this. It is a good time to recall that in general, for a real function f , we have that $E[f(X)] \neq f(E[X])$. For instance, for many random variables Z , we would have that $E[Z^2] \neq E[Z]^2$, $E[\log Z] \neq \log E[Z]$ etc. .

In a transformed regression model, we fit the following model:

$$f(Y) = X\beta + \epsilon.$$

If we are interested in predicting the value of Y given z , then it seems natural to take the predictions for $f(Y)$ given z , which are given by $\beta^\top z$ and apply the inverse transformation f^{-1} . For instance, to predict $Y|Z = z$, we may compute: $f^{-1}(\beta^\top z)$. It turns out, this prediction is biased, and we should use a different method instead.

To see why it's biased, observe that the predictions from the model $f(Y) = X\beta + \epsilon$ for a new set of covariates z are given by $\hat{f}(Y) = \hat{\beta}^\top z \approx E[f(Y)|Z = z]$. Now, we have that

$$f^{-1}(\hat{\beta}^\top z) \approx f^{-1}(E[f(Y)|Z = z]) \neq E[f^{-1}(f(Y))|Z = z] = E[\hat{f}(Y)|Z = z].$$

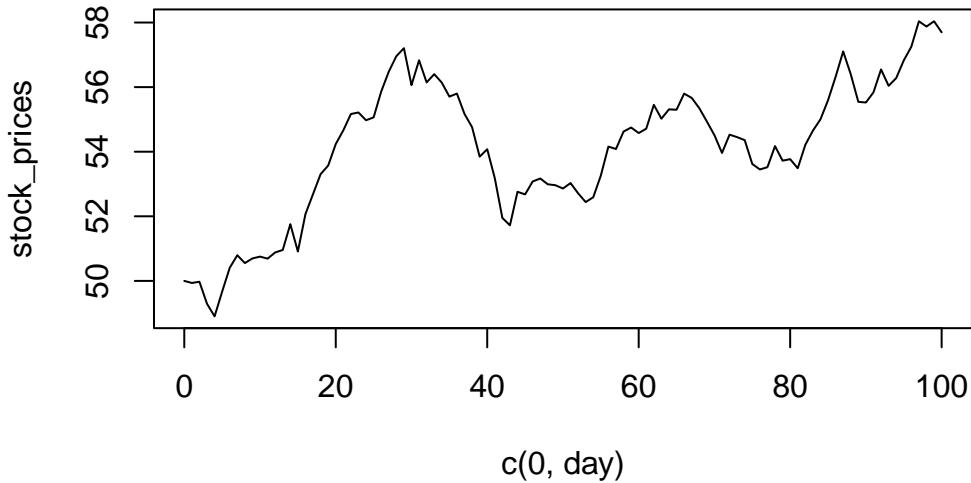
The solution to this problem is to adjust for the bias. For the log transform, we can multiply the resulting inverse transformed predictions by $\exp(\hat{\sigma}^2/2)$. For the square root transformation, we add $\hat{\sigma}^2$ to the resulting inverse transformed predictions. See (Miller 1984) for more information.

One can also use confidence and prediction intervals to predict the value of Y given z . Confidence or prediction intervals may be directly converted from one metric to another – such interval estimates are percentiles of a distribution which are unaffected by the transformation. They can be converted back to the original units via the inverse transformation and the interpretation will remain the same. Optimal intervals are intervals with the shortest average interval length for a given confidence level, under a given set of assumptions. However, it may be that the resulting intervals may not be “optimal”. One way to get a prediction in the original units, is to apply the inverse transformation to the prediction interval computed from the transformed model and take the midpoint of that interval. This does not always work well - and should be checked against the original data.

Example 5.1. Let's simulate what happens when, given the day $t \in [100]$, we try to estimate the mean stock price P_t for some stock (maybe ?Gamestop?) in a model which regresses the logged rate of return against the day. Note that the logged returns at time t are given by: $L = \log\left(\frac{P_t}{P_{t-1}}\right)$.

```
set.seed(2352)
# Simulate the stock prices
n=100
day=seq(1:n)
log_return=rnorm(n,0.000001+0.000005*day,0.01)
# log_return=rnorm(n,0.000001+0.000005*day,0.0005)
stock_prices=c(50,50*exp(cumsum(log_return)))
# exp(log_return)[1:10]

plot(c(0,day), stock_prices,type='l')
```

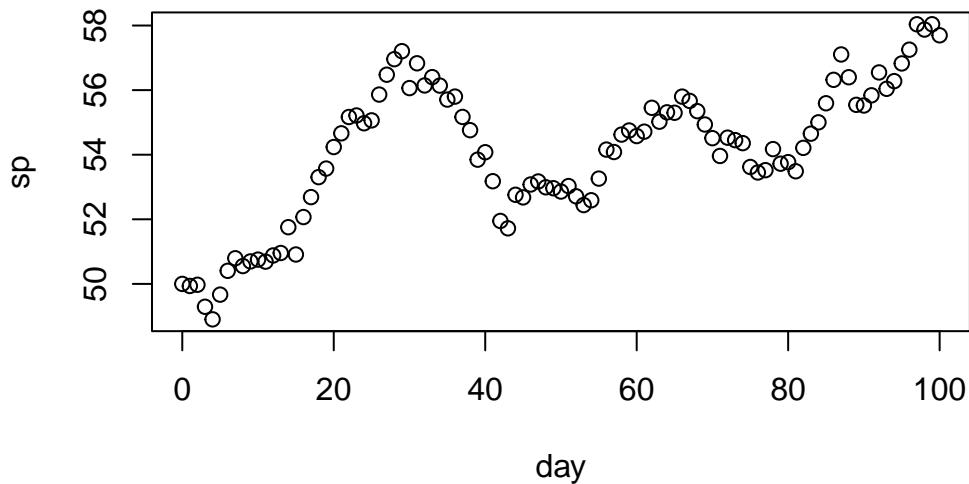


```
df=data.frame(cbind("day"=c(0,day),"sp"=stock_prices))
```

```
# Now, suppose this is our starting dataset
head(df)
```

	day	sp
1	0	50.00000
2	1	49.93624
3	2	49.97369
4	3	49.29229
5	4	48.90210
6	5	49.66743

```
# Notice that the pattern is not great... but we can regress on the transformed response
plot(df)
```



```
# Fitting the model

# Compute the log returns
df$lr=NA
df$lr[2:(n+1)]=log(df$sp[-1]/df$sp[-(n+1)])

# Sanity Check
# log_return[1:5]
# df$lr[2:6]

model=lm(lr~day,df)
summary(model)
```

Call:

`lm(formula = lr ~ day, data = df)`

Residuals:

Min	1Q	Median	3Q	Max
-0.0249054	-0.0064851	0.0000518	0.0075839	0.0208044

Coefficients:

```

            Estimate Std. Error t value Pr(>|t|)
(Intercept) 1.824e-03 1.926e-03  0.947   0.346
day         -7.771e-06 3.312e-05 -0.235   0.815

Residual standard error: 0.00956 on 98 degrees of freedom
(1 observation deleted due to missingness)
Multiple R-squared:  0.0005615, Adjusted R-squared:  -0.009637
F-statistic: 0.05506 on 1 and 98 DF,  p-value: 0.815

```

```

plot(c(0,day), stock_prices,type='l',lwd=2)
lines(50*exp(cumsum(fitted.values(model))),col='red',lty=2,lwd=2)

# Intervals for the mean at each time point
intervals=predict(model,interval ='prediction')[,2:3]

```

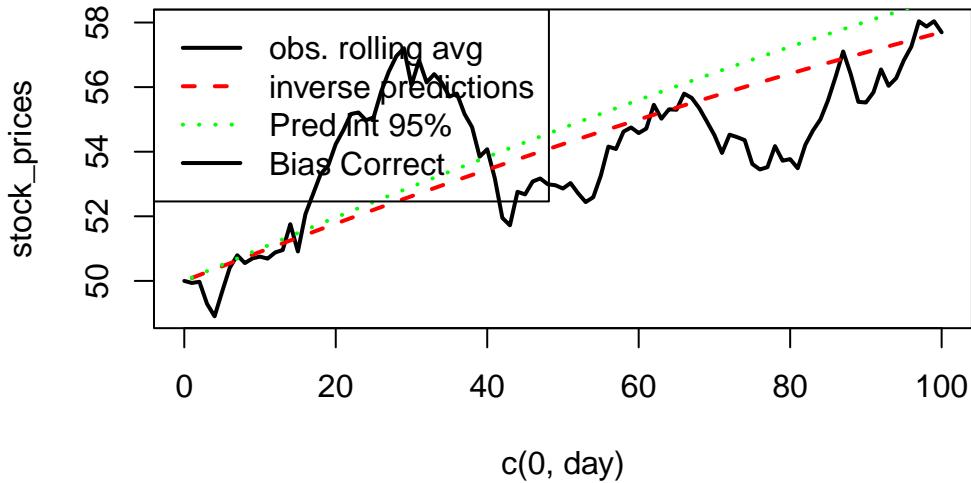
Warning in predict.lm(model, interval = "prediction"): predictions on current data refer to ..

```

midpoint=ret=rep(0,n)
for(i in 1:n){
  if(i==1){
    midpoint[i]=50*exp(intervals[i,1])/2+50*exp(intervals[i,2])/2
  }
  else
    midpoint[i]=midpoint[i-1]*(exp(intervals[i,1])+exp(intervals[i,2]))/2
}
lines(midpoint,col="green",lty=3,lwd=2)

legend("topleft",legend=c("obs. rolling avg","inverse predictions","Pred int 95%","Bias Corre"))

```



A second example...

```

set.seed(2352)
# Simulate data
n=100
X=runif(n,5,10)
logs=rnorm(n,1+0.2*X,0.5)
Y=exp(logs)
plot(X,Y)

df=data.frame(cbind("X"=X, "Y"=Y))
df=df[order(X),]

# Fitting the model
model=lm(log(Y)~X,data=df)
summary(model)

```

Call:
`lm(formula = log(Y) ~ X, data = df)`

Residuals:

```

      Min       1Q   Median      3Q      Max
-1.13484 -0.31721 -0.02877  0.29765  0.85929

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) 1.00060   0.21048   4.754 6.85e-06 ***
X           0.19333   0.02721   7.106 1.94e-10 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

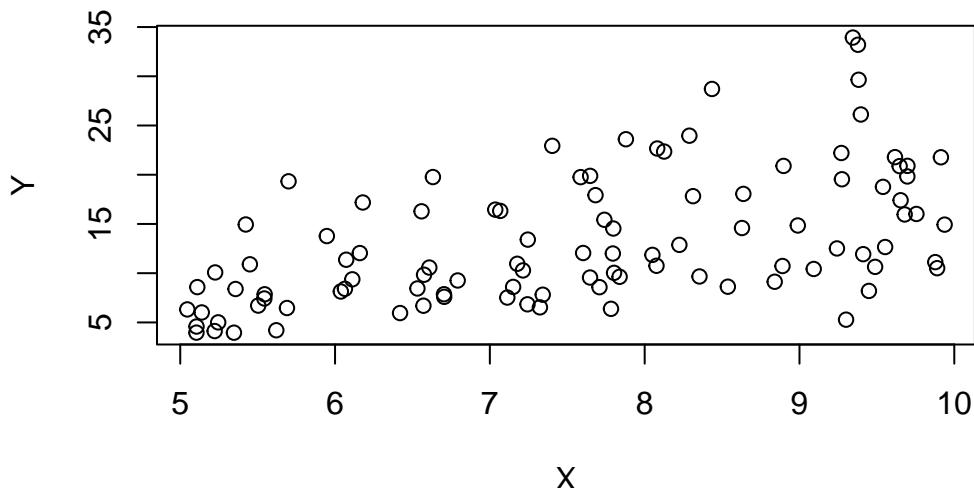
Residual standard error: 0.4113 on 98 degrees of freedom
 Multiple R-squared: 0.3401, Adjusted R-squared: 0.3333
 F-statistic: 50.5 on 1 and 98 DF, p-value: 1.937e-10

```

s=summary(model)$sigma
# Rolling average

zb=zoo::zoo(x=df$Y,df$X)

```



```

rm=zoo::rollmean(zb,25)

plot(attributes(rm)$index,rm,lty=1,lwd=3,type='l')
# plot(X,Y)

zb=zoo::zoo(x=exp(fitted.values(model)),df$X)
rm=zoo::rollmean(zb,25)
lines(attributes(rm)$index,rm,col=2,lty=2,lwd=3)

lines(attributes(rm)$index,rm*exp(s^2/2),col=6,lty=2,lwd=3)

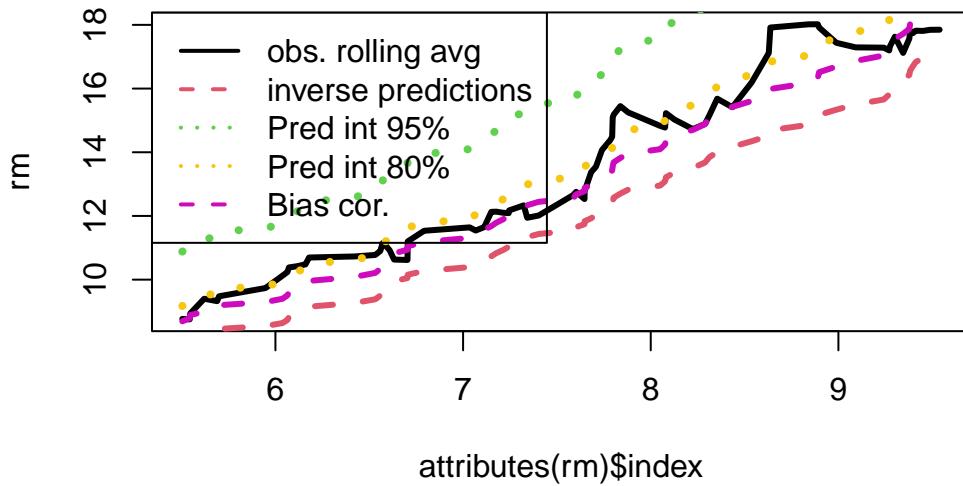
# Intervals for the mean at each time point
nd=data.frame("X"=df$X)
ivs=predict(model, newdata = nd,interval = 'prediction')[,2:3]
intervals=rowMeans(exp(ivs))
zb=zoo::zoo(x=intervals,df$X)
rm=zoo::rollmean(zb,25)
lines(attributes(rm)$index,rm,col=3,lty=3,lwd=4)

# Intervals for the mean at each time point - notice when we lower the level the performance
nd=data.frame("X"=df$X)
ivs=predict(model, newdata = nd,interval = 'prediction', level = 0.8)[,2:3]
intervals=rowMeans(exp(ivs))
zb=zoo::zoo(x=intervals,df$X)
rm=zoo::rollmean(zb,25)
lines(attributes(rm)$index,rm,col=7,lty=3,lwd=4)

# Intervals for the mean at each time point using confidence intervals
# ivs=predict(model, newdata = nd,interval = 'confidence', level = 0.8)[,2:3]
# intervals=rowMeans(exp(ivs))
# zb=zoo::zoo(x=intervals,df$X)
# rm=zoo::rollmean(zb,25)
# lines(attributes(rm)$index,rm,col=6,lty=3,lwd=3)

legend("topleft",legend=c("obs. rolling avg","inverse predictions","Pred int 95%","Pred int 80%"))

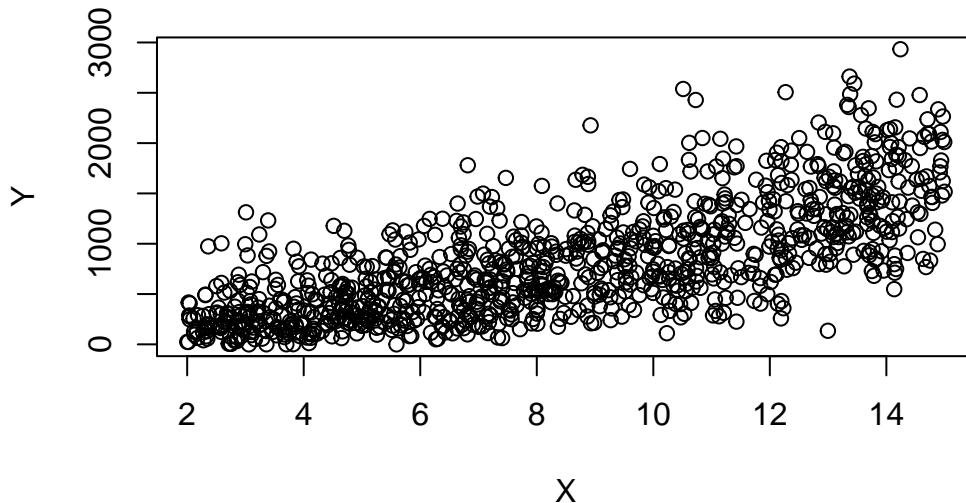
```



```
set.seed(2352)

# Simulate data

n=1000
X=runif(n,2,15)
sq=rnorm(n,10+2*X,7)
Y=sq^2
plot(X,Y)
```



```
df=data.frame(cbind("X"=X, "Y"=Y))
df=df[order(X),]

# Fitting the model
model=lm(sqrt(Y)~X,data=df)
summary(model)
```

Call:
`lm(formula = sqrt(Y) ~ X, data = df)`

Residuals:

Min	1Q	Median	3Q	Max
-24.2975	-4.5612	-0.0315	4.7083	20.2670

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	9.94439	0.54223	18.34	<2e-16 ***
X	1.99810	0.05897	33.88	<2e-16 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```
Residual standard error: 6.919 on 998 degrees of freedom
Multiple R-squared:  0.535, Adjusted R-squared:  0.5345
F-statistic: 1148 on 1 and 998 DF,  p-value: < 2.2e-16
```

```
s=summary(model)$sigma
# plot(X,Y)
# Rolling average

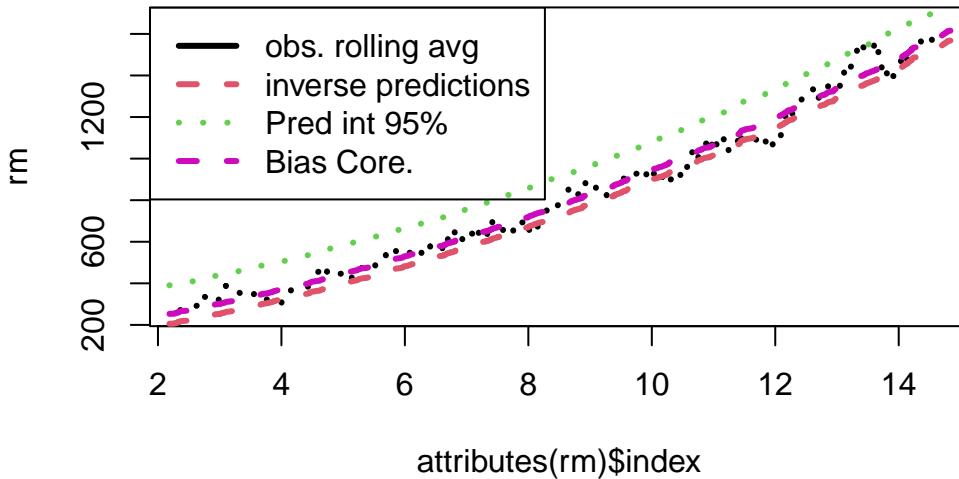
zb=zoo::zoo(x=df$Y,df$X)
rm=zoo::rollmean(zb,50)

plot(attributes(rm)$index,rm,col=1,lty=3,lwd=3,type='l')
zb=zoo::zoo(fitted.values(model)^2,df$X)
rm=zoo::rollmean(zb,25)
lines(attributes(rm)$index,rm,col=2,lty=2,lwd=3)
lines(attributes(rm)$index,rm+s^2,col=6,lty=2,lwd=3)

# Intervals for the mean at each time point
intervals=rowMeans(predict.lm(model,interval = 'prediction')[,2:3]^2)
```

```
Warning in predict.lm(model, interval = "prediction"): predictions on current data refer to ...
```

```
zb=zoo::zoo(intervals,df$X)
rm=zoo::rollmean(zb,25)
lines(attributes(rm)$index,rm,col=3,lty=3,lwd=3)
legend("topleft",legend=c("obs. rolling avg","inverse predictions","Pred int 95%","Bias Core"))
```



We see that the bias correction is the best performing method. However, this involves working out the bias for each transformation. For a complicated transformation, this may be quite difficult. For common transformations, this has already been completed for us.

Let's do an example with some real data. The following example is taken from the textbook:

Example 5.2. An electric utility is interested in developing a model relating peak - hour demand Y to total energy usage during the month X . This is an important planning problem because while most customers pay directly for energy usage (in kilowatt - hours), the generation system must be large enough to meet the maximum demand imposed. Data for 53 residential customers for the month of August is given below.

```
# Electric Utility Data

df<- data.frame(
  Customer = c(1:53),
  x_kWh = c(679, 292, 1012, 493, 582, 1156, 997, 2189, 1097, 2078, 1818, 1700, 747, 2030, 1
)
df

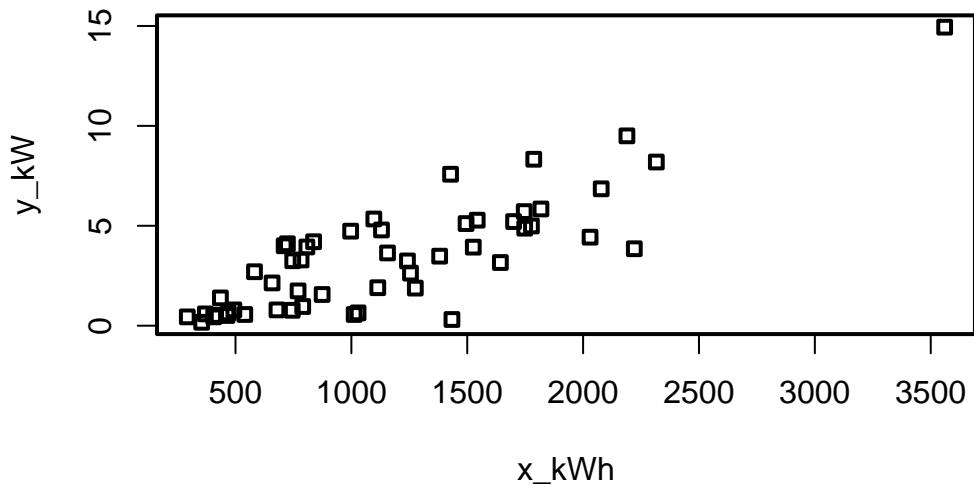
Customer x_kWh  y_kw
```

1	1	679	0.79
2	2	292	0.44
3	3	1012	0.56
4	4	493	0.79
5	5	582	2.70
6	6	1156	3.64
7	7	997	4.73
8	8	2189	9.50
9	9	1097	5.34
10	10	2078	6.85
11	11	1818	5.84
12	12	1700	5.21
13	13	747	3.25
14	14	2030	4.43
15	15	1643	3.16
16	16	414	0.50
17	17	354	0.17
18	18	1276	1.88
19	19	745	0.77
20	20	435	1.39
21	21	540	0.56
22	22	874	1.56
23	23	1543	5.28
24	24	1029	0.64
25	25	710	4.00
26	26	1434	0.31
27	27	837	4.20
28	28	1748	4.88
29	29	1381	3.48
30	30	1428	7.58
31	31	1255	2.63
32	32	1777	4.99
33	33	370	0.59
34	34	2316	8.19
35	35	1130	4.79
36	36	463	0.51
37	37	770	1.74
38	38	724	4.10
39	39	808	3.94
40	40	790	0.96
41	41	783	3.29
42	42	406	0.44
43	43	1242	3.24

```
44      44    658  2.14
45      45   1746  5.71
46      46   468  0.64
47      47  1114  1.90
48      48   413  0.51
49      49  1787  8.33
50      50  3560 14.94
51      51  1495  5.11
52      52  2221  3.85
53      53  1526  3.93
```

```
# changing the plot aesthetics
par(pch=22,lwd=2)

# Explore
plot(df[,2:3])
```

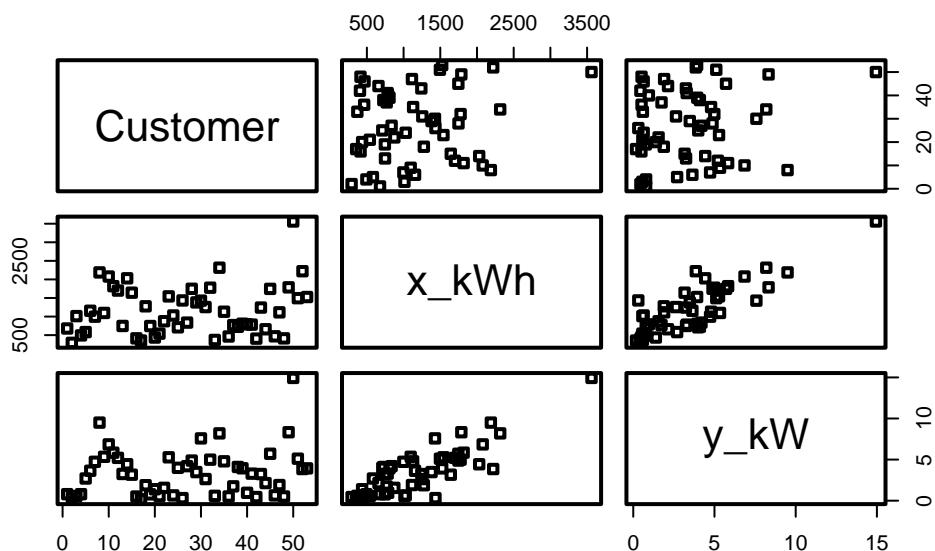


```
summary(df)
```

Customer	x_kWh	y_kw
----------	-------	------

```
Min. : 1   Min. : 292   Min. : 0.170
1st Qu.:14  1st Qu.: 679   1st Qu.: 0.790
Median :27   Median :1029   Median : 3.250
Mean   :27   Mean   :1153   Mean   : 3.413
3rd Qu.:40  3rd Qu.:1543  3rd Qu.: 4.880
Max.   :53   Max.   :3560   Max.   :14.940
```

```
plot(df)
```



```
# Model

model=lm(y_kW~x_kWh, df); model
```

```
Call:
lm(formula = y_kW ~ x_kWh, data = df)

Coefficients:
(Intercept)      x_kWh
-0.831304       0.003683
```

```

summ=summary(model); summ

Call:
lm(formula = y_kW ~ x_kWh, data = df)

Residuals:
    Min      1Q  Median      3Q     Max 
-4.1399 -0.8275 -0.1934  1.2376  3.1522 

Coefficients:
            Estimate Std. Error t value Pr(>|t|)    
(Intercept) -0.8313037  0.4416121 -1.882   0.0655 .  
x_kWh        0.0036828  0.0003339  11.030 4.11e-15 *** 
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

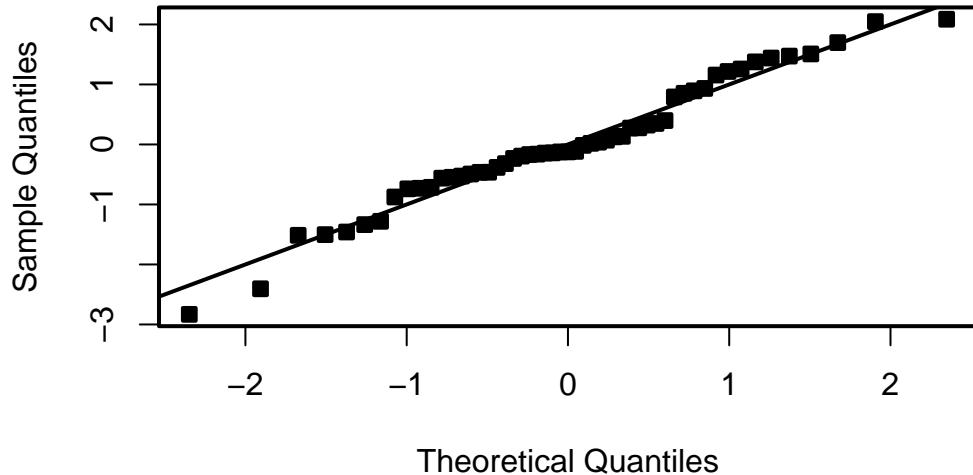
Residual standard error: 1.577 on 51 degrees of freedom
Multiple R-squared:  0.7046,    Adjusted R-squared:  0.6988 
F-statistic: 121.7 on 1 and 51 DF,  p-value: 4.106e-15

# Now do the residual analysis
# Studentized residuals
student_res=rstudent(model)
MSE=summ$sigma^2

qqnorm(student_res,pch=22, bg=1)
abline(0,1)

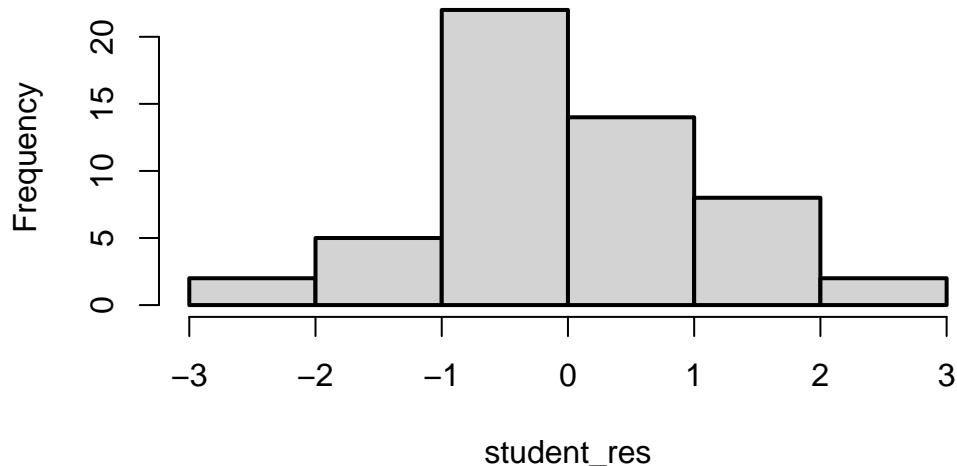
```

Normal Q-Q Plot

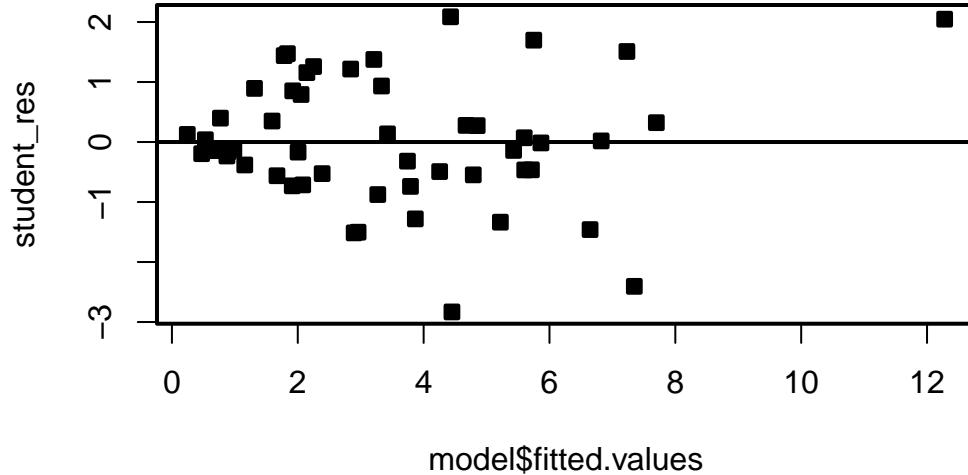


```
hist(student_res, breaks=6)
```

Histogram of student_res



```
plot(model$fitted.values, student_res, pch=22, bg=1)
abline(h=0)
```



We see that the residual variance increases with the mean of Y . This is easily seen by the fan shape of the residuals in the plot of the residuals against the fitted values.

```
##### Let's try the sqrt transformation
```

```
model2=lm(sqrt(y_kW)~x_kWh, df)
model2
```

```
Call:
lm(formula = sqrt(y_kW) ~ x_kWh, data = df)
```

```
Coefficients:
(Intercept)      x_kWh
 0.5822259    0.0009529
```

```
summ2=summary(model2); summ2
```

```

Call:
lm(formula = sqrt(y_kW) ~ x_kWh, data = df)

Residuals:
    Min      1Q  Median      3Q     Max 
-1.39185 -0.30576 -0.03875  0.25378  0.81027 

Coefficients:
            Estimate Std. Error t value Pr(>|t|)    
(Intercept) 5.822e-01  1.299e-01   4.481 4.22e-05 ***
x_kWh       9.529e-04  9.824e-05   9.699 3.61e-13 ***  
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

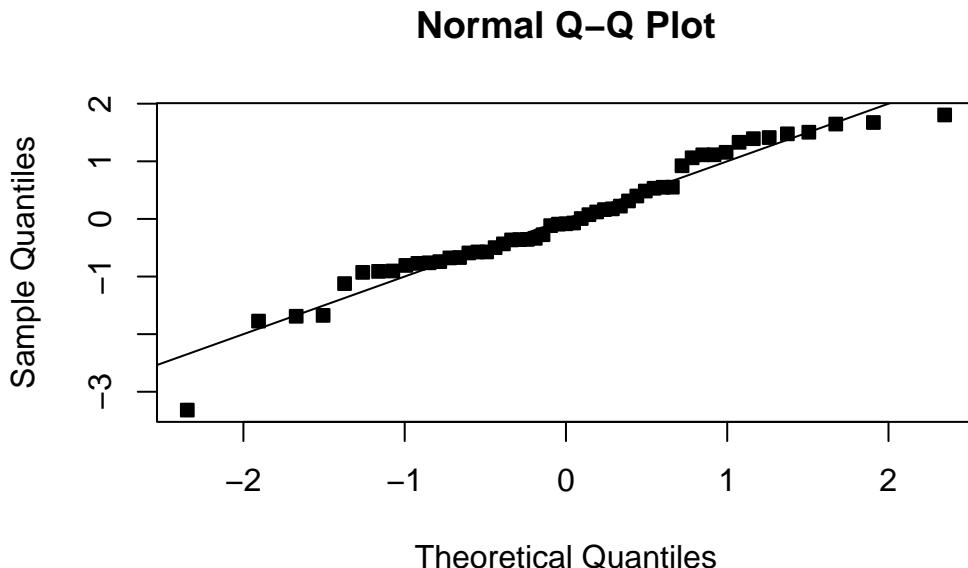
Residual standard error: 0.464 on 51 degrees of freedom
Multiple R-squared:  0.6485,    Adjusted R-squared:  0.6416 
F-statistic: 94.08 on 1 and 51 DF,  p-value: 3.614e-13

```

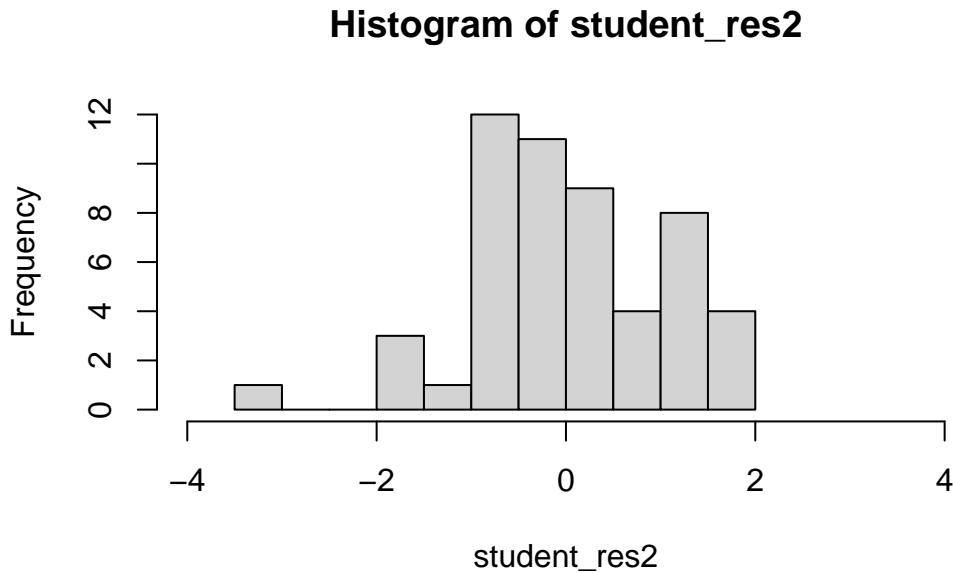
```

student_res2=rstudent(model2)
MSE2=summ2$sigma^2
qqnorm(student_res2,pch=22, bg=1)
abline(0,1)

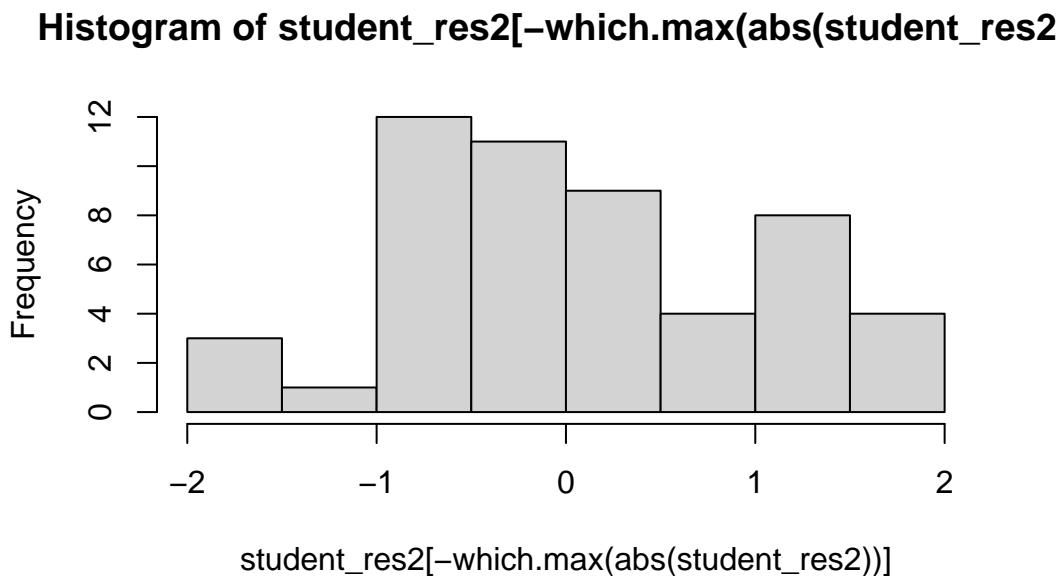
```



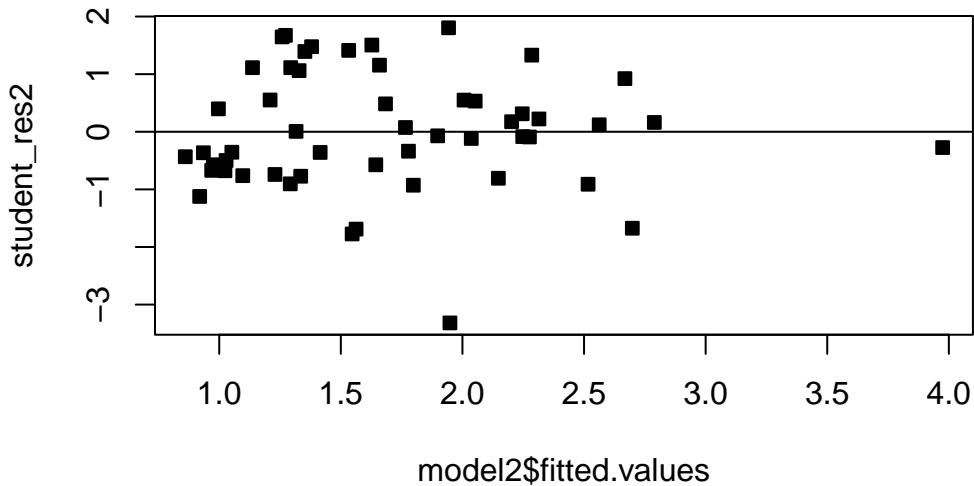
```
hist(student_res2, breaks=10, xlim=c(-4,4))
```



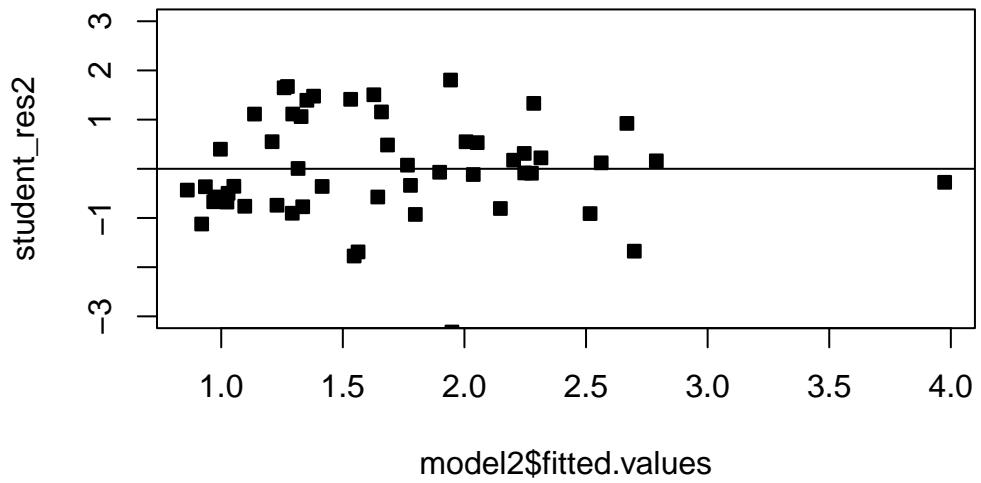
```
hist(student_res2[-which.max(abs(student_res2))], breaks=10, xlim=c(-2,2))
```



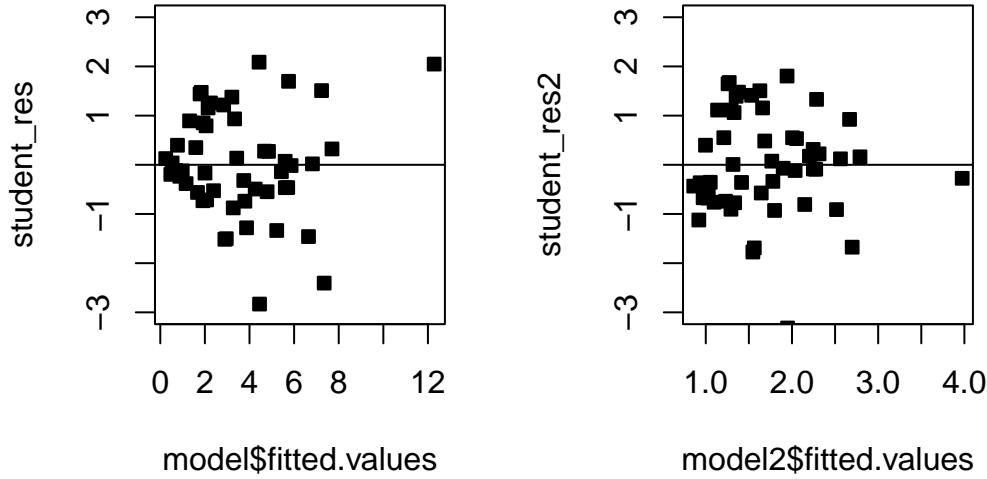
```
plot(model2$fitted.values,student_res2,pch=22, bg=1)
abline(h=0)
```



```
# There is one large outlier skewing the previous plot. Let's rescale and remove.
plot(model2$fitted.values,student_res2,pch=22, bg=1, ylim=c(-3,3))
abline(h=0)
```



```
# Compare!
par(mfrow=c(1,2))
plot(model$fitted.values,student_res,pch=22,bg=1,ylim=c(-3,3))
abline(h=0)
plot(model2$fitted.values,student_res2,pch=22,bg=1,ylim=c(-3,3))
abline(h=0)
```



We see that the transformation has solved the problem. Note that sometimes, even though the square-root transformation may be more suitable, the analyst may opt for the logarithm transform. This is because the log transformation gives a nicer interpretation to the coefficients. In this case, that is not working well, see below:

```
##### Let's try the log transformation
par(mfrow=c(1,1))

model3=lm(log(y_kW)~x_kWh, df)
model3
```

```
Call:
lm(formula = log(y_kW) ~ x_kWh, data = df)

Coefficients:
(Intercept)      x_kWh
-0.558713     0.001172
```

```
summ3=summary(model3); summ3
```

```

Call:
lm(formula = log(y_kW) ~ x_kWh, data = df)

Residuals:
    Min      1Q  Median      3Q     Max 
-2.29261 -0.47256  0.08414  0.49628  1.12143 

Coefficients:
            Estimate Std. Error t value Pr(>|t|)    
(Intercept) -0.5587131  0.2057201 -2.716   0.009 **  
x_kWh        0.0011716  0.0001555  7.533 7.86e-10 *** 
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

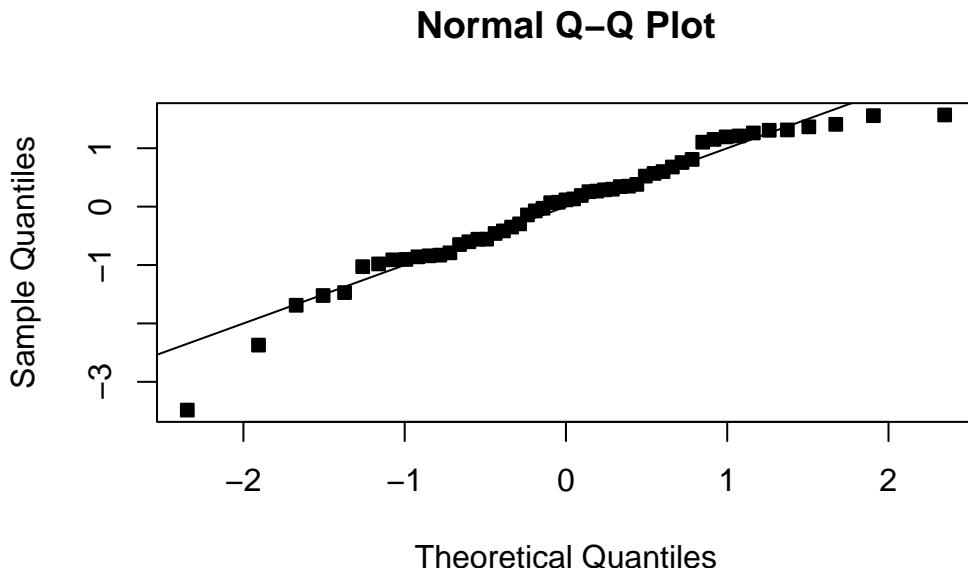
Residual standard error: 0.7347 on 51 degrees of freedom
Multiple R-squared:  0.5266,    Adjusted R-squared:  0.5174 
F-statistic: 56.74 on 1 and 51 DF,  p-value: 7.862e-10

```

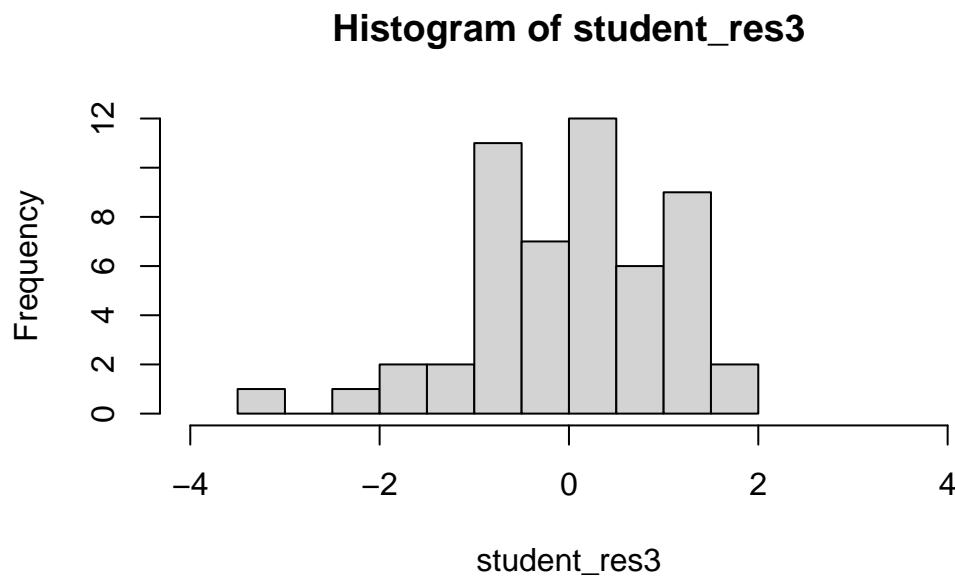
```

student_res3=rstudent(model3)
MSE3=summ3$sigma^2
qqnorm(student_res3,pch=22, bg=1)
abline(0,1)

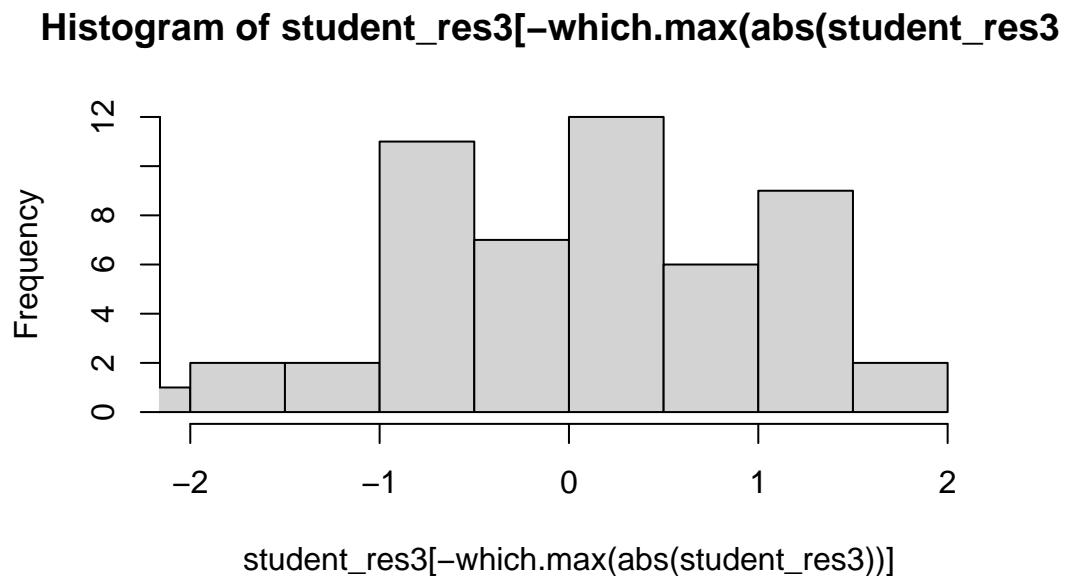
```



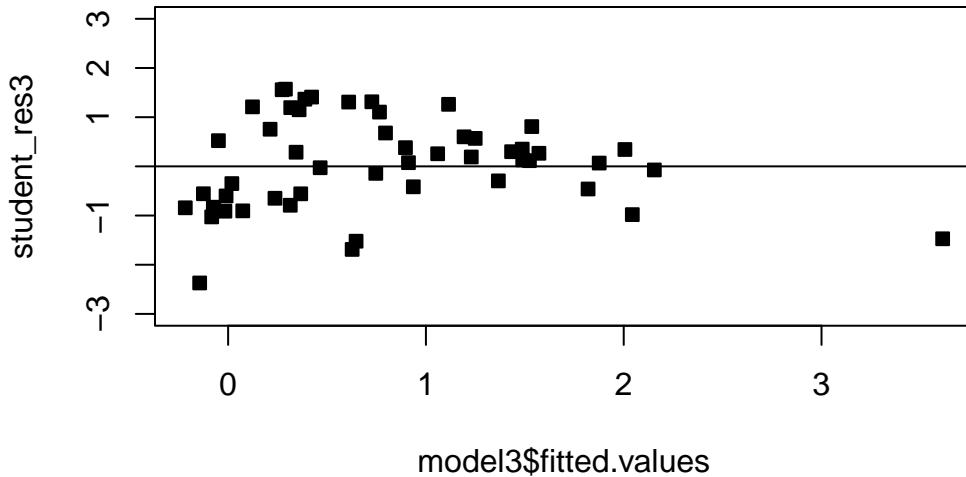
```
hist(student_res3, breaks=10, xlim=c(-4,4))
```



```
hist(student_res3[-which.max(abs(student_res3))], breaks=10, xlim=c(-2,2))
```



```
plot(model3$fitted.values, student_res3, pch=22, bg=1, ylim=c(-3,3))
abline(h=0)
```



5.1.1 Linearizing the model

Moving on, we may suspect that the relationship between the regressors and the response is nonlinear, either through empirical evidence or theoretical justification. In some cases a nonlinear function can be linearized by using a suitable transformation. Such nonlinear models are called intrinsically linear. For example, consider the model $Y = \beta_0 e^{\beta_1 X} \epsilon$. Taking the log of both sides yields:

$$\log(Y) = \log(\beta_0) + \beta_1 X + \log(\epsilon).$$

Reparameterizing with $Z = \log(Y)$, $\alpha_0 = \log(\beta_0)$ and $\eta = \log(\epsilon)$, we have that

$$Z = \alpha_0 + \beta_1 X + \eta.$$

If we are willing to assume that η are symmetric about 0 with a constant variance, then we can run a linear regression with the model given above. To get estimates for the original units Y , we can transform back as previously discussed. A model is linearizable if there exists some reparameterization which places the model in the form of the MLR.

Exercise 5.1. Show the following models are linearizable - that is, find the linear reparameterization of the following models: 1. $Y = \beta_0 X_1^\beta$ 2. $Y = \beta_0 X^{\beta_1 X}$ 3. $Y = \beta_0 + \log X$ 4. $Y = X / (\beta_0 X - \beta_1)$

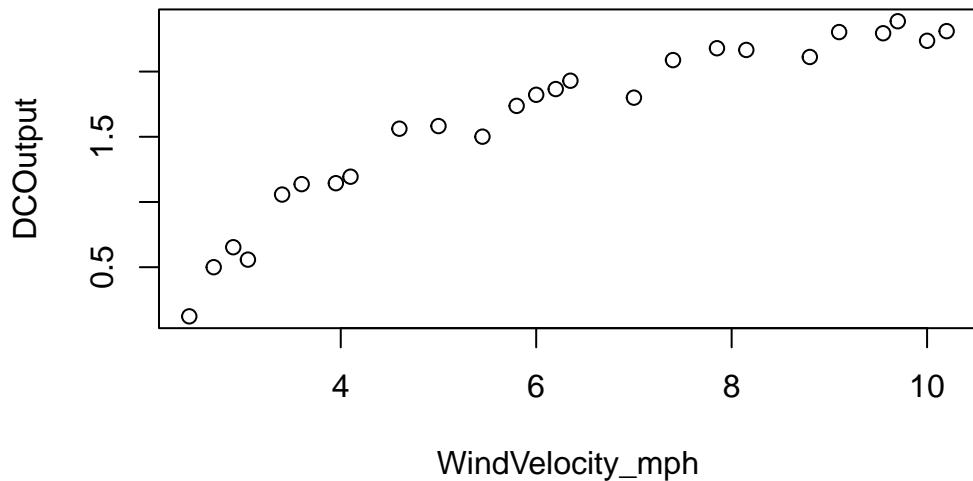
Example 5.3. A research engineer is investigating the use of a windmill to generate electricity. He has collected data on the DC output from his windmill and the corresponding wind velocity. See below. Find a well-fitting regression model for this data.

```
#####
# Windmill data

# Create the data frame
df_wind <- data.frame(
  WindVelocity_mph = c(5.00, 6.00, 3.40, 2.70, 10.00, 9.70, 9.55, 3.05, 8.15, 6.20,
                      2.90, 6.35, 4.60, 5.80, 7.40, 3.60, 7.85, 8.80, 7.00, 5.45,
                      9.10, 10.20, 4.10, 3.95, 2.45),
  DCOutput = c(1.582, 1.822, 1.057, 0.500, 2.236, 2.386, 2.294, 0.558, 2.166, 1.866,
              0.653, 1.930, 1.562, 1.737, 2.088, 1.137, 2.179, 2.112, 1.800, 1.501,
              2.303, 2.310, 1.194, 1.144, 0.123)
)

#####

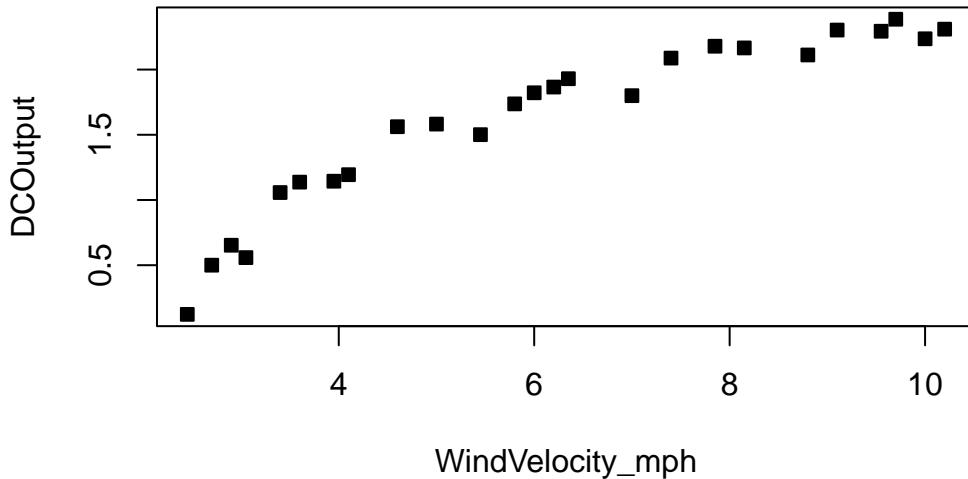
par(mfrow=c(1,1))
plot(df_wind)
```



```
summary(df_wind)
```

WindVelocity_mph	DCOutput
Min.	: 2.450
1st Qu.	: 3.950
Median	: 6.000
Mean	: 6.132
3rd Qu.	: 8.150
Max.	:10.200
	Min. :0.123
	1st Qu.:1.144
	Median :1.800
	Mean :1.610
	3rd Qu.:2.166
	Max. :2.386

```
plot(df_wind,pch=22,bg=1)
```



```
model=lm(DCOutput~WindVelocity_mph, df_wind)
model
```

Call:
`lm(formula = DCOutput ~ WindVelocity_mph, data = df_wind)`

Coefficients:
`(Intercept) WindVelocity_mph`
`0.1309 0.2411`

```
summ=summary(model); summ
```

Call:
`lm(formula = DCOutput ~ WindVelocity_mph, data = df_wind)`

Residuals:

Min	1Q	Median	3Q	Max
-0.59869	-0.14099	0.06059	0.17262	0.32184

Coefficients:

```

Estimate Std. Error t value Pr(>|t|)
(Intercept) 0.13088 0.12599 1.039 0.31
WindVelocity_mph 0.24115 0.01905 12.659 7.55e-12 ***
---
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.2361 on 23 degrees of freedom
Multiple R-squared: 0.8745, Adjusted R-squared: 0.869
F-statistic: 160.3 on 1 and 23 DF, p-value: 7.546e-12

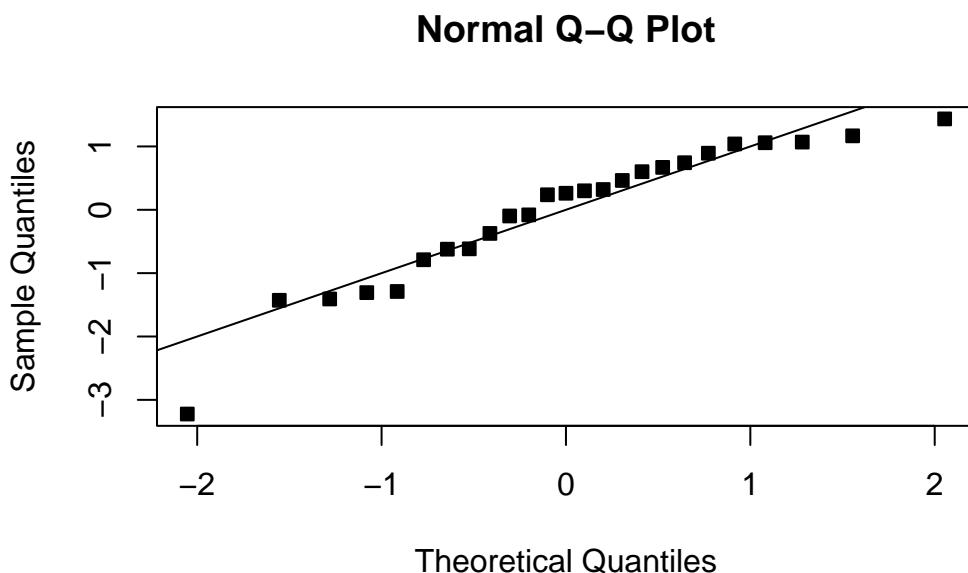
```

```

student_res=rstudent(model)

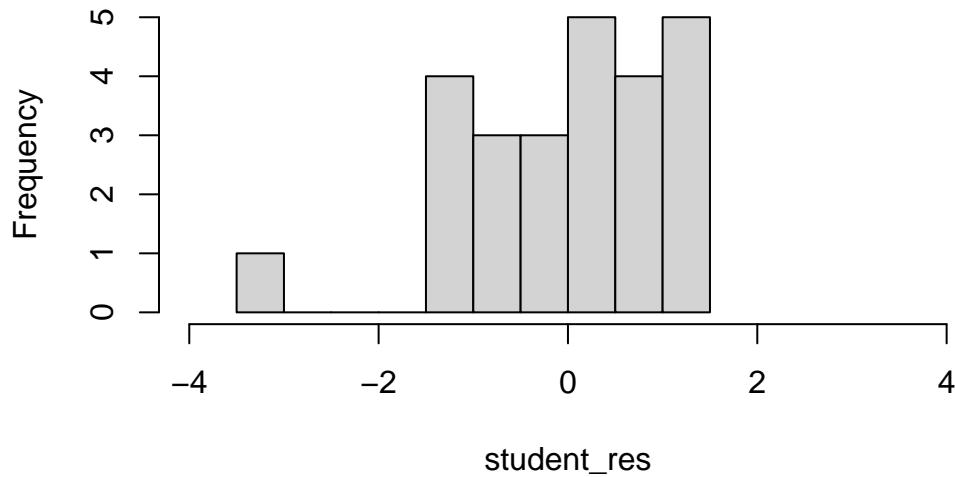
MSE=summ$sigma^2
qqnorm(student_res,pch=22,bg=1)
abline(0,1)

```

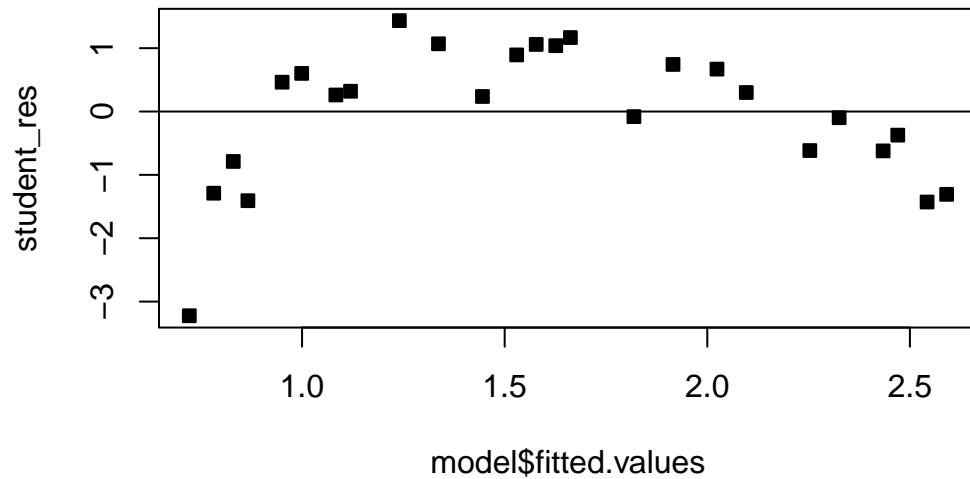


```
hist(student_res,breaks=10,xlim=c(-4,4))
```

Histogram of student_res

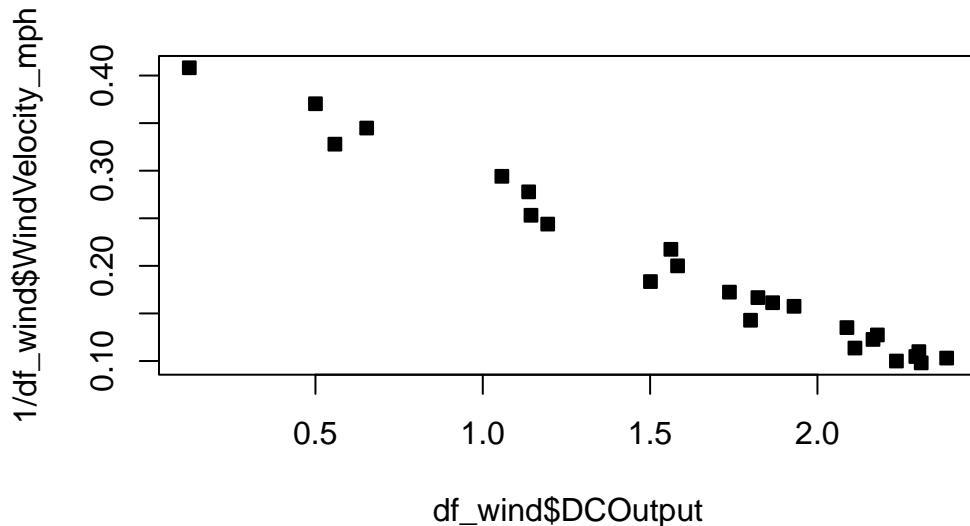


```
plot(model$fitted.values,student_res,pch=22,bg=1)
abline(h=0)
```



The fit is not good. Looking at the scatterplot, we might initially consider using a quadratic model to account for the pictured curvature. However, the scatterplot suggests that as wind speed increases, DC output approaches an upper limit of approximately 2.5. This is also consistent with the theory of windmill operation. Since the quadratic model will eventually bend downward as wind speed increases, it would not be appropriate for these data. A more reasonable model for the windmill data that incorporates an upper asymptote would be based on $1/X$.

```
plot(df_wind$DCOutput, 1/df_wind$WindVelocity_mph, pch=22, bg=1)
```



```
# plot(df$DCOutput, log(df$WindVelocity_mph))
df_wind$WindVelocity_mph_inv=1/df_wind$WindVelocity_mph
model2=lm(DCOutput~WindVelocity_mph_inv, df_wind)
model2
```

Call:
`lm(formula = DCOutput ~ WindVelocity_mph_inv, data = df_wind)`

Coefficients:

(Intercept)	WindVelocity_mph_inv
2.979	-6.935

```
summ=summary(model2); summ
```

Call:
lm(formula = DCOutput ~ WindVelocity_mph_inv, data = df_wind)

Residuals:

Min	1Q	Median	3Q	Max
-0.20547	-0.04940	0.01100	0.08352	0.12204

Coefficients:

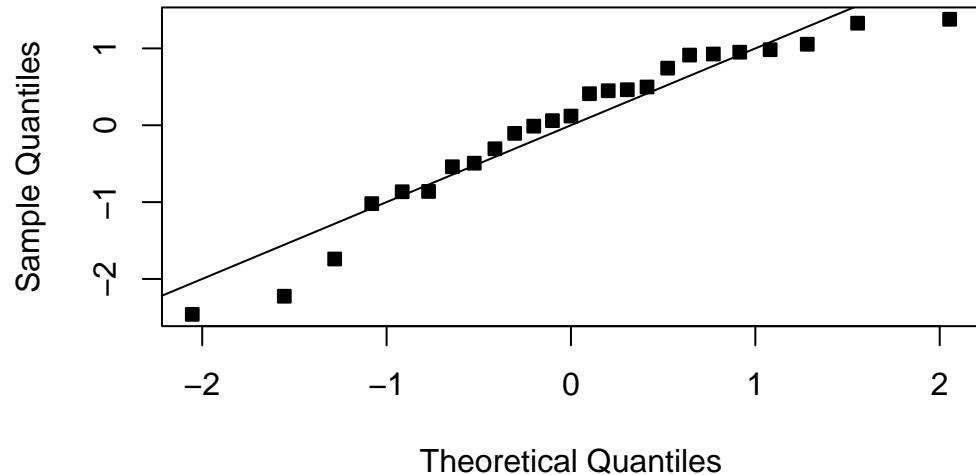
	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	2.9789	0.0449	66.34	<2e-16 ***
WindVelocity_mph_inv	-6.9345	0.2064	-33.59	<2e-16 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.09417 on 23 degrees of freedom
Multiple R-squared: 0.98, Adjusted R-squared: 0.9792
F-statistic: 1128 on 1 and 23 DF, p-value: < 2.2e-16

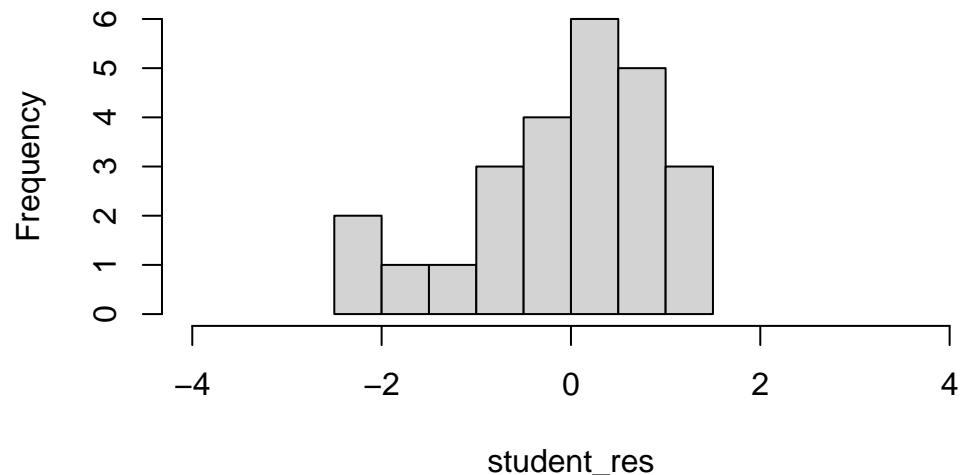
```
student_res=rstudent(model2)
MSE=summ$sigma^2
qqnorm(student_res,pch=22,bg=1)
abline(0,1)
```

Normal Q-Q Plot

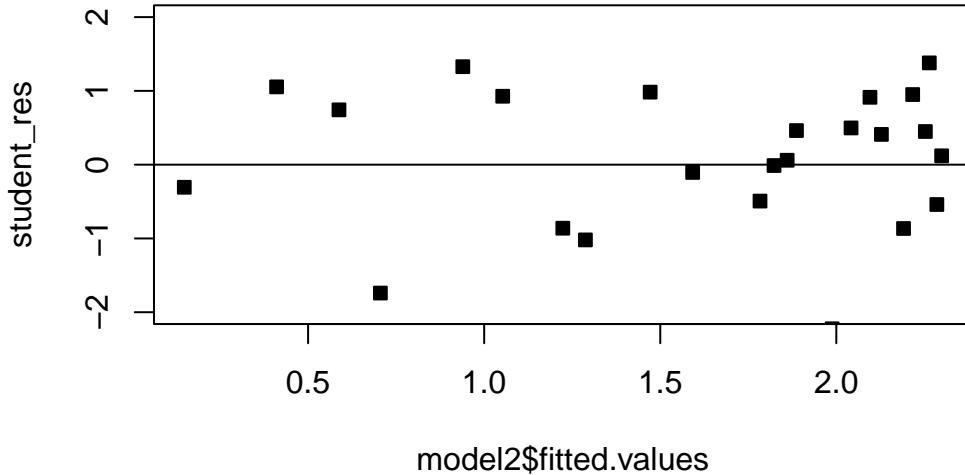


```
hist(student_res, xlim=c(-4,4))
```

Histogram of student_res



```
plot(model2$fitted.values, student_res, pch=22, bg=1, ylim=c(-2,2))
abline(h=0)
```



5.1.2 Box Cox Transformations

One technique is to use the data to estimate which transformation is best, a popular instance is the Box-Cox transformation. Consider the class of transformations: $\{y^\lambda : \lambda \in \mathbb{R}\}$. The regression model and λ can be estimated simultaneously using the method of maximum likelihood. Recall that we used the method of least squares to estimate the model parameters - maximum likelihood is an alternative estimation strategy. Think of λ like an extra model parameter, on top of β and σ that we need to estimate.

Let

$$\tilde{y} = \log^{-1}(1/n \sum_{i=1}^n \log y_i)$$

$$y_\lambda = \begin{cases} \frac{y^\lambda - 1}{\lambda \tilde{y}^{\lambda-1}} & \lambda \neq 0 \\ \tilde{y} \log y & \lambda = 0 \end{cases}.$$

We then fit the following model

$$y_\lambda = X\beta + \epsilon.$$

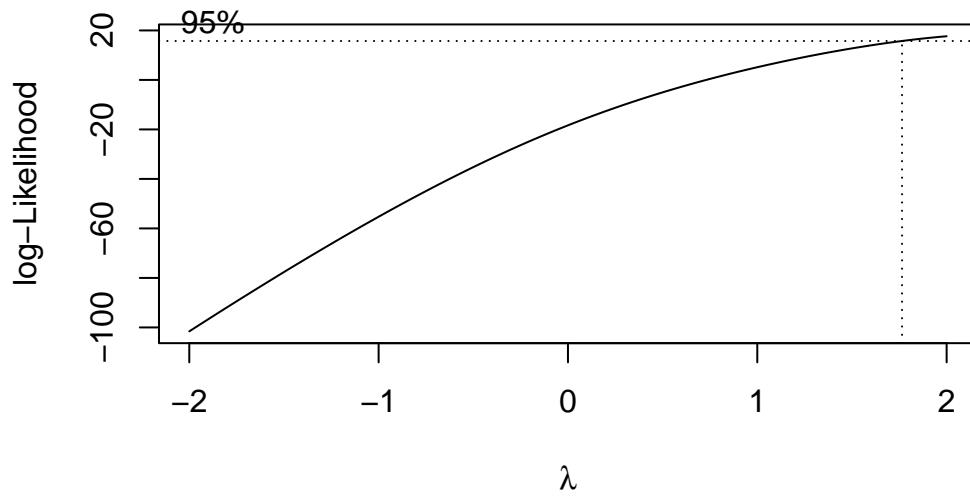
Even though $y^\lambda \neq y_\lambda$, we use y^λ (or $\log y$ if $\lambda = 0$) as the final response - as it is more interpretable. It is entirely acceptable to use y_λ as the response for the final model - this model will have a scale difference and an origin shift in comparison to the model using y^λ (or $\log y$). Usually the final λ used in the model is rounded to a nice number for interpretation. A computational procedure is used for estimating λ , which we will not cover here. In general, we can compute a confidence interval for λ , and if it contains 1 then we may not need to transform.

Example 5.4. Let's apply the Box-Cox transformation to the two previous examples.

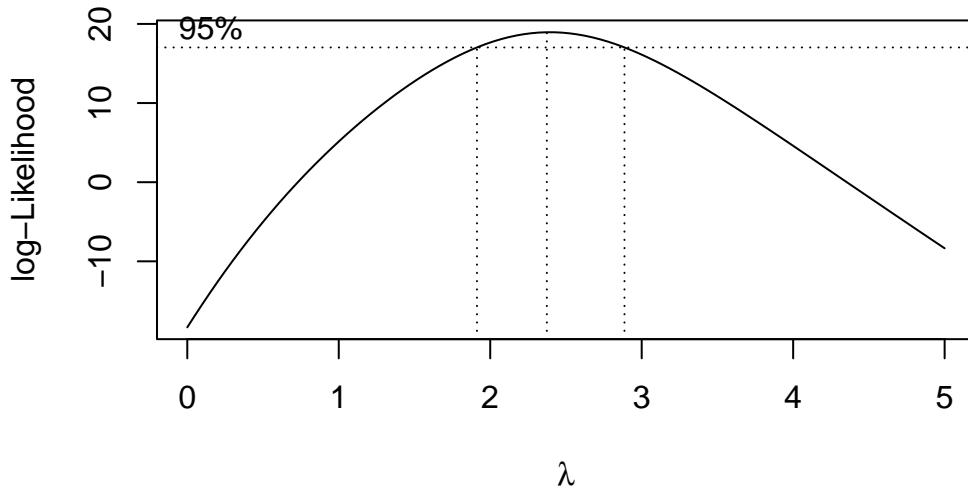
The R function `boxcox` from the `MASS` package can be used to execute the Box-Cox transformation. It requires you to specify a grid of points for λ , given below by `seq(-2, 2, 1/10)`. We can set the `plotit` parameter to `TRUE` in order to see if this grid is big enough. We should see a peak or mode in the log-likelihood function that is plotted. If we don't, we can expand the grid on the side which has the largest value of the log-likelihood. Observe below that we need to include points higher than 2 on the grid, as the function is still increasing for at $\lambda = 2$:

```
# You need the MASS package.
# install.packages('MASS')

bc=MASS::boxcox(DCOutput~WindVelocity_mph,data=df_wind,
                 lambda = seq(-2, 2, 1/10),
                 plotit = TRUE,
                 eps = 1/50,
                 xlab = expression(lambda),
                 ylab = "log-Likelihood")
```



```
# bc  
  
#Observe that  
  
bc=MASS::boxcox(DCOutput~WindVelocity_mph,data=df_wind,  
                  lambda = seq(0, 5, 1/10),  
                  plotit = TRUE,  
                  eps = 1/50,  
                  xlab = expression(lambda),  
                  ylab = "log-Likelihood")
```



```
# bc
#Seems like we should try lambda=2
```

The confidence interval goes from just below 2 to just below 3. Let's pick a round number, and try the transformation $\lambda = 2$.

```
# plot(df$DCOutput,log(df$WindVelocity_mph))
model3=lm(DCOutput^2~WindVelocity_mph, df_wind)
model3
```

```
Call:
lm(formula = DCOutput^2 ~ WindVelocity_mph, data = df_wind)

Coefficients:
(Intercept)  WindVelocity_mph
-1.3585          0.7107
```

```
summ3=summary(model3); summ3
```

```
Call:  
lm(formula = DCOutput^2 ~ WindVelocity_mph, data = df_wind)
```

```
Residuals:
```

Min	1Q	Median	3Q	Max
-0.74840	-0.31027	0.05951	0.30793	0.57072

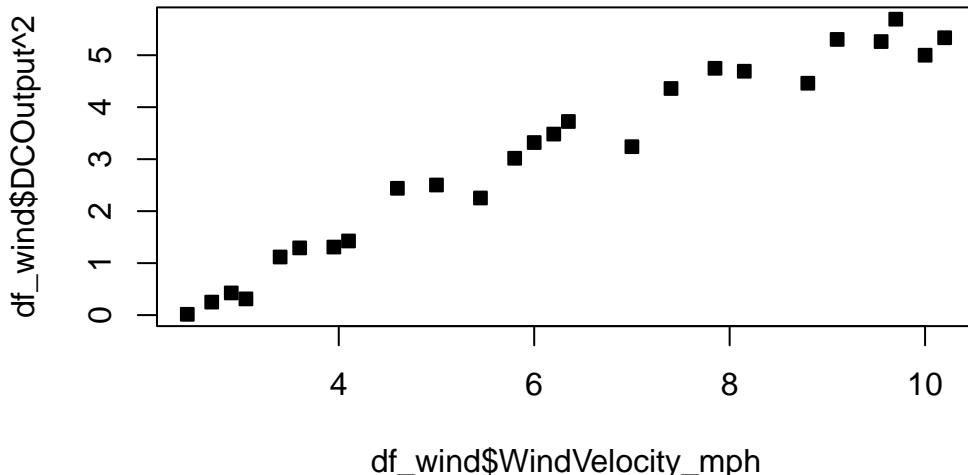
```
Coefficients:
```

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-1.35851	0.21239	-6.396	1.58e-06 ***
WindVelocity_mph	0.71066	0.03211	22.130	< 2e-16 ***

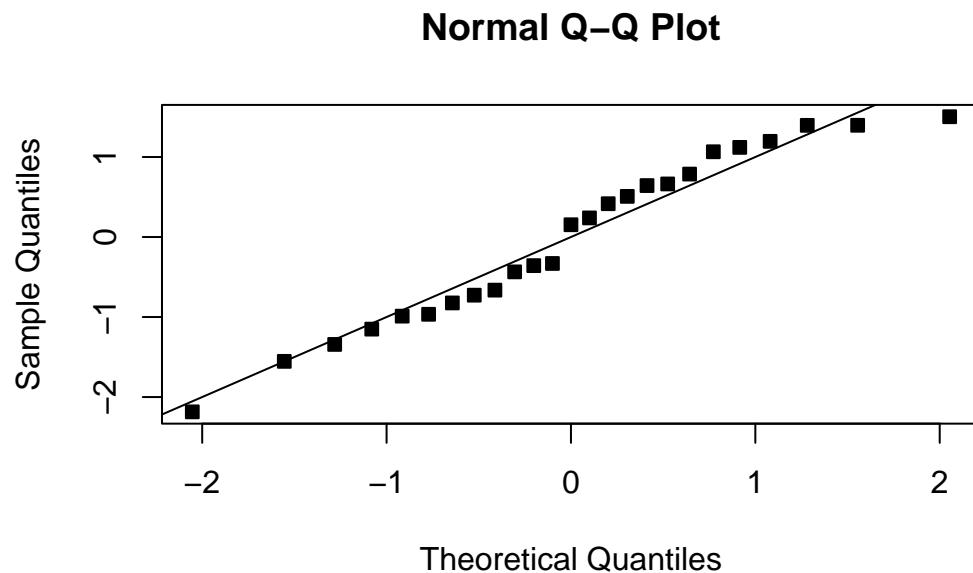
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.3979 on 23 degrees of freedom
Multiple R-squared: 0.9551, Adjusted R-squared: 0.9532
F-statistic: 489.7 on 1 and 23 DF, p-value: < 2.2e-16

```
plot(df_wind$WindVelocity_mph,df_wind$DCOutput^2,pch=22, bg=1)
```

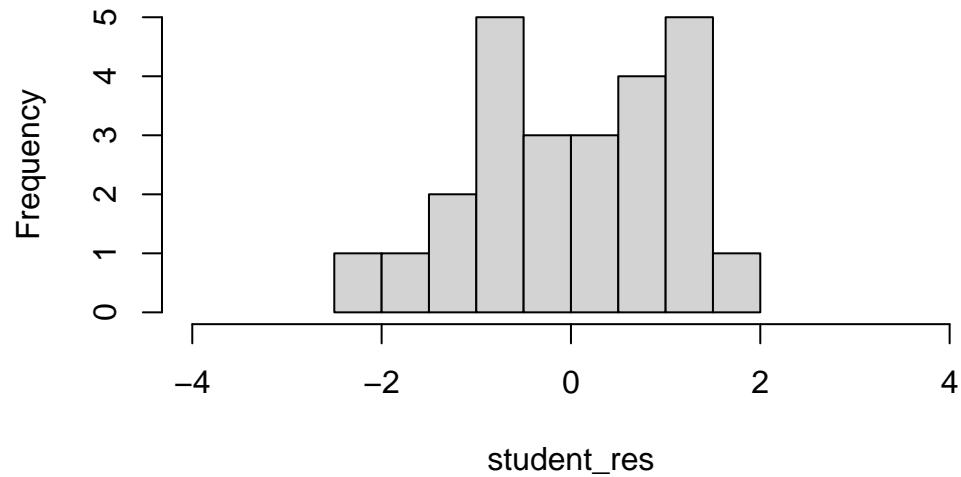


```
student_res=rstudent(model3)
MSE=summ3$sigma^2
qqnorm(student_res,pch=22,bg=1)
abline(0,1)
```

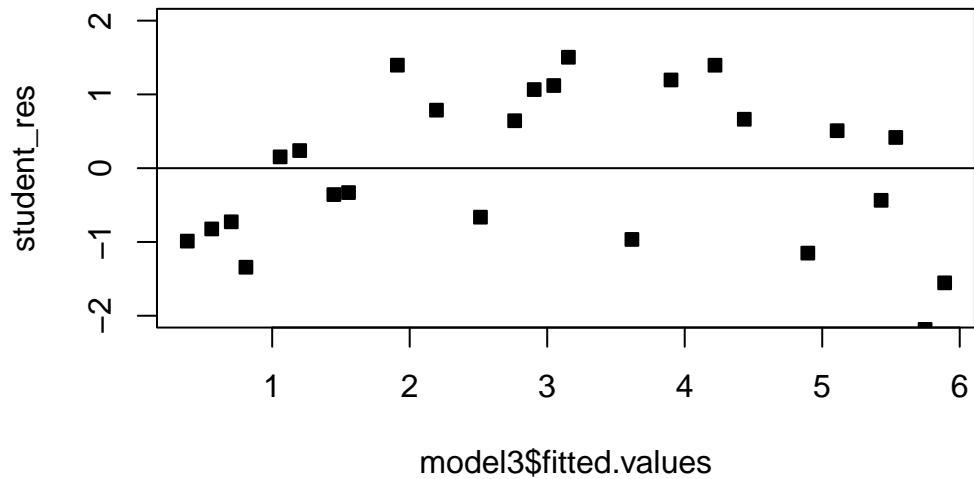


```
hist(student_res,xlim=c(-4,4))
```

Histogram of student_res



```
plot(model3$fitted.values,student_res,pch=22,bg=1,ylim=c(-2,2))
abline(h=0)
```



The fit is not bad. The R^2 is very high. There is a pattern in the QQplot and a slight pattern in the residuals plot. For knowing nothing about wind velocity, it is not bad.

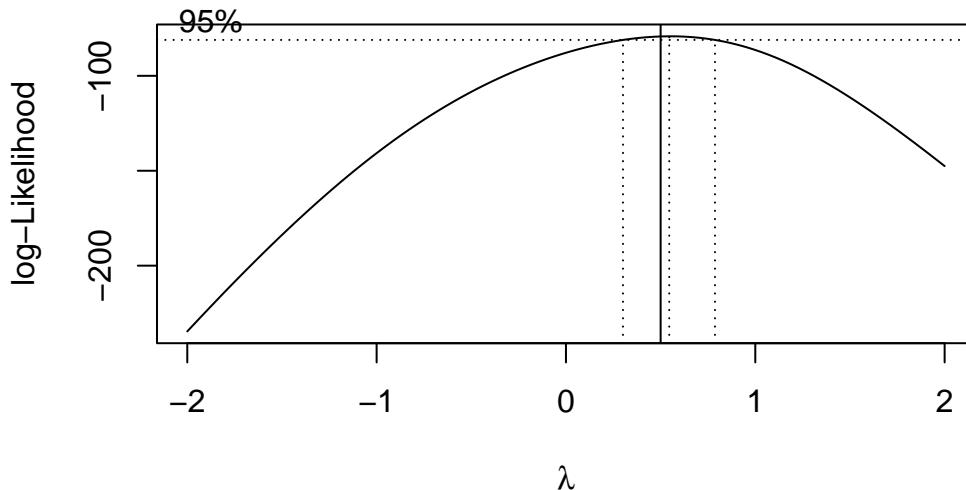
The electricity data clearly points to the square root transformation - matching the analysis we did previously.

```
## Electricity

model=lm(y_kW~x_kWh, df)

bc=MASS::boxcox(y_kW~x_kWh,data=df,
                  lambda = seq(-2, 2, 1/10),
                  plotit = TRUE,
                  eps = 1/50,
                  xlab = expression(lambda),
                  ylab = "log-Likelihood")

abline(v=0.5)
```



```
# bc
```

5.1.3 Homework stop

Complete the assigned Chapter 5 questions.

6 Indicator Variables

Often we will have regressors that are categorical. We now discuss how to include those in a regression model. In general, categorical variables can be included in a regression model via **indicator variables**.

6.1 What are indicator variables?

If a regressor has two categories A and B , that regressor can be included in the model as

$$z = \begin{cases} 0 & \text{if the observation is type A} \\ 1 & \text{if the observation is type B} \end{cases}$$

Sometimes people choose

$$z = \begin{cases} -1 & \text{if the observation is type A} \\ 1 & \text{if the observation is type B} \end{cases}.$$

The variable z is an indicator variable. Indicator variables are in numeric form, and can therefore be included in the design matrix X in the usual way we do for continuous regressors.

Example 6.1. Let's recall Example 3.1 and suppose we have some new data as follows:

It is difficult to accurately determine a person's body fat percentage without immersing them in water. However, we can easily obtain the weight of a person. A researcher would like to know if weight and body fat percentage are related? They also suspect that sex plays a role in the prediction. This researcher collected the following data:

Individual	1	2	3	4	5	6	7	8	9	10
Weight (lb)	175	181	200	159	196	192	205	173	187	188
Body Fat (%)	6	21	15	6	22	31	32	21	25	30
Sex	F	M	F	F	M	F	F	M	M	F
Individual	11	12	13	14	15	16	17	18	19	20

Individual	1	2	3	4	5	6	7	8	9	10
Weight (lb)	188	240	175	168	246	160	215	159	146	219
Body Fat (%)	10	20	22	9	38	10	27	12	10	28
Sex	F	F	M	M	F	F	M	F	F	M

Write out the appropriate indicator variable for Sex. Interpret the resulting regression equation for regressing Body fat against weight and sex. Interpret the coefficient that corresponds to the Sex variable.

We have that

$$X_{2i} = \begin{cases} 0 & \text{if the subject } i \text{ is male} \\ 1 & \text{if the subject } i \text{ is female} \end{cases} .$$

The regression equation is then

$$Y_i|X = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \epsilon_i,$$

where X_{i1} is the weight of individual i .

When $X_{i2} = 0$, then the regression equation for males is given by $Y_i|X = \beta_0 + \beta_1 X_{i1} + \epsilon_i$. Therefore, the expected body fat percentage for males is $E[Y_i|X] = \beta_0 + \beta_1 X_{i1}$. Additionally, when $X_{i2} = 1$, then the regression equation for females is given by $Y_i|X = \beta_0 + \beta_1 X_{i1} + \beta_2 + \epsilon_i$. It follows that the expected body fat percentage for females is $E[Y_i|X] = \beta_0 + \beta_1 X_{i1} + \beta_2$. Thus, we have that the expected body fat percentage for females is β_2 higher than for males, holding weight constant. This is the interpretation of the coefficient for the dummy variable in this case. Observe that for males and females, the regression lines are parallel. The model says that sex accounts for a constant shift in your expected body fat, but the slope (the coefficient for weight) of the regression line remains the same.

Let's observe.

```
# Make the data frame
Weight=c(175 , 181 , 200 , 159 , 196 , 192 , 205 , 173 , 187 , 188 ,
       188 , 240 , 175 , 168 , 246 , 160 , 215 , 159 , 146 , 219 )
BodyFat =c(6 , 21 , 15 , 6 , 22 , 31 , 32 , 21 , 25 , 30 ,
          10 , 20 , 22 , 9 , 38 , 10 , 27 , 12 , 10 , 28 )
Sex=c("F","M","F","F","M","F","M","M","F","F","M","M","F","F","M")

df=data.frame(Weight=Weight,BodyFat=BodyFat,Sex=Sex,stringsAsFactors = T)

df$Sex=relevel(df$Sex,"M")
```

```
mod=lm(BodyFat~Weight+Sex,data=df)
summary(mod)
```

Call:
lm(formula = BodyFat ~ Weight + Sex, data = df)

Residuals:

Min	1Q	Median	3Q	Max
-11.2198	-5.3804	-0.1767	3.6719	11.7136

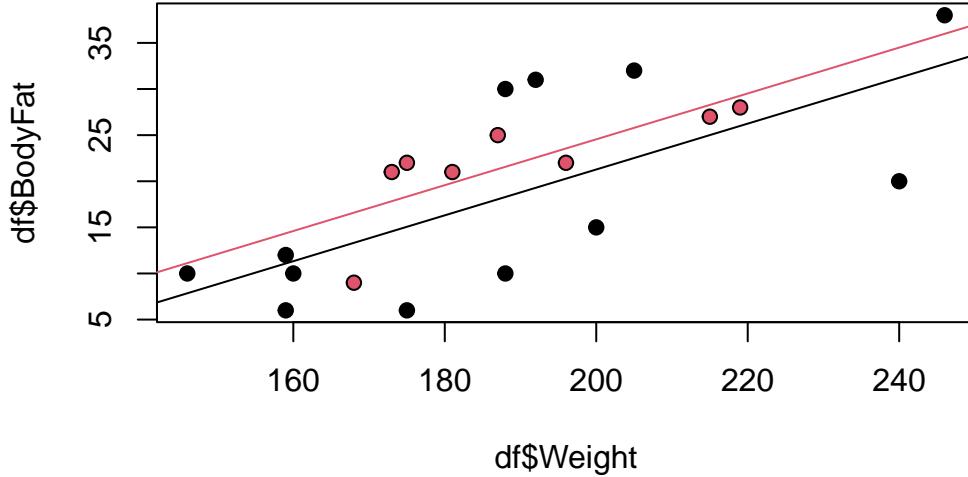
Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-25.17526	11.73681	-2.145	0.046695 *
Weight	0.24861	0.06061	4.102	0.000743 ***
SexF	-3.27233	3.21493	-1.018	0.323014

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 7.042 on 17 degrees of freedom
Multiple R-squared: 0.5149, Adjusted R-squared: 0.4578
F-statistic: 9.021 on 2 and 17 DF, p-value: 0.002137

```
plot(df$Weight,df$BodyFat,bg=((df$Sex=="M")+1),pch=21)
abline(coef(mod)[1],coef(mod)[2],col=2)
abline(coef(mod)[1]+coef(mod)[3],coef(mod)[2],col=1)
```



We can generalize this idea out of this example. In the case of two categories, the interpretation of the coefficient for the dummy variable is given as follows: Holding other regressors constant, on average, the change in response attributed to the case where the dummy variable is 1, relative to the case where the dummy variable is 0, is given by the coefficient for the dummy variable.

Moving on, a regressor that has k categories can be represented by $k - 1$ indicator variables:

x_1	x_2	...	x_{k-1}	Category
0	0	...	0	1
1	0	...	0	2
0	1	...	0	3
:	:	...	:	:
0	0	...	1	k

In this case, the category, or level, where all dummy variables are equal to 0 is the **reference category**. The reference category is the baseline we will compare all other categories to. You may want to choose this carefully. In this case, the interpretation of each of the $k - 1$ coefficients is going to be as follows: Holding other regressors constant, on average, the change in response attributed to the case where the dummy variable corresponding to the coefficient is 1, relative to the reference category, is given by the coefficient for the dummy variable. Note that the reference category has no variable associated with it.

Example 6.2. When evaluating factors that affect the price of real estate, we may wish to consider location, while adjusting for lot size, year built and finished square feet. The data set `clean_data.csv` contains the prices of various types of real estate, as well as several important regressors. Regress the sale price on location, lot size, year built and finished square feet. Interpret the coefficient related to District 14. According to the model, holding other variables constant, what district has the highest priced properties? the lowest? Observe that District 7 has a non significant coefficient. In this case, what does it mean for District 7 to have a coefficient of 0?

```
##### Packages needed ######
```

```
library(lubridate)
```

```
Attaching package: 'lubridate'
```

```
The following objects are masked from 'package:base':
```

```
date, intersect, setdiff, union
```

```
# Example: We would like to see how sale price of a home is related to  
# various factors
```

```
##### Loading data #####
```

```
df_clean2=read.csv('clean_data.csv',stringsAsFactors = T)  
df_clean2$District=as.factor(df_clean2$District)
```

```
# The first level is the reference category  
attributes(df_clean2$District)$levels[1]
```

```
[1] "1"
```

```
##### Fitting the model #####
```

```
model=lm(Sale_price~District+Fin_sqft+Lotsize+Year_Built,df_clean2)
```

```
summ=summary(model); summ
```

Call:

```

lm(formula = Sale_price ~ District + Fin_sqft + Lotsize + Year_Built,
   data = df_clean2)

Residuals:
    Min      1Q  Median      3Q     Max 
-399923 -25360     426    23383 1580056 

Coefficients:
            Estimate Std. Error t value Pr(>|t|)    
(Intercept) -9.170e+05  4.175e+04 -21.963 < 2e-16 ***
District2    1.335e+04  2.312e+03   5.772 7.92e-09 ***
District3    1.815e+05  2.462e+03   73.723 < 2e-16 ***
District4   -3.525e+04  4.777e+03  -7.378 1.66e-13 ***
District5    5.552e+04  1.988e+03   27.923 < 2e-16 ***
District6    1.202e+04  2.849e+03   4.218 2.47e-05 ***
District7   -4.300e+03  2.482e+03  -1.732  0.08327 .
District8    1.732e+04  2.708e+03   6.396 1.62e-10 ***
District9    2.810e+04  2.474e+03  11.361 < 2e-16 ***
District10   6.363e+04  2.073e+03  30.699 < 2e-16 ***
District11   7.032e+04  1.990e+03  35.333 < 2e-16 ***
District12   1.014e+04  3.240e+03   3.129  0.00175 ** 
District13   6.877e+04  2.057e+03  33.430 < 2e-16 ***
District14   1.026e+05  2.086e+03  49.212 < 2e-16 ***
District15   -3.375e+04  3.050e+03 -11.066 < 2e-16 ***
Fin_sqft     6.519e+01  6.525e-01  99.899 < 2e-16 ***
Lotsize      3.906e+00  1.228e-01  31.812 < 2e-16 ***
Year_Built   4.506e+02  2.153e+01  20.930 < 2e-16 ***

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 55680 on 24604 degrees of freedom
Multiple R-squared:  0.5889,    Adjusted R-squared:  0.5886 
F-statistic:  2073 on 17 and 24604 DF,  p-value: < 2.2e-16

```

```
coef(model)[which.max(coef(model))]
```

```
District3
181495.9
```

```
coef(model)[order(coef(model))[1:3]]
```

```
(Intercept)  District4  District15
```

-916960.88 -35245.83 -33748.17

1. Interpret the coefficient for District 14: Holding lot size, finished square feet and year built constant, on average, the change in the price of a property in District 14, relative to District 1, is 102 600.
2. According to the model, holding other variables constant, what district has the highest priced properties on average? the lowest? The highest coefficient is District 3, and it is positive, so, holding other variables constant, on average District 3 has the highest priced properties. The lowest coefficient is District 4, and it is negative, so, holding other variables constant, on average District 4 has the lowest priced properties.
3. Observe that District 7 has a non significant coefficient. In this case, what does it mean for District 7 to have a coefficient of 0? This means that there is not enough evidence to show that District 1 and District 7 have different prices, holding other variables constant, on average.

i Note

If all coefficients for the dummy variables are positive, then the reference category has the lowest average value of the response. Analogously, if all coefficients for the dummy variables are negative, then the reference category has the lowest average value of the response. Why? Use the interpretation of the coefficients to answer this question.

i Note

ANOVA is Regression!- In one-way ANOVA, recall that we test for a difference in group means for a continuous response. We can represent the treatment groups with dummy variables and view this as a regression problem. That is, regressing the outcome on the dummy variables. It turns out that the regression ANOVA, that is, the overall F -test, applied to these dummy variables is equivalent to the one-way ANOVA (see Section 8.3 of the textbook.)

6.2 Interaction effects

An interaction effect occurs when the effect of one regressor on the response depends on the value of another regressor. In other words, the combined effect of two variables is not simply additive; the value of one variable modifies the impact of the other. In linear regression, this means that the coefficient of one regressor depends on the other.

We now give a simple example:

Suppose we are studying the effect of hours studied (X_1) and attendance (X_2) on exam scores (Y). An interaction effect between X_1 and X_2 would imply that the effect of studying on exam

scores is different depending on the level of attendance. This can be modeled by including an interaction term ($X_1 \times X_2$) in the regression equation:

$$[Y_i = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 (X_{i1} \times X_{i2}) + \epsilon_i]$$

The coefficient (β_3) represents the interaction effect between X_1 and X_2 . For instance, if $\beta_3 > 0$, then the more the student has attended the course, the more beneficial the student's hours studied will be.

Some examples of how interaction effects are applied in real life are given by:

- **Psychology:** Studying how different treatments and demographic factors interact to influence behavior.
- **Marketing:** Analyzing how different marketing strategies and customer demographics interact to affect sales.
- **Medicine:** Investigating how different drugs and patient characteristics interact to affect health outcomes.

Example 6.3. Let's recall Example 6.1 and suppose the researcher would like you to include the interaction effect between Weight and Sex. Explain how the regression line changes with a non-zero interaction effect. Interpret the estimated interaction effect. Is it significant?

The regression equation is

$$Y_i | X = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i1} X_{i2} + \epsilon_i.$$

If $\beta_3 \neq 0$ then we proceed as follows. When $X_{i2} = 0$, then the regression equation for males is still given by $Y_i | X = \beta_0 + \beta_1 X_{i1} + \epsilon_i$. Therefore, the expected body fat percentage for males is $E[Y_i | X] = \beta_0 + \beta_1 X_{i1}$. Additionally, when $X_{i2} = 1$, then the regression equation for females is given by

$$Y_i | X = \beta_0 + \beta_1 X_{i1} + \beta_2 + \beta_3 X_{i1} + \epsilon_i = \beta_0 + (\beta_1 + \beta_3) X_{i1} + \beta_2 + \epsilon_i.$$

It follows that the expected body fat percentage for females is $E[Y_i | X] = \beta_0 + (\beta_1 + \beta_3) X_{i1} + \beta_2$. Thus, adding an interaction effect allows the model to generate a completely different regression line, that is a different slope **and** intercept for females. The expected body fat percentage for females is then $\beta_2 + \beta_3 X_{i1}$ higher than for males, holding weight constant. Adding an interaction effect allows the slope to also vary, depending on whether the subject is male or female.

Let's observe.

```

# Make the data frame
Weight=c(175 , 181 , 200 , 159 , 196 , 192 , 205 , 173 , 187 , 188 ,
       188 , 240 , 175 , 168 , 246 , 160 , 215 , 159 , 146 , 219 )
BodyFat =c(6 , 21 , 15 , 6 , 22 , 31 , 32 , 21 , 25 , 30 ,
          10 , 20 , 22 , 9 , 38 , 10 , 27 , 12 , 10 , 28 )
Sex=c("F","M","F","F","M","F","F","M","M","F","F","M","M","F","F","M","F","F","M")

df=data.frame(Weight=Weight,BodyFat=BodyFat,Sex=Sex,stringsAsFactors = T)

df$Sex=relevel(df$Sex,"M")

mod=lm(BodyFat~Weight+Sex+Weight*Sex,data=df)
summary(mod)

```

Call:

```
lm(formula = BodyFat ~ Weight + Sex + Weight * Sex, data = df)
```

Residuals:

Min	1Q	Median	3Q	Max
-11.4171	-5.3084	0.1178	3.4912	11.7087

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-22.13450	27.12486	-0.816	0.426
Weight	0.23255	0.14269	1.630	0.123
SexF	-7.02921	30.18090	-0.233	0.819
Weight:SexF	0.01987	0.15869	0.125	0.902

Residual standard error: 7.255 on 16 degrees of freedom

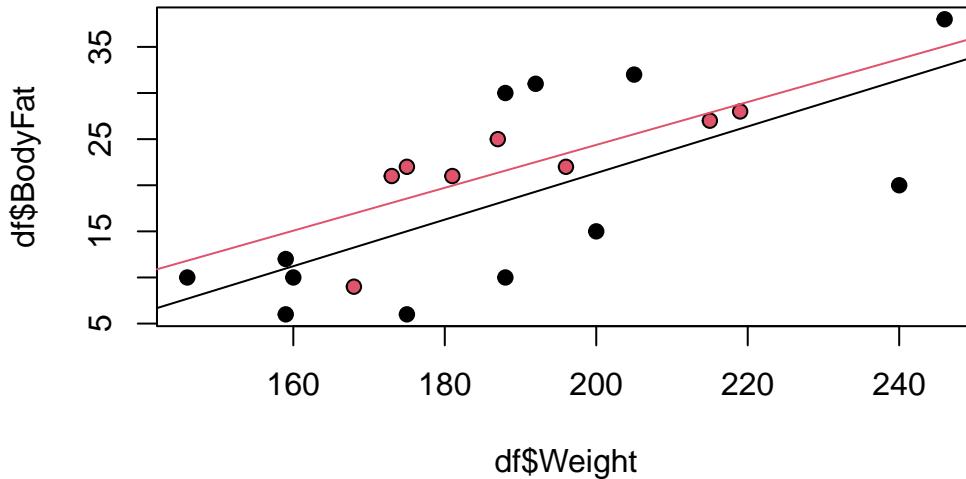
Multiple R-squared: 0.5153, Adjusted R-squared: 0.4245

F-statistic: 5.671 on 3 and 16 DF, p-value: 0.007662

```

plot(df$Weight,df$BodyFat,bg=((df$Sex=="M")+1),pch=21)
abline(coef(mod)[1],coef(mod)[2],col=2)
abline(coef(mod)[1]+coef(mod)[3],coef(mod)[2]+coef(mod)[4],col=1)

```



Notice how the slopes of the regression lines differ! Now, the estimated interaction effect is 0.01987. Let's interpret it. We have that, on average, for every one lb increase in weight, the body fat percentage of a female increases by 0.01987 more than that of a male.

(In this case, the term is not significant, so we would probably drop it.)

i Note

We can include interaction effects in the regression model in R by adding `variable_1*variable_2` to the right-hand side of the formula equation.

Example 6.4. When evaluating factors that affect the price of real estate, we may wish to consider location, while adjusting for lot size, year built and finished square feet. The data set `clean_data.csv` contains the prices of various types of real estate, as well as several important regressors. Regress the sale price on location, lot size, year built and finished square feet. Add an interaction term between year built and location. Interpret the interaction term for District 14.

```
##### Fitting the model #####
model=lm(Sale_price~District+Fin_sqft+Lotsize+Year_Built+Year_Built*District,df_clean2)

summ=summary(model); summ
```

Call:

```
lm(formula = Sale_price ~ District + Fin_sqft + Lotsize + Year_Built +  
    Year_Built * District, data = df_clean2)
```

Residuals:

Min	1Q	Median	3Q	Max
-400250	-24589	441	23005	1569420

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-1.567e+06	2.215e+05	-7.077	1.52e-12 ***
District2	9.848e+05	3.594e+05	2.740	0.006148 **
District3	-2.929e+05	2.723e+05	-1.076	0.282044
District4	6.838e+05	3.573e+05	1.914	0.055676 .
District5	1.551e+06	2.634e+05	5.888	3.97e-09 ***
District6	5.445e+05	2.683e+05	2.029	0.042446 *
District7	-7.242e+05	3.234e+05	-2.239	0.025139 *
District8	8.463e+05	3.000e+05	2.821	0.004790 **
District9	-5.339e+04	3.041e+05	-0.176	0.860634
District10	8.690e+05	2.602e+05	3.339	0.000842 ***
District11	1.899e+05	2.660e+05	0.714	0.475313
District12	1.282e+06	2.994e+05	4.283	1.85e-05 ***
District13	6.296e+05	2.557e+05	2.463	0.013799 *
District14	1.502e+06	2.392e+05	6.278	3.49e-10 ***
District15	5.815e+04	2.610e+05	0.223	0.823727
Fin_sqft	6.497e+01	6.659e-01	97.556	< 2e-16 ***
Lotsize	3.989e+00	1.237e-01	32.256	< 2e-16 ***
Year_Built	7.850e+02	1.139e+02	6.891	5.68e-12 ***
District2:Year_Built	-4.986e+02	1.841e+02	-2.708	0.006770 **
District3:Year_Built	2.547e+02	1.409e+02	1.807	0.070772 .
District4:Year_Built	-3.703e+02	1.858e+02	-1.993	0.046287 *
District5:Year_Built	-7.666e+02	1.352e+02	-5.668	1.46e-08 ***
District6:Year_Built	-2.727e+02	1.388e+02	-1.965	0.049443 *
District7:Year_Built	3.734e+02	1.667e+02	2.240	0.025118 *
District8:Year_Built	-4.278e+02	1.555e+02	-2.751	0.005938 **
District9:Year_Built	3.721e+01	1.555e+02	0.239	0.810891
District10:Year_Built	-4.146e+02	1.340e+02	-3.093	0.001985 **
District11:Year_Built	-6.285e+01	1.366e+02	-0.460	0.645462
District12:Year_Built	-6.608e+02	1.555e+02	-4.251	2.14e-05 ***
District13:Year_Built	-2.887e+02	1.314e+02	-2.198	0.027981 *
District14:Year_Built	-7.231e+02	1.232e+02	-5.869	4.43e-09 ***
District15:Year_Built	-4.403e+01	1.347e+02	-0.327	0.743706

```

---
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 55410 on 24590 degrees of freedom
Multiple R-squared: 0.5931, Adjusted R-squared: 0.5925
F-statistic: 1156 on 31 and 24590 DF, p-value: < 2.2e-16

```

Observe that the interaction term between year built and District 14 is -723.1\$. In addition, note that year built has a positive coefficient of 785\$. We can interpret the interaction effect as follows: Holding finished square feet and lot size constant, a one year increase in year built for a home in District 14 results in an increase in price that is 723.1 lower than that of District 1. We can also reword this to make it a little more clear - Holding finished square feet and lot size constant, a one year increase in year built for a home in District 1 results in an increase in price that is 723.1 higher than that of District 1.

To see this observe that for a one unit increase in year built in District 14, we have that the price goes up by $785.0 - 723.1 = 61.9$ on average, holding other variables constant. On the other hand, in District 1, the price goes up by 785.0 on average, holding other variables constant. Therefore, in general, newer homes are much more valuable in District 1.

Exercise 6.1. Interpret the main effects and the interaction effect with year built for Districts 2-4. (The main effects are the coefficients for Districts 2-4.)

 Warning

The interpretation for interaction effects is difficult and nuanced. Make sure you study this topic carefully.

6.3 Increasing codes and quantitative regressors via dummy variables

Another approach to the treatment of a qualitative variable in regression is to measure the levels of the variable by an allocated code. Suppose we model the effect of the number of bedrooms on real estate price by its numerical value, instead of categorical value. Let's see what happens to the regression equation. In general, ordinal variables may be better represented by dummy variables/indicators - however, dummy variables increase the complexity of the model, which we may not have enough data to support, and could lead to overfitting.

Example 6.5. When evaluating factors that affect the price of real estate, we may wish to consider the unadjusted effect of the number of bedrooms. Regress the sale price on number of

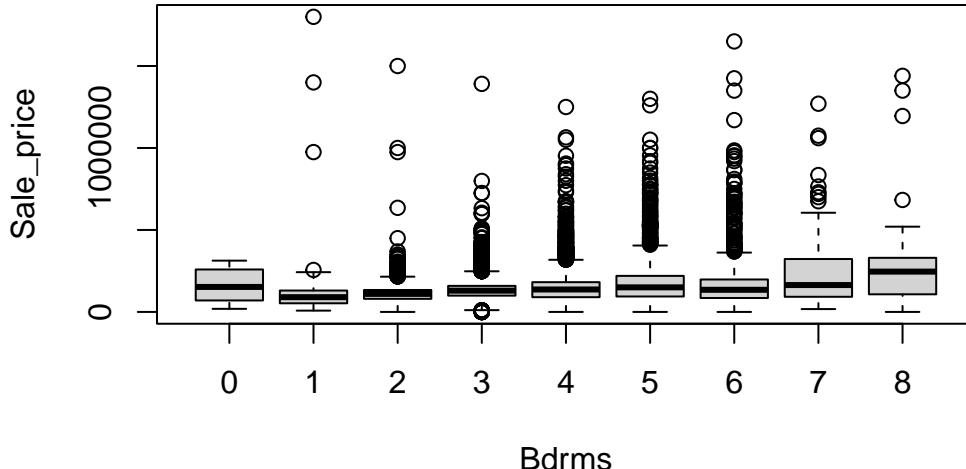
bedrooms treating number of bedrooms as a continuous variable. Then, regress the sale price on number of bedrooms treating number of bedrooms as a categorical variable. Compare and contrast the two models, and the resulting fits.

```
##### Fitting the model #####
unique(df_clean2$Bdrms)
```

```
[1] >8 2 0 4 7 3 1 6 8 5
Levels: >8 0 1 2 3 4 5 6 7 8
```

```
# Drop these rows
df_clean3=df_clean2[df_clean2$Bdrms != '>8',]
df_clean3$Bdrms=droplevels(df_clean3$Bdrms)
df_clean3$Bdrms=relevel(df_clean3$Bdrms, "0")
# Add new continuous variable
df_clean3$Bdrms2=as.numeric(df_clean3$Bdrms)-1

boxplot(Sale_price~Bdrms,df_clean3)
```



```
model_ca=lm(Sale_price~Bdrms,df_clean3)
model_co=lm(Sale_price~Bdrms2,df_clean3)

summ=summary(model_ca); summ
```

```

Call:
lm(formula = Sale_price ~ Bdrms, data = df_clean3)

Residuals:
    Min      1Q  Median      3Q     Max 
-271312 -43342 -6342   26658 1672084 

Coefficients:
            Estimate Std. Error t value Pr(>|t|)    
(Intercept) 161825    29764    5.437 5.47e-08 *** 
Bdrms1      -33909    30818   -1.100 0.271216    
Bdrms2      -53113    29800   -1.782 0.074712 .  
Bdrms3      -28483    29774   -0.957 0.338758    
Bdrms4      -15157    29785   -0.509 0.610830    
Bdrms5       24156    29852    0.809 0.418414    
Bdrms6       6826     29861    0.229 0.819189    
Bdrms7       81735    30717    2.661 0.007798 **  
Bdrms8      109487    31332    3.494 0.000476 *** 
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 84190 on 24586 degrees of freedom
Multiple R-squared:  0.05675,  Adjusted R-squared:  0.05644 
F-statistic: 184.9 on 8 and 24586 DF,  p-value: < 2.2e-16

```

```
summ=summary(model_co); summ
```

```

Call:
lm(formula = Sale_price ~ Bdrms2, data = df_clean3)

Residuals:
    Min      1Q  Median      3Q     Max 
-224144 -43153 -6651   26849 1705343 

Coefficients:
            Estimate Std. Error t value Pr(>|t|)    
(Intercept) 76159.0     1849.3    41.18  <2e-16 *** 
Bdrms2      18498.1     522.4    35.41  <2e-16 *** 
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

```

Residual standard error: 84540 on 24593 degrees of freedom
Multiple R-squared:  0.04851,   Adjusted R-squared:  0.04847
F-statistic:  1254 on 1 and 24593 DF,  p-value: < 2.2e-16

```

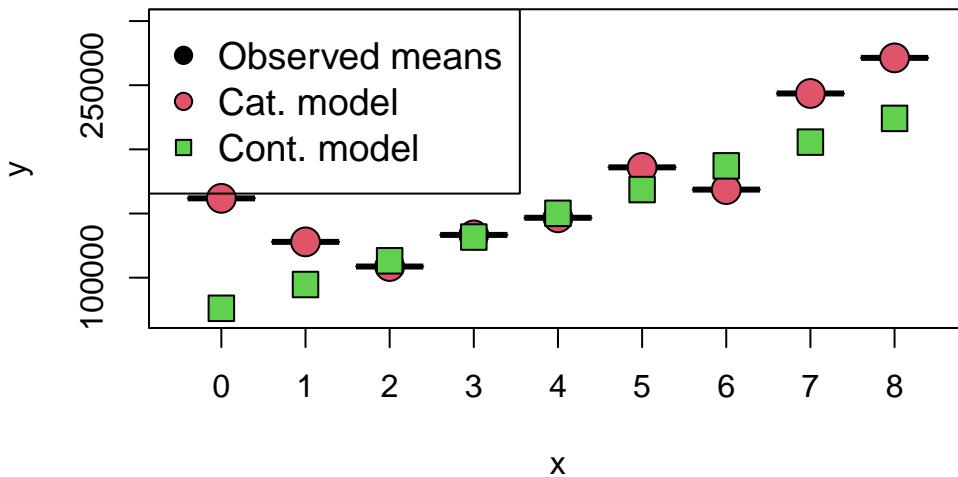
Observe that the continuous model says that for every additional bedroom, on average the price increases by 18 498\$. On the other hand, the categorical model says that the change in price depends on the number of bedrooms. For example, going from 0 bedrooms to 1 bedroom, we actually see a reduction in price of -33 909\$. Let's graph the expected price for each number of bedrooms from both models:

```

##### Fitting the model #####
new_dat=data.frame('Bdrms'=sort(unique(df_clean3$Bdrms)))
new_dat2=data.frame('Bdrms2'=0:8)
# predict(model_ca,new_dat)
# predict(model_co,new_dat2)

observed_means=aggregate(Sale_price~Bdrms,data=df_clean3, FUN = "mean")
plot(observed_means[,1],observed_means[,2],pch=25, bg=1, cex=3, ylim=c( 70000,300000))
points(x=observed_means[,1],predict(model_ca,new_dat),pch=21, bg=2, cex=2)
points(x=observed_means[,1],predict(model_co,new_dat2),pch=22, bg=3, cex=2)
legend("topleft",legend=c("Observed means","Cat. model","Cont. model"),pch=c(21,21,22),pt.bg=1)

```



Observe that the continuous model does not match the data at all, while the categorical model is able to model the **non-linear** relationship between the number of bedrooms and the sale price! Why is this the case? Treating a regressor as continuous implies that there is a linear relationship between that regressor and the response. On the other hand, modelling the variable with indicators does not place any assumption on the relationship between the regressor and the response. The drawback, is that we need 7 more parameters in the model.

⚠ Warning

When deciding to treat continuous or ordinal variables as continuous, it is critical that you evaluate whether it is acceptable to assume a linear relationship between the regression and the response. If you cannot verify this assumption, or it seems invalid, it is best to treat the regressor as categorical.

Quantitative regressors can also be represented by indicator variables. Sometimes this is necessary because it is difficult to collect accurate information on the quantitative regressor, or the exact values are obscured for privacy reasons. Treating a quantitative factor as a qualitative one increases the complexity of the model. This approach also reduces the degrees of freedom for error. However, the indicator variable approach does not require the analyst to make any prior assumptions about the functional form of the relationship between the response and the regressor variable, as previously discussed.

6.4 A larger scale example:

It is a good time to stop introducing new material and do a larger scale example.

Example 6.6. Explore the pricing data, and evaluate what factors influence the price of a property. Be sure to assess the fit of the model and check assumptions.

```
##### Packages needed #####
library(lubridate)

# Example: We would like to see how sale price of a home is related to
# various factors

##### Loading data #####
df_clean2=read.csv('clean_data.csv',stringsAsFactors = T)

##### Analyzing the data via EDA #####
```

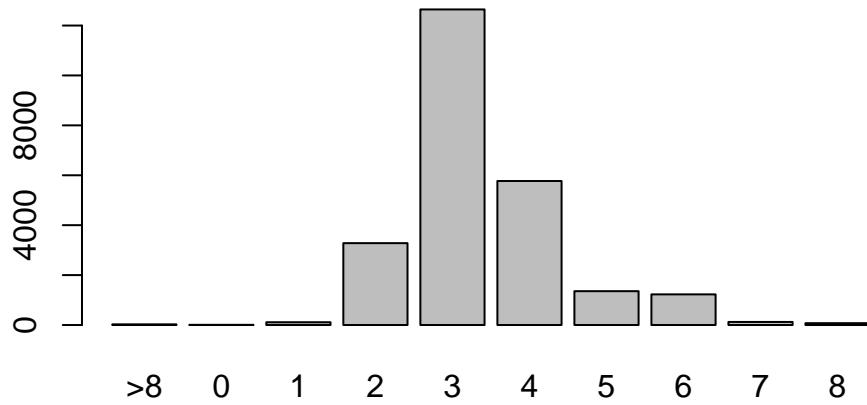
```
names(df_clean2)
```

```
[1] "District"    "Extwall"      "Stories"       "Year_Built"   "Fin_sqft"  
[6] "Units"        "Bdrms"        "Fbath"        "Lotsize"     "Sale_date"  
[11] "Sale_price"
```

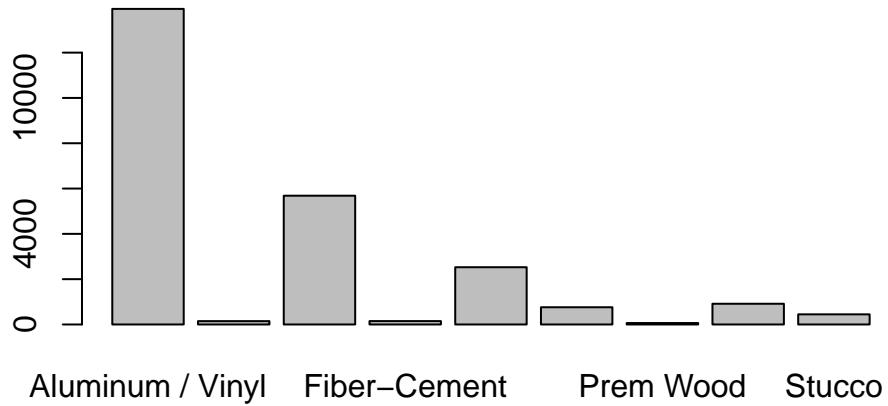
```
head(df_clean2)
```

	District	Extwall	Stories	Year_Built	Fin_sqft	Units	Bdrms	Fbath	Lotsize
1	7	Frame	2	1913	3476	>3	>8	1	5040
2	3	Frame	2	1897	1992	>3	2	2	2880
3	4	Frame	2	1907	2339	>3	0	1	3185
4	4	Frame	2	1890	2329	>3	4	1	5781
5	4	Stone	>2	1891	7450	2	7	>4	15600
6	12	Frame	1.5	1906	2462	2	3	2	5075
	Sale_date	Sale_price							
1	11719	42000							
2	11808	145000							
3	11839	30000							
4	11961	66500							
5	11992	150500							
6	11992	75000							

```
barplot(table(df_clean2$Bdrms))
```



```
barplot(table(df_clean2$Extwall))
barplot(table(df_clean2$Extwall))
```



```

dim(df_clean2)

[1] 24622    11

##### Fitting the model #####
model=lm(Sale_price~.,df_clean2)

summ=summary(model); summ

```

Call:
`lm(formula = Sale_price ~ ., data = df_clean2)`

Residuals:

Min	1Q	Median	3Q	Max
-638318	-30032	1735	29252	1621794

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-3.674e+05	4.580e+04	-8.023	1.08e-15 ***
District	1.854e+03	9.619e+01	19.271	< 2e-16 ***
ExtwallBlock	4.751e+03	5.104e+03	0.931	0.3520
ExtwallBrick	7.562e+03	1.011e+03	7.480	7.67e-14 ***
ExtwallFiber-Cement	1.096e+04	5.220e+03	2.101	0.0357 *
ExtwallFrame	-6.693e+03	1.357e+03	-4.934	8.13e-07 ***
ExtwallMasonry / Frame	1.391e+02	2.385e+03	0.058	0.9535
ExtwallPrem Wood	-1.128e+03	7.818e+03	-0.144	0.8853
ExtwallStone	1.679e+02	2.136e+03	0.079	0.9374
ExtwallStucco	1.389e+04	2.990e+03	4.646	3.40e-06 ***
Stories1	7.364e+04	1.436e+04	5.127	2.96e-07 ***
Stories1.5	8.066e+04	1.434e+04	5.624	1.89e-08 ***
Stories2	8.842e+04	1.429e+04	6.188	6.17e-10 ***
Year_Built	1.244e+01	1.973e+01	0.631	0.5283
Fin_sqft	1.000e+02	1.313e+00	76.166	< 2e-16 ***
Units1	1.335e+05	1.014e+04	13.169	< 2e-16 ***
Units2	4.277e+04	1.014e+04	4.219	2.47e-05 ***
Units3	-1.593e+04	1.092e+04	-1.458	0.1447
Bdrms0	1.731e+05	2.578e+04	6.714	1.93e-11 ***
Bdrms1	2.070e+05	1.385e+04	14.948	< 2e-16 ***
Bdrms2	1.647e+05	1.259e+04	13.082	< 2e-16 ***
Bdrms3	1.575e+05	1.251e+04	12.588	< 2e-16 ***

```

Bdrms4          1.397e+05  1.246e+04  11.208 < 2e-16 ***
Bdrms5          1.357e+05  1.246e+04  10.890 < 2e-16 ***
Bdrms6          1.166e+05  1.248e+04   9.341 < 2e-16 ***
Bdrms7          8.164e+04  1.331e+04   6.133 8.75e-10 ***
Bdrms8          1.006e+05  1.398e+04   7.195 6.43e-13 ***
Fbath0         -1.564e+05  1.841e+04  -8.494 < 2e-16 ***
Fbath1         -1.346e+05  1.327e+04 -10.142 < 2e-16 ***
Fbath2         -1.191e+05  1.318e+04  -9.031 < 2e-16 ***
Fbath3          -6.609e+04  1.310e+04  -5.045 4.57e-07 ***
Fbath4          5.041e+03  1.405e+04   0.359  0.7197
Lotsize        1.947e+00  1.349e-01  14.429 < 2e-16 ***
Sale_date       5.089e+00  3.635e-01  13.999 < 2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

Residual standard error: 61440 on 24588 degrees of freedom
 Multiple R-squared: 0.4997, Adjusted R-squared: 0.499
 F-statistic: 744.1 on 33 and 24588 DF, p-value: < 2.2e-16

```
##### Now, let's interpret the output #####
summ$r.squared
```

```
[1] 0.4996725
```

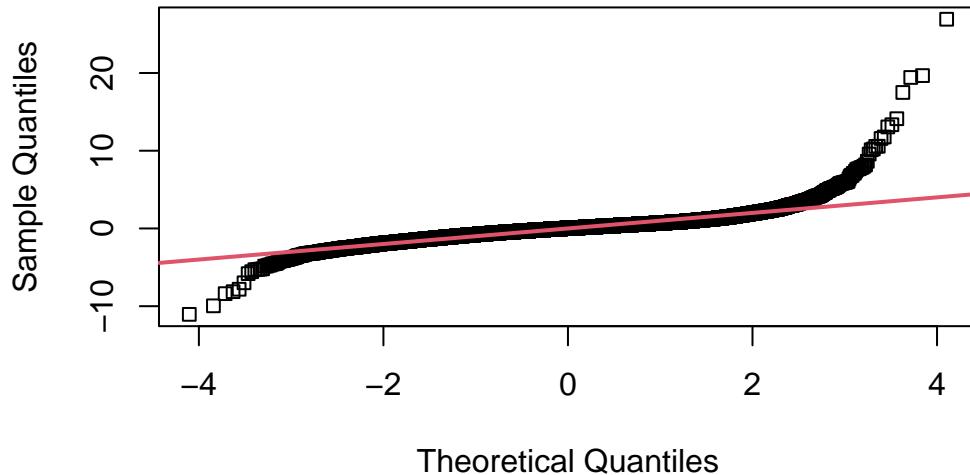
```
summ$adj.r.squared
```

```
[1] 0.499001
```

```
##### Residual analysis #####
student_res=rstudent(model)
MSE=summ$sigma^2

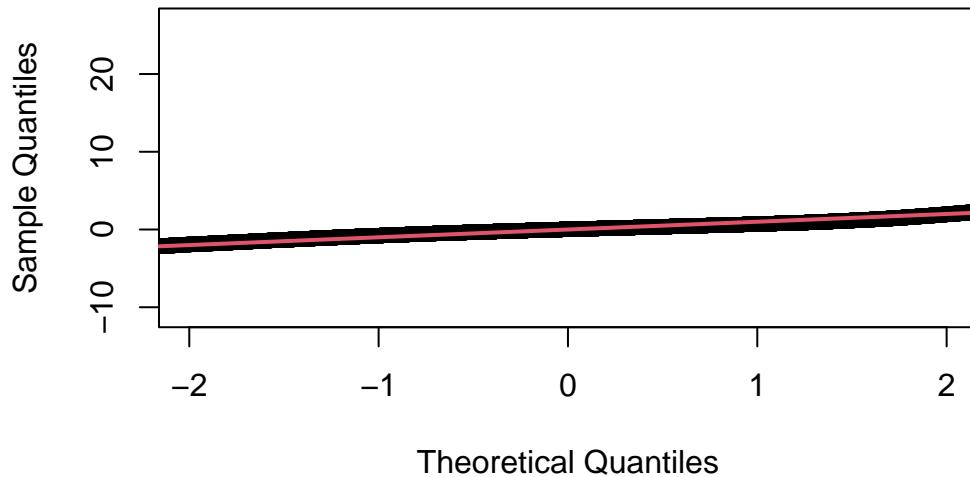
qqnorm(student_res,pch=22)
abline(0,1,col=2,lwd=2)
```

Normal Q–Q Plot

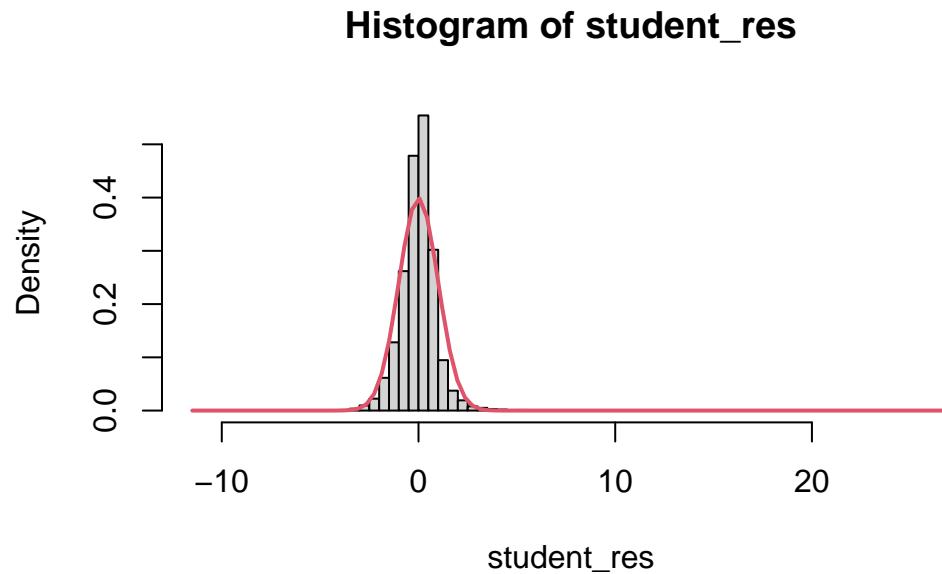


```
qqnorm(student_res,pch=22,xlim=c(-2,2))
abline(0,1,col=2,lwd=2)
```

Normal Q–Q Plot

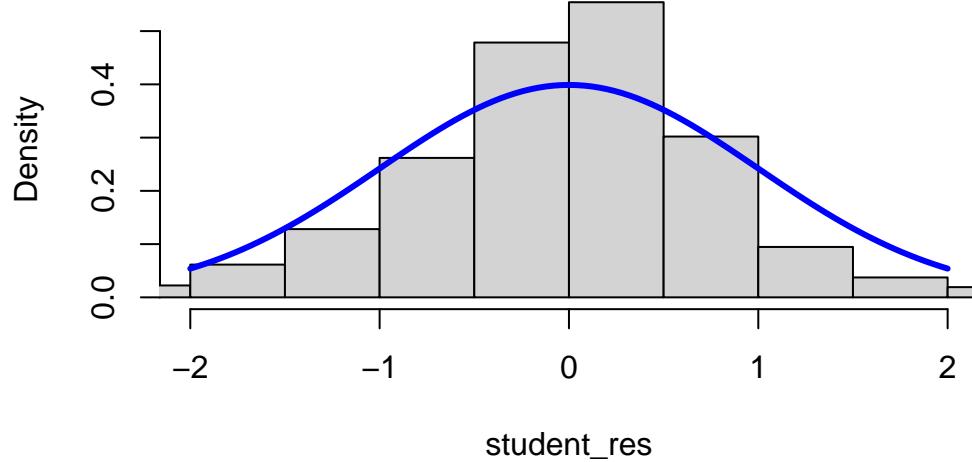


```
hist(student_res,freq=F,breaks=100)
curve(dnorm(x,0,1),add=T,col=2,lwd=2)
```



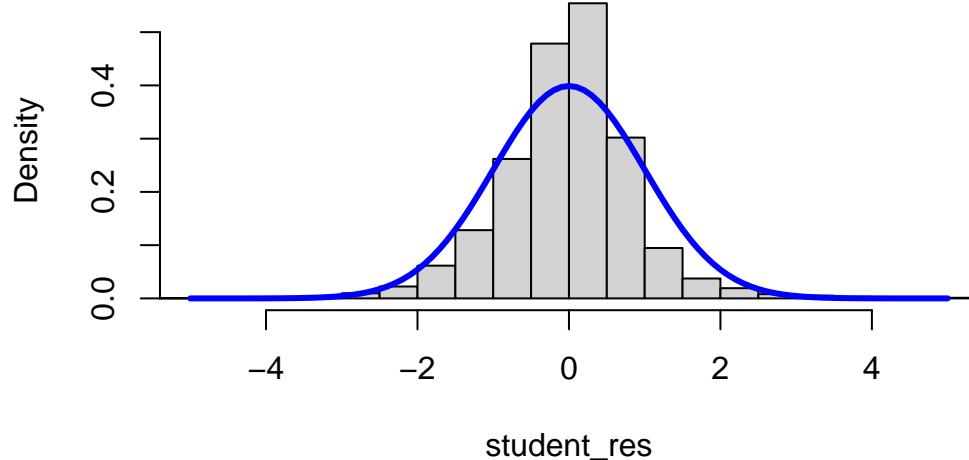
```
hist(student_res,freq=F,breaks=100,xlim=c(-2,2))
curve(dnorm(x,0,1),add=T,col='blue',lwd=3)
```

Histogram of student_res

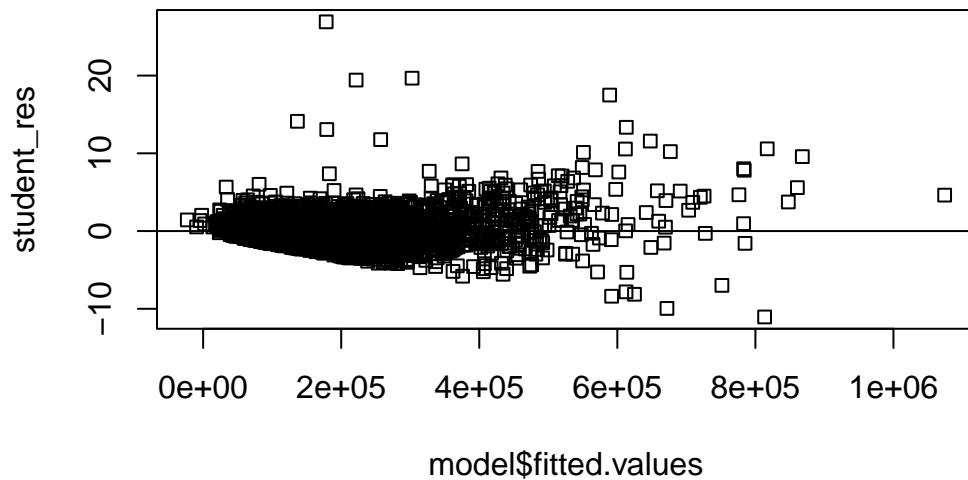


```
hist(student_res,freq=F,xlim=c(-5,5),breaks=100)
curve(dnorm(x,0,1),add=T,col='blue',lwd=3)
```

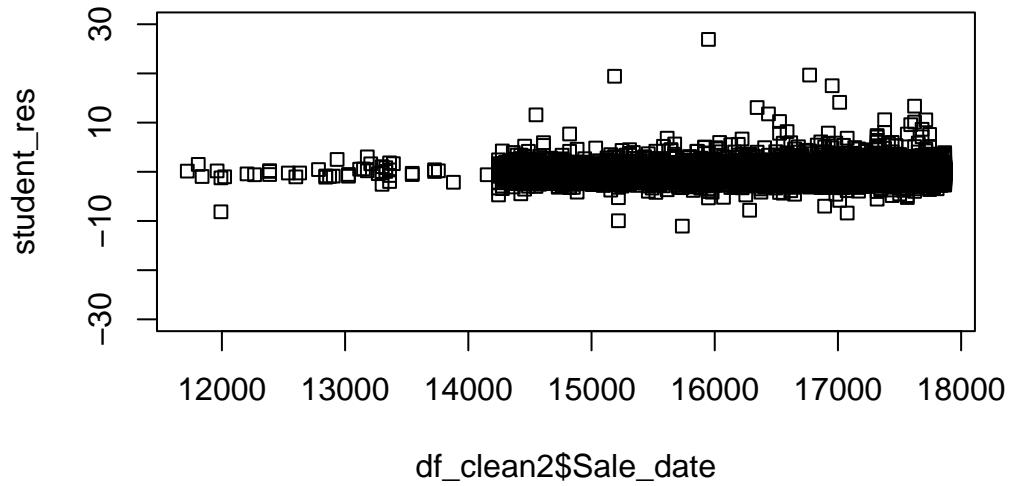
Histogram of student_res



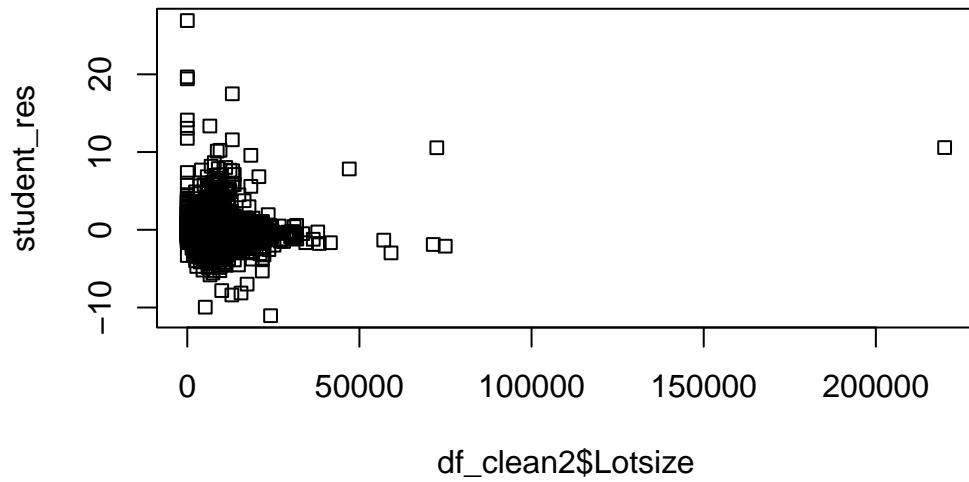
```
# SOS  
plot(model$fitted.values,student_res,pch=22)  
abline(h=0)
```



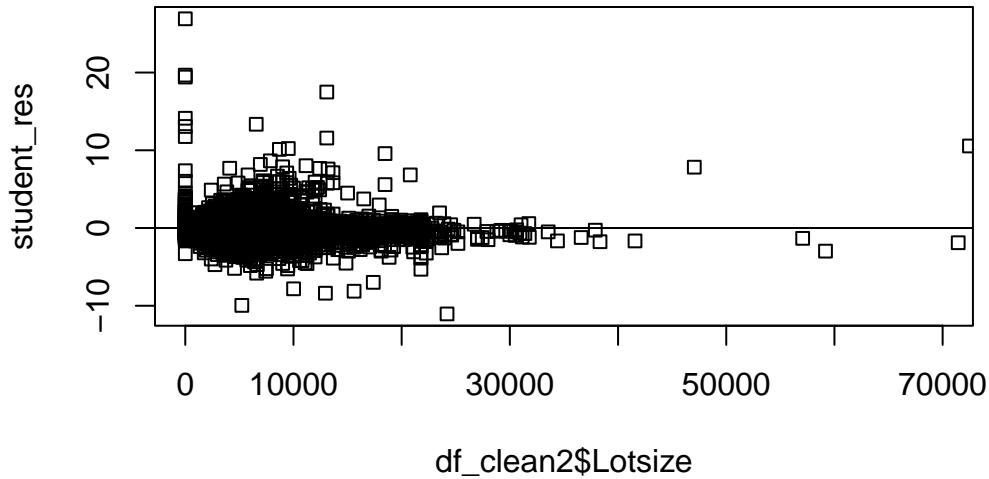
```
plot(df_clean2$Sale_date ,student_res,pch=22,ylim=c(-30,30))
```



```
plot(df_clean2$Lotsize ,student_res,pch=22)
```



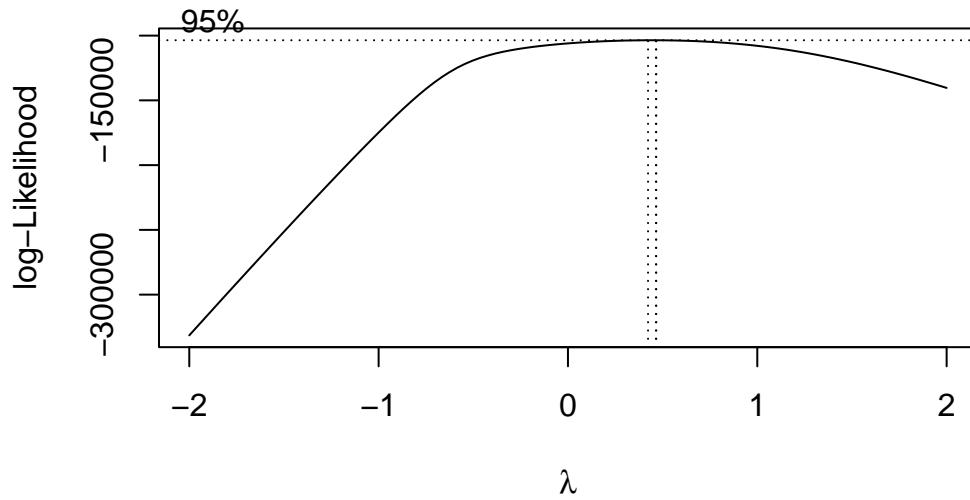
```
plot(df_clean2$Lotsize ,student_res,pch=22,xlim=c(0,70000))
abline(h=0)
```



```
# Let's try a transformation

# model=lm(Sale_price~.,df_clean2)
df_clean2=df_clean2[df_clean2$Sale_price>0,]

bc=MASS::boxcox(Sale_price~,data=df_clean2,
                 lambda = seq(-2, 2, 1/10),
                 plotit = TRUE,
                 eps = 1/50,
                 xlab = expression(lambda),
                 ylab = "log-Likelihood")
```

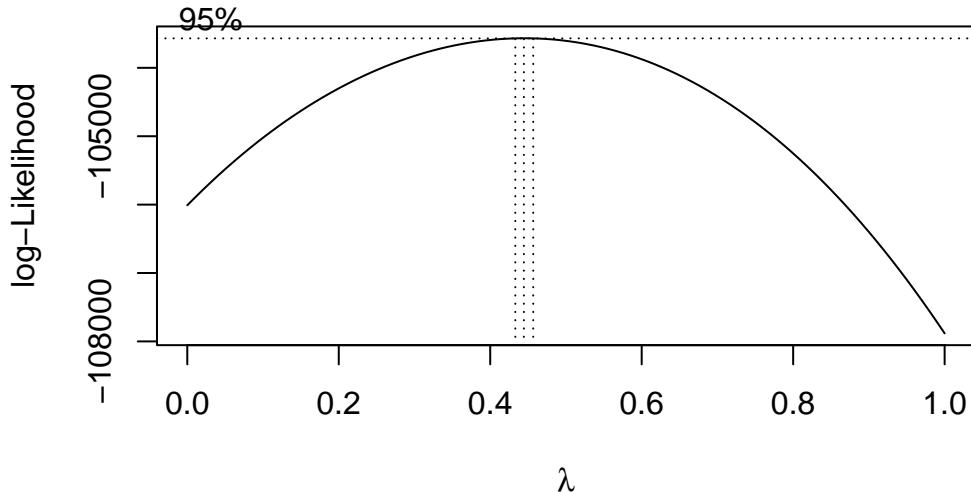


```

df_clean3=df_clean2[df_clean2$Sale_price>0,]
# bc=MASS::boxcox(Sale_price~.,data=df_clean3,
#                   lambda = seq(-2, 2, 1/10),
#                   plotit = TRUE,
#                   eps = 1/50,
#                   xlab = expression(lambda),
#                   ylab = "log-Likelihood")

bc=MASS::boxcox(Sale_price~.,data=df_clean3,
                 lambda = seq(0, 1, 1/10),
                 plotit = TRUE,
                 eps = 1/50,
                 xlab = expression(lambda),
                 ylab = "log-Likelihood")

```



```
model2=lm(sqrt(Sale_price)~.,df_clean3)
# model2=lm(Sale_price^(0.4)~.,df_clean3)

summ2=summary(model2); summ2
```

Call:
`lm(formula = sqrt(Sale_price) ~ ., data = df_clean3)`

Residuals:

Min	1Q	Median	3Q	Max
-542.68	-37.46	6.16	42.34	973.57

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-7.741e+02	5.556e+01	-13.932	< 2e-16 ***
District	3.607e+00	1.167e-01	30.915	< 2e-16 ***
ExtwallBlock	4.563e-01	6.189e+00	0.074	0.941222
ExtwallBrick	1.310e+01	1.226e+00	10.684	< 2e-16 ***
ExtwallFiber-Cement	1.593e+01	6.329e+00	2.518	0.011815 *
ExtwallFrame	-9.554e+00	1.646e+00	-5.806	6.48e-09 ***

```

ExtwallMasonry / Frame 7.916e+00 2.896e+00 2.734 0.006268 **
ExtwallPrem Wood     1.176e+01 9.479e+00 1.240 0.214945
ExtwallStone          8.667e+00 2.591e+00 3.345 0.000823 ***
ExtwallStucco         1.884e+01 3.626e+00 5.195 2.07e-07 ***
Stories1              4.819e+01 1.741e+01 2.767 0.005660 **
Stories1.5            6.198e+01 1.739e+01 3.564 0.000366 ***
Stories2              7.132e+01 1.732e+01 4.117 3.86e-05 ***
Year_Built            2.876e-01 2.394e-02 12.011 < 2e-16 ***
Fin_sqft              1.009e-01 1.593e-03 63.301 < 2e-16 ***
Units1                1.272e+02 1.229e+01 10.348 < 2e-16 ***
Units2                2.193e+01 1.229e+01 1.784 0.074427 .
Units3                -2.377e+01 1.324e+01 -1.795 0.072732 .
Bdrms0                1.537e+02 3.125e+01 4.917 8.85e-07 ***
Bdrms1                1.697e+02 1.679e+01 10.109 < 2e-16 ***
Bdrms2                1.460e+02 1.526e+01 9.566 < 2e-16 ***
Bdrms3                1.481e+02 1.517e+01 9.764 < 2e-16 ***
Bdrms4                1.281e+02 1.511e+01 8.480 < 2e-16 ***
Bdrms5                1.245e+02 1.511e+01 8.244 < 2e-16 ***
Bdrms6                1.025e+02 1.513e+01 6.776 1.26e-11 ***
Bdrms7                7.174e+01 1.614e+01 4.445 8.84e-06 ***
Bdrms8                1.004e+02 1.698e+01 5.917 3.33e-09 ***
Fbath0                -6.028e+01 2.232e+01 -2.700 0.006930 **
Fbath1                -3.910e+01 1.609e+01 -2.430 0.015100 *
Fbath2                -1.371e+01 1.599e+01 -0.858 0.391107
Fbath3                3.069e+01 1.589e+01 1.932 0.053401 .
Fbath4                6.407e+01 1.703e+01 3.762 0.000169 ***
Lotsize               1.851e-03 1.636e-04 11.317 < 2e-16 ***
Sale_date              6.306e-03 4.411e-04 14.295 < 2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

```

Residual standard error: 74.49 on 24559 degrees of freedom
Multiple R-squared:  0.436, Adjusted R-squared:  0.4353
F-statistic: 575.4 on 33 and 24559 DF,  p-value: < 2.2e-16

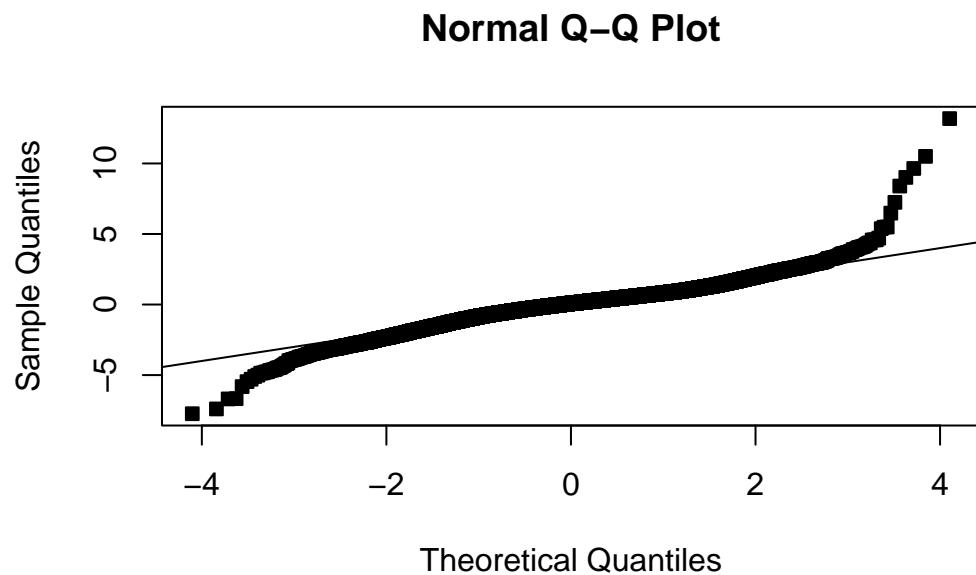
```

```
summ2$adj.r.squared
```

```
[1] 0.4352901
```

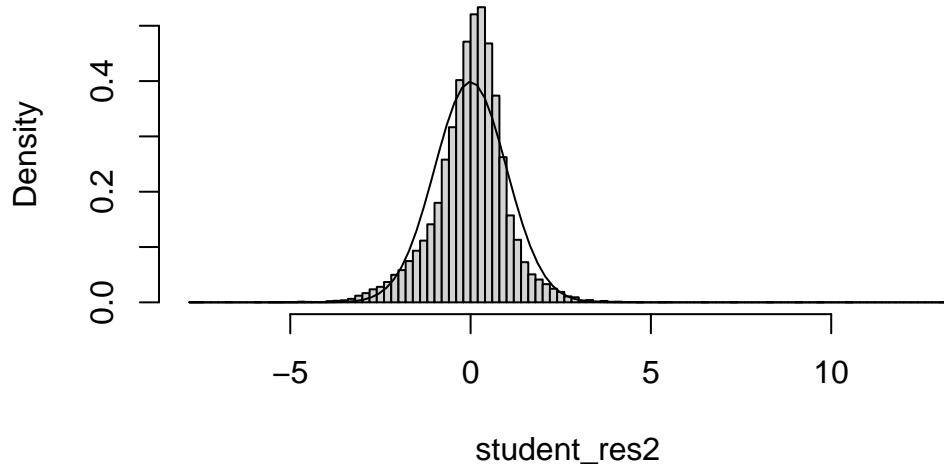
```
student_res2=rstudent(model2)
```

```
MSE2=summ2$sigma^2  
qqnorm(student_res2,pch=22, bg=1)  
abline(0,1)
```



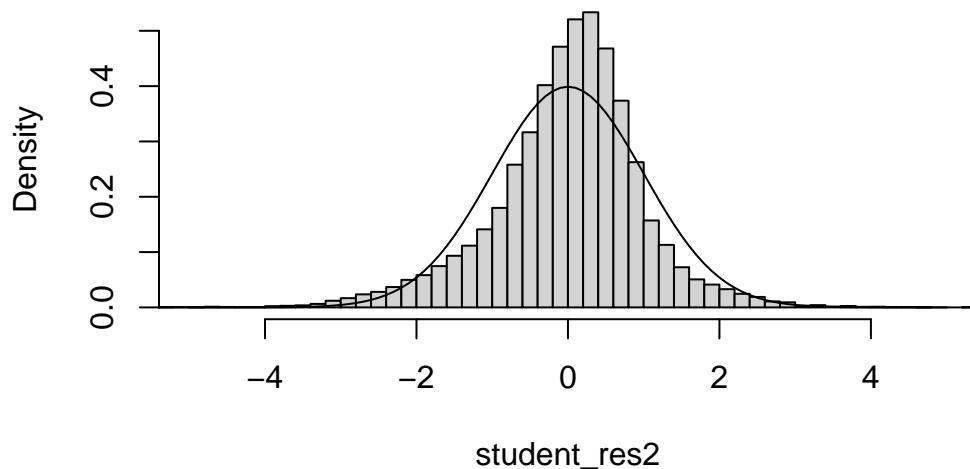
```
hist(student_res2,freq=F,breaks=100)  
curve(dnorm(x,0,1),add=T)
```

Histogram of student_res2



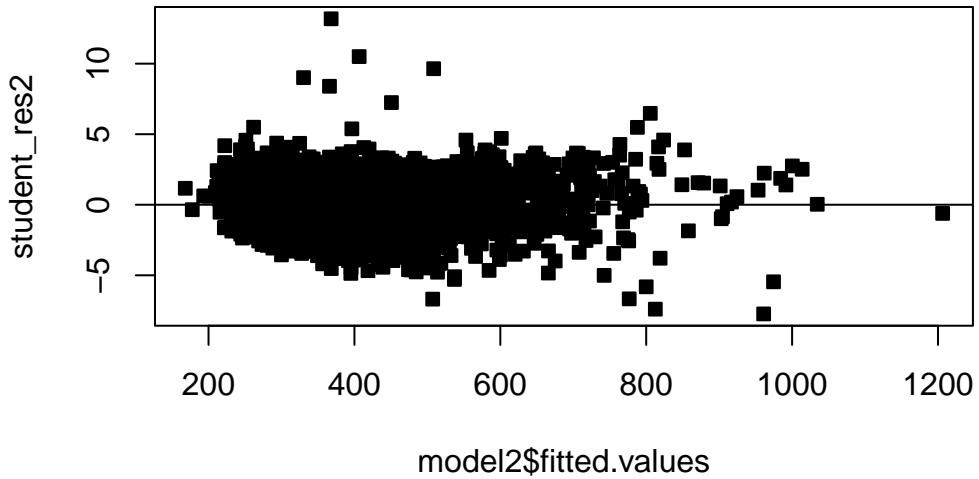
```
hist(student_res2,freq=F,xlim=c(-5,5),breaks=100)
curve(dnorm(x,0,1),add=T)
```

Histogram of student_res2

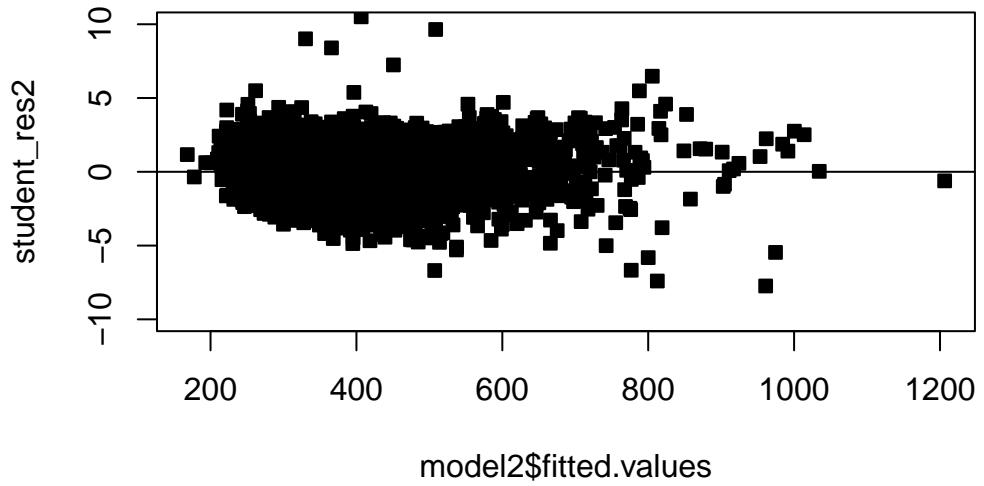


student_res2

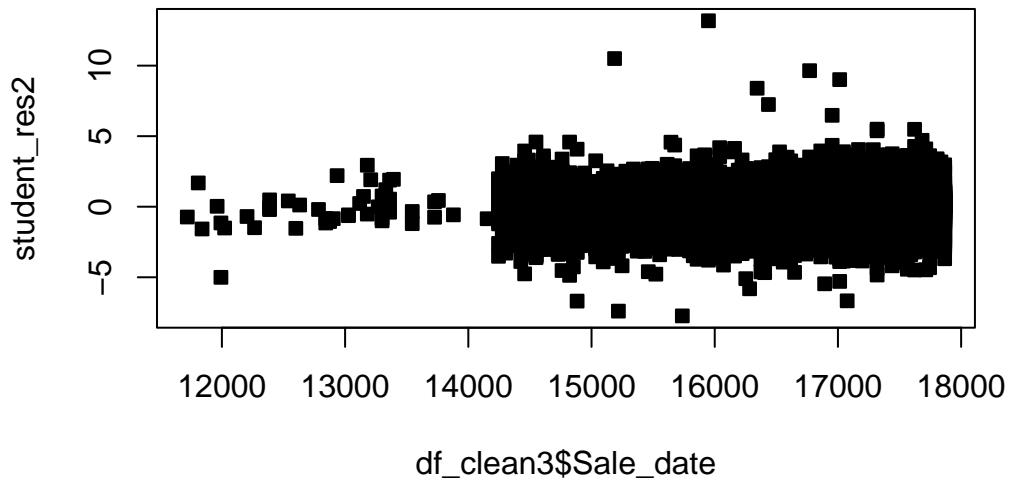
```
plot(model2$fitted.values,student_res2,pch=22,bg=1)
abline(h=0)
```



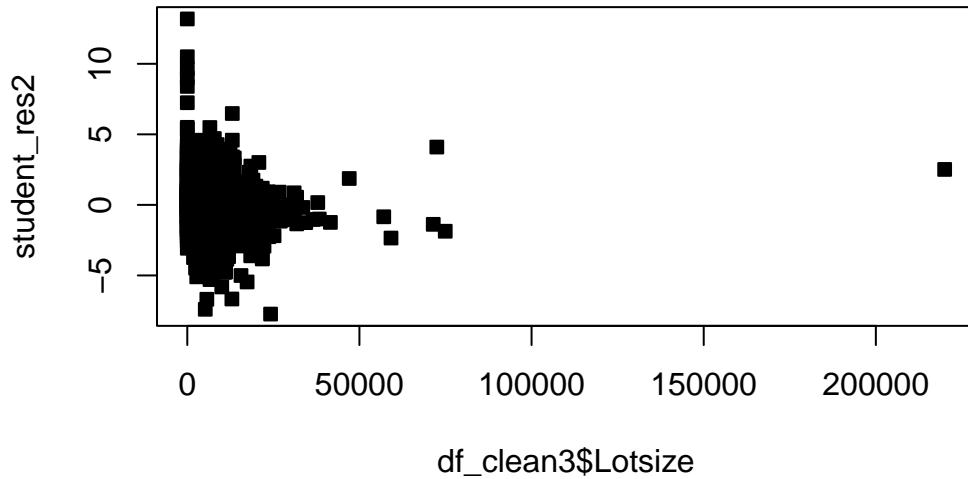
```
plot(model2$fitted.values,student_res2,pch=22,bg=1,ylim=c(-10,10))
abline(h=0)
```



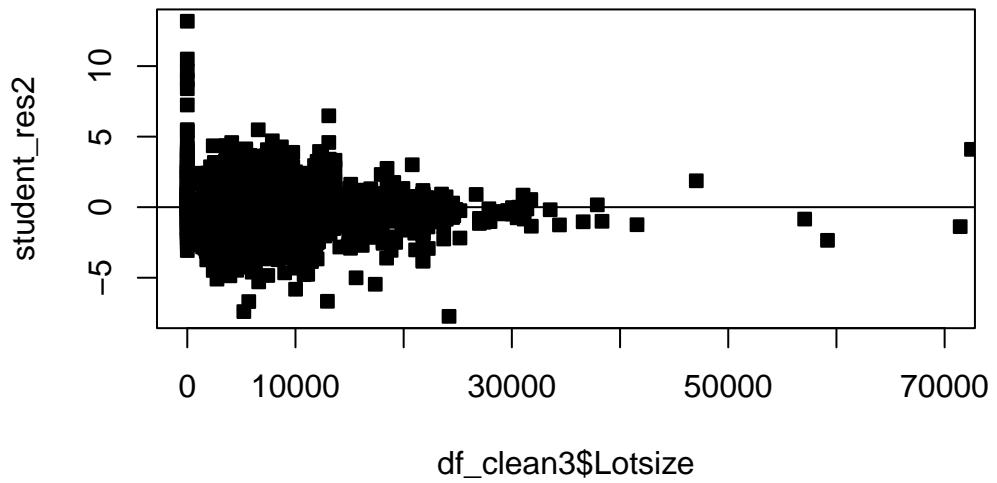
```
plot(df_clean3$Sale_date ,student_res2,pch=22,bg=1)
```



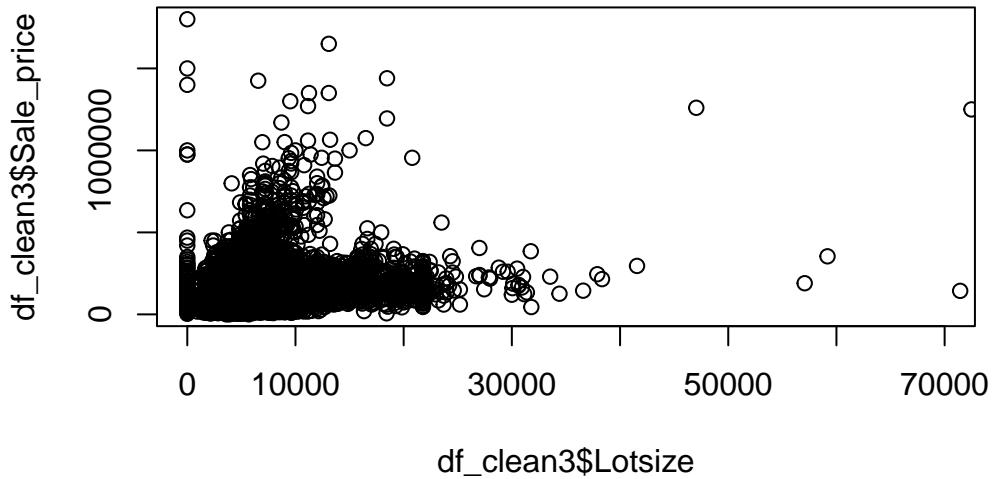
```
plot(df_clean3$Lotsize ,student_res2,pch=22, bg=1)
```



```
plot(df_clean3$Lotsize ,student_res2,pch=22, bg=1, xlim=c(0,70000))
abline(h=0)
```



```
# It feels like the slope of lot size  
# depends on something,  
#like two categories  
plot(df_clean3$Lotsize,df_clean3$Sale_price,xlim=c(0,70000))
```



```
# plot(1/df_clean3$Lotsize,df_clean3$Sale_price)

sum(df_clean3$Lotsize==0)
```

[1] 146

```
df_clean4=df_clean3[df_clean3$Lotsize!=0,]

model2=lm(sqrt(Sale_price)~.,df_clean4)
# model2=lm(Sale_price^(0.4)~.,df_clean3)

summ2=summary(model2); summ2
```

Call:
`lm(formula = sqrt(Sale_price) ~ ., data = df_clean4)`

Residuals:

	Min	1Q	Median	3Q	Max
	-544.58	-36.99	6.27	42.23	481.64

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-7.754e+02	5.483e+01	-14.142	< 2e-16 ***
District	3.744e+00	1.148e-01	32.609	< 2e-16 ***
ExtwallBlock	-3.526e+00	6.132e+00	-0.575	0.565249
ExtwallBrick	1.266e+01	1.204e+00	10.511	< 2e-16 ***
ExtwallFiber-Cement	1.604e+01	6.210e+00	2.584	0.009776 **
ExtwallFrame	-9.920e+00	1.627e+00	-6.095	1.11e-09 ***
ExtwallMasonry / Frame	8.766e+00	2.845e+00	3.082	0.002061 **
ExtwallPrem Wood	1.158e+01	9.299e+00	1.245	0.213087
ExtwallStone	8.975e+00	2.542e+00	3.530	0.000416 ***
ExtwallStucco	1.876e+01	3.573e+00	5.251	1.52e-07 ***
Stories1	4.698e+01	1.708e+01	2.750	0.005963 **
Stories1.5	6.078e+01	1.706e+01	3.563	0.000368 ***
Stories2	6.916e+01	1.699e+01	4.070	4.72e-05 ***
Year_Built	2.939e-01	2.365e-02	12.427	< 2e-16 ***
Fin_sqft	1.000e-01	1.570e-03	63.697	< 2e-16 ***
Units1	1.221e+02	1.222e+01	9.992	< 2e-16 ***
Units2	1.633e+01	1.223e+01	1.336	0.181724
Units3	-2.964e+01	1.316e+01	-2.253	0.024293 *
Bdrms0	1.533e+02	3.080e+01	4.976	6.54e-07 ***
Bdrms1	1.302e+02	1.678e+01	7.760	8.80e-15 ***
Bdrms2	1.424e+02	1.498e+01	9.507	< 2e-16 ***
Bdrms3	1.461e+02	1.489e+01	9.817	< 2e-16 ***
Bdrms4	1.268e+02	1.483e+01	8.553	< 2e-16 ***
Bdrms5	1.240e+02	1.482e+01	8.363	< 2e-16 ***
Bdrms6	1.027e+02	1.485e+01	6.914	4.83e-12 ***
Bdrms7	7.282e+01	1.583e+01	4.599	4.27e-06 ***
Bdrms8	1.021e+02	1.666e+01	6.129	8.97e-10 ***
Fbath0	-6.484e+01	2.266e+01	-2.861	0.004228 **
Fbath1	-4.116e+01	1.579e+01	-2.606	0.009163 **
Fbath2	-1.549e+01	1.569e+01	-0.987	0.323435
Fbath3	2.939e+01	1.559e+01	1.885	0.059381 .
Fbath4	6.073e+01	1.672e+01	3.632	0.000282 ***
Lotsize	2.086e-03	1.613e-04	12.936	< 2e-16 ***
Sale_date	6.175e-03	4.340e-04	14.230	< 2e-16 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

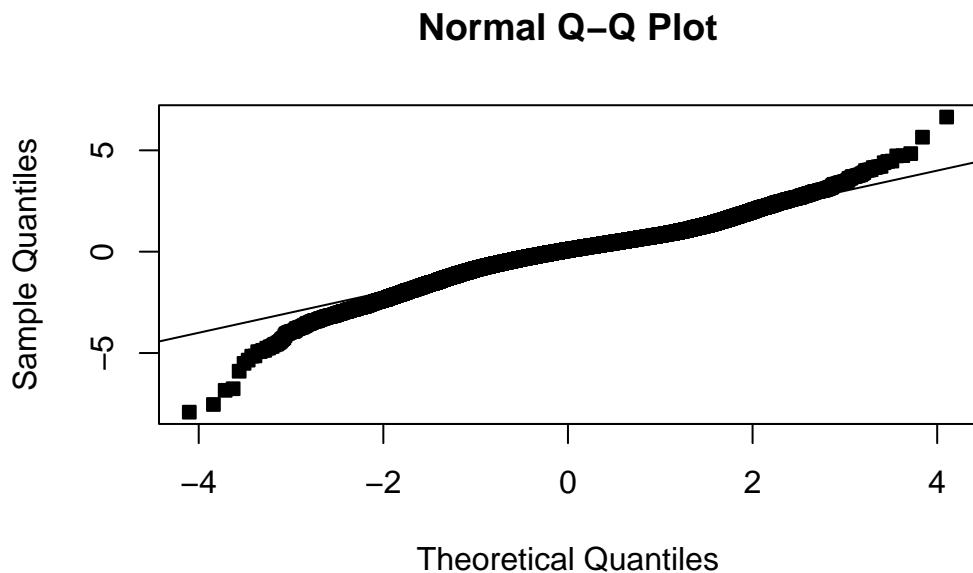
```
Residual standard error: 73.07 on 24413 degrees of freedom
Multiple R-squared:  0.4468,    Adjusted R-squared:  0.446
F-statistic: 597.4 on 33 and 24413 DF,  p-value: < 2.2e-16
```

```
summ2$adj.r.squared
```

```
[1] 0.4460105
```

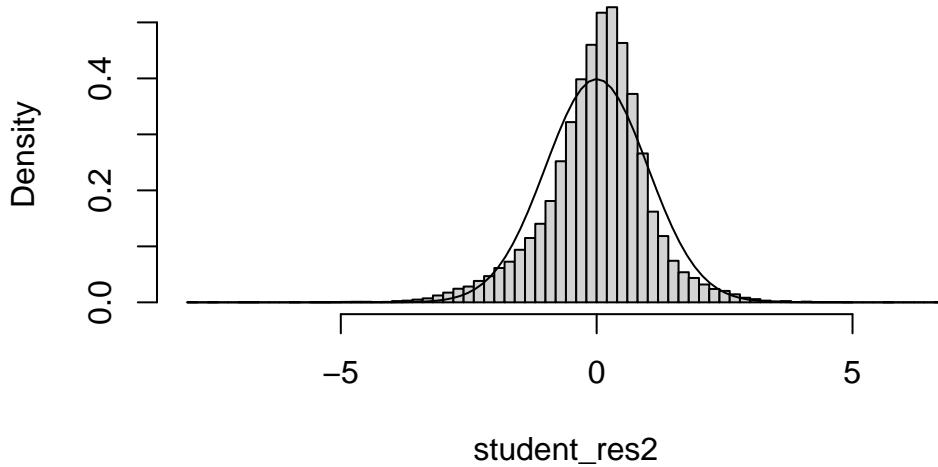
```
student_res2=rstudent(model2)

MSE2=summ2$sigma^2
qqnorm(student_res2,pch=22, bg=1)
abline(0,1)
```



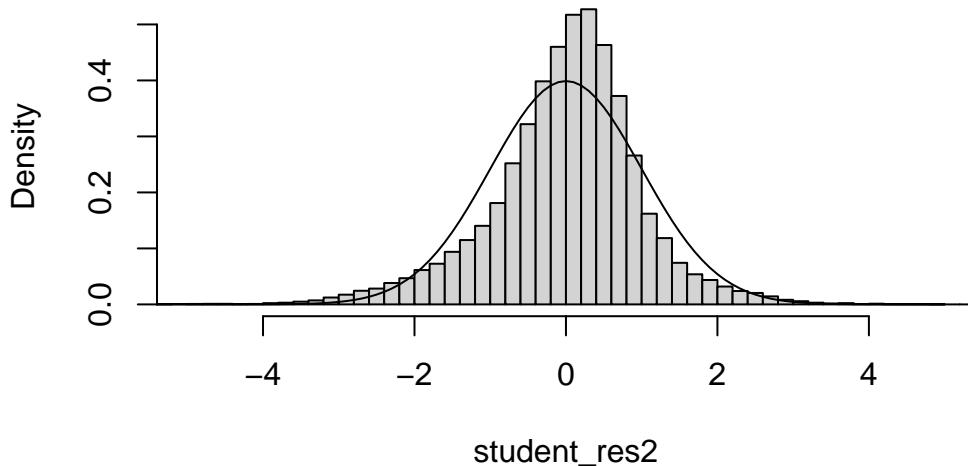
```
hist(student_res2,freq=F,breaks=100)
curve(dnorm(x,0,1),add=T)
```

Histogram of student_res2

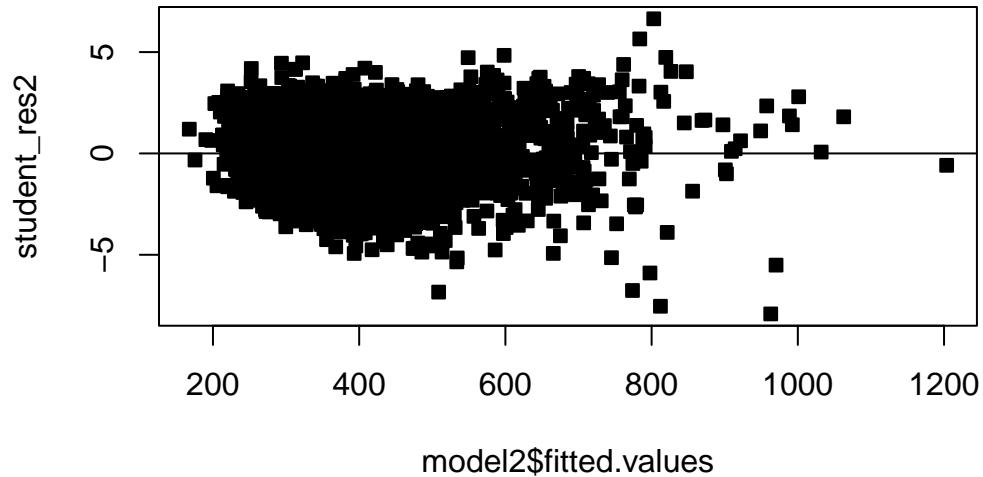


```
hist(student_res2,freq=F,xlim=c(-5,5),breaks=100)
curve(dnorm(x,0,1),add=T)
```

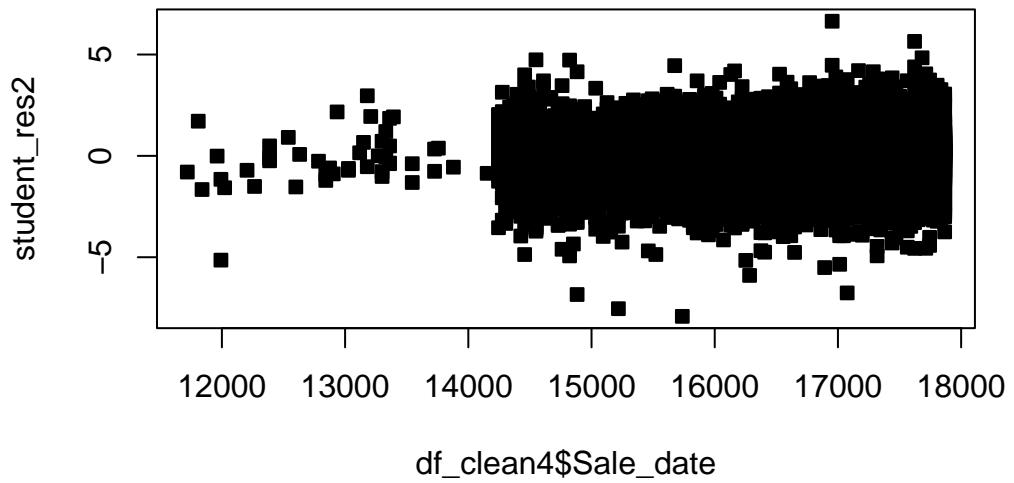
Histogram of student_res2



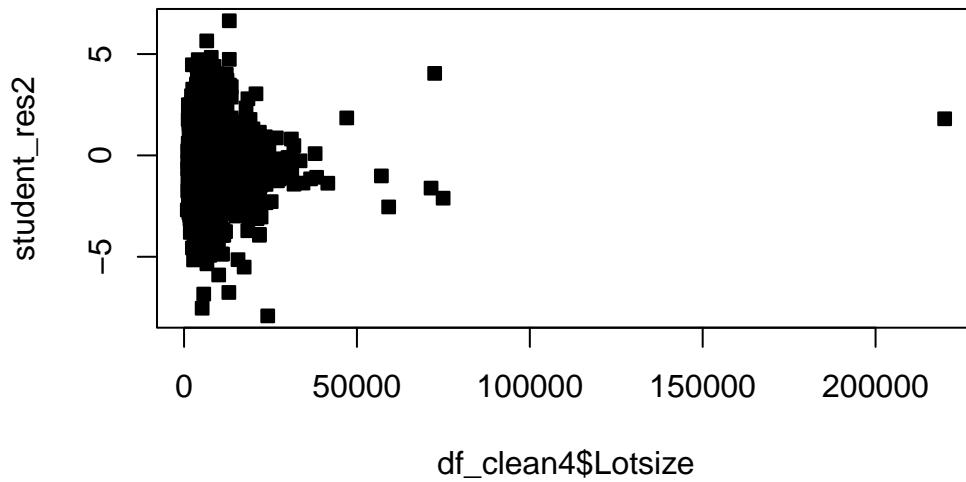
```
plot(model2$fitted.values,student_res2,pch=22, bg=1)
abline(h=0)
```



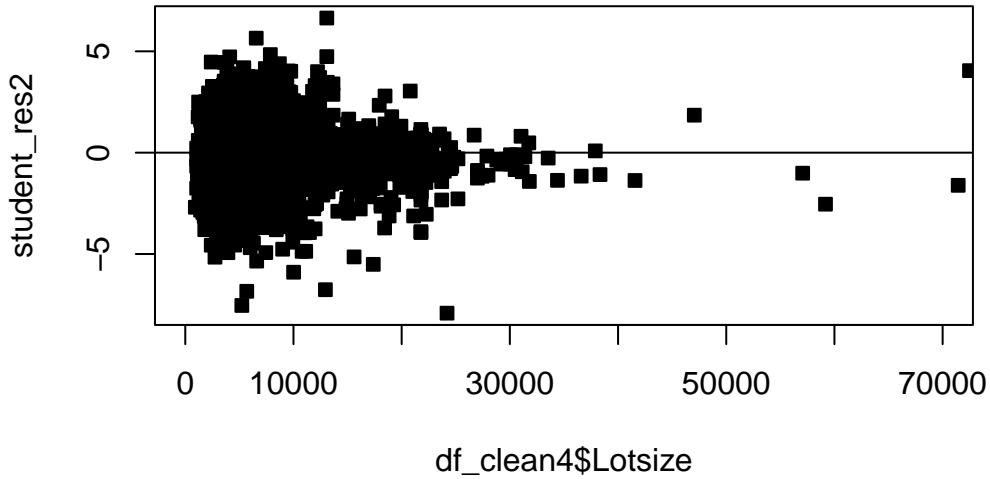
```
plot(df_clean4$Sale_date ,student_res2,pch=22, bg=1)
```



```
plot(df_clean4$Lotsize ,student_res2,pch=22, bg=1)
```



```
plot(df_clean4$Lotsize ,student_res2,pch=22, bg=1,xlim=c(0,70000))
abline(h=0)
```



```
df_clean4=df_clean4[df_clean4$Lotsize<70000,]

model2=lm(sqrt(Sale_price)~.,df_clean4)
# model2=lm(Sale_price^(0.4)~.,df_clean3)

summ2=summary(model2); summ2
```

Call:
`lm(formula = sqrt(Sale_price) ~ ., data = df_clean4)`

Residuals:

Min	1Q	Median	3Q	Max
-542.27	-36.96	6.36	42.19	482.94

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-7.909e+02	5.585e+01	-14.161	< 2e-16 ***

District	3.748e+00	1.148e-01	32.656	< 2e-16	***
ExtwallBlock	-5.561e+00	6.150e+00	-0.904	0.365881	
ExtwallBrick	1.270e+01	1.204e+00	10.551	< 2e-16	***
ExtwallFiber-Cement	1.606e+01	6.207e+00	2.588	0.009663	**
ExtwallFrame	-9.858e+00	1.627e+00	-6.059	1.39e-09	***
ExtwallMasonry / Frame	8.679e+00	2.844e+00	3.051	0.002281	**
ExtwallPrem Wood	1.454e+01	9.363e+00	1.553	0.120525	
ExtwallStone	9.085e+00	2.541e+00	3.575	0.000351	***
ExtwallStucco	1.885e+01	3.572e+00	5.278	1.32e-07	***
Stories1	4.700e+01	1.708e+01	2.752	0.005926	**
Stories1.5	6.081e+01	1.705e+01	3.566	0.000363	***
Stories2	6.931e+01	1.699e+01	4.080	4.52e-05	***
Year_Built	3.028e-01	2.426e-02	12.480	< 2e-16	***
Fin_sqft	1.000e-01	1.580e-03	63.322	< 2e-16	***
Units1	1.221e+02	1.222e+01	9.998	< 2e-16	***
Units2	1.621e+01	1.222e+01	1.327	0.184655	
Units3	-2.941e+01	1.315e+01	-2.236	0.025354	*
Bdrms0	1.529e+02	3.078e+01	4.967	6.84e-07	***
Bdrms1	1.300e+02	1.677e+01	7.752	9.38e-15	***
Bdrms2	1.421e+02	1.498e+01	9.492	< 2e-16	***
Bdrms3	1.459e+02	1.488e+01	9.805	< 2e-16	***
Bdrms4	1.266e+02	1.482e+01	8.539	< 2e-16	***
Bdrms5	1.239e+02	1.482e+01	8.359	< 2e-16	***
Bdrms6	1.024e+02	1.484e+01	6.902	5.25e-12	***
Bdrms7	7.278e+01	1.583e+01	4.598	4.28e-06	***
Bdrms8	1.020e+02	1.665e+01	6.127	9.09e-10	***
Fbath0	-6.549e+01	2.265e+01	-2.891	0.003843	**
Fbath1	-4.185e+01	1.579e+01	-2.651	0.008027	**
Fbath2	-1.614e+01	1.568e+01	-1.030	0.303245	
Fbath3	2.830e+01	1.558e+01	1.817	0.069294	.
Fbath4	6.041e+01	1.671e+01	3.614	0.000302	***
Lotsize	1.921e-03	1.888e-04	10.173	< 2e-16	***
Sale_date	6.170e-03	4.338e-04	14.225	< 2e-16	***

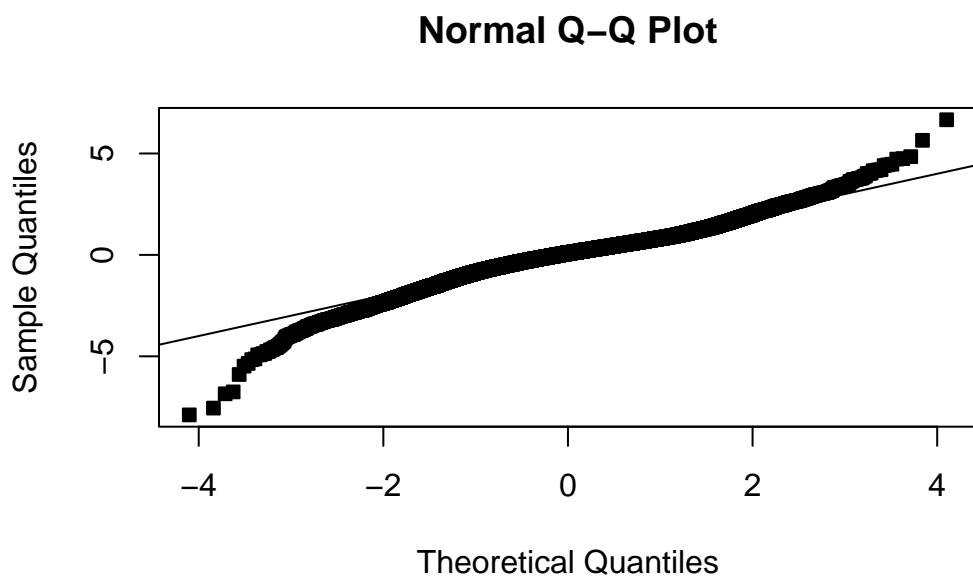
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1					

Residual standard error: 73.04 on 24409 degrees of freedom
 Multiple R-squared: 0.4443, Adjusted R-squared: 0.4436
 F-statistic: 591.5 on 33 and 24409 DF, p-value: < 2.2e-16

```
summ2$adj.r.squared
```

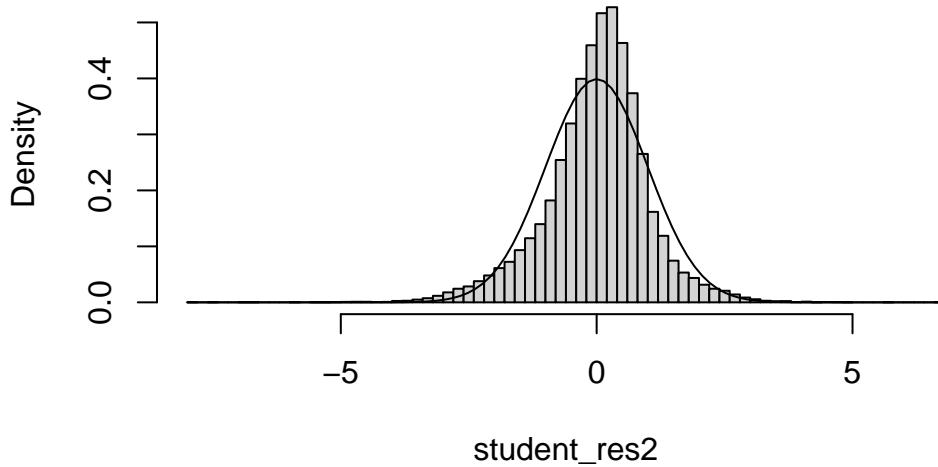
```
[1] 0.4435961
```

```
student_res2=rstudent(model2)
MSE2=summ2$sigma^2
qqnorm(student_res2,pch=22, bg=1)
abline(0,1)
```



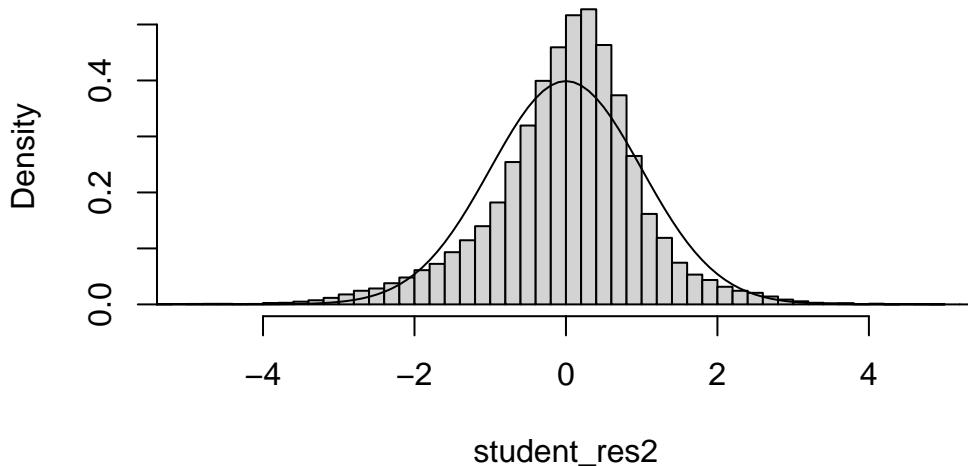
```
hist(student_res2,freq=F,breaks=100)
curve(dnorm(x,0,1),add=T)
```

Histogram of student_res2

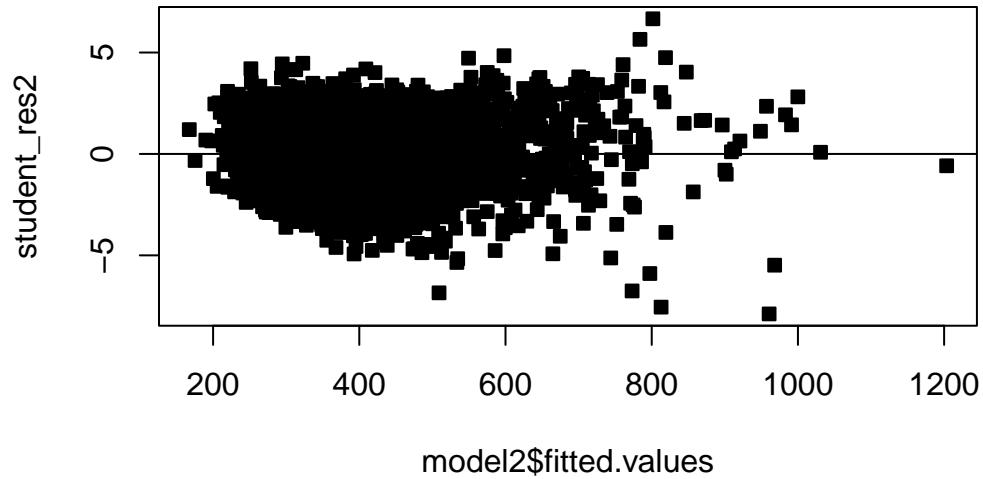


```
hist(student_res2,freq=F,xlim=c(-5,5),breaks=100)
curve(dnorm(x,0,1),add=T)
```

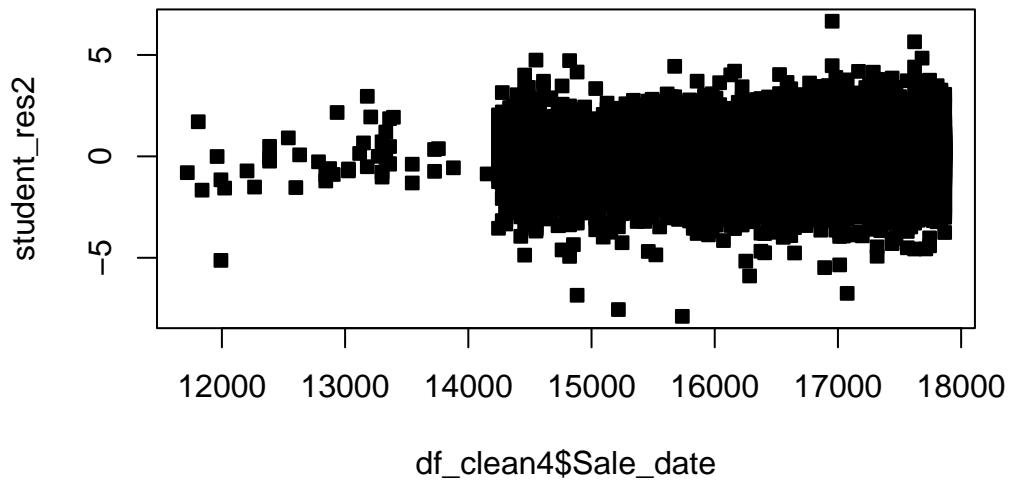
Histogram of student_res2



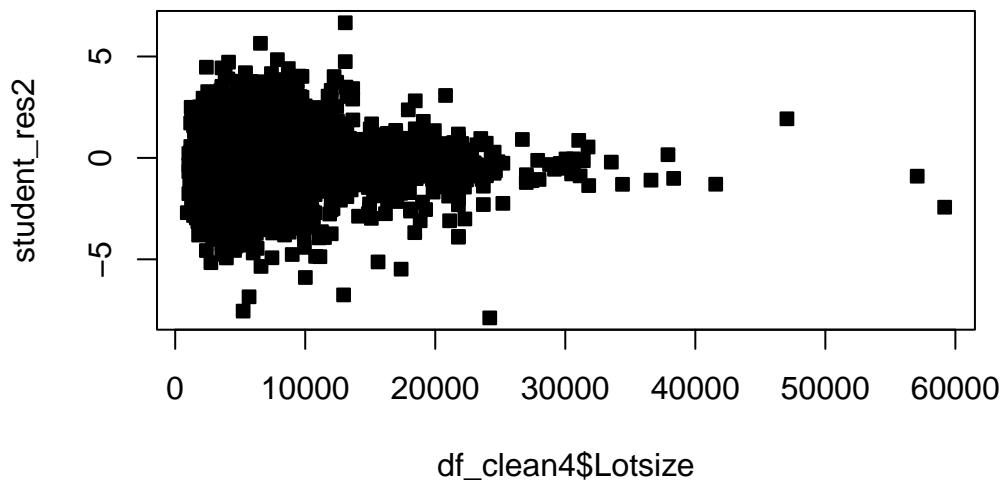
```
plot(model2$fitted.values,student_res2,pch=22,bg=1)
abline(h=0)
```



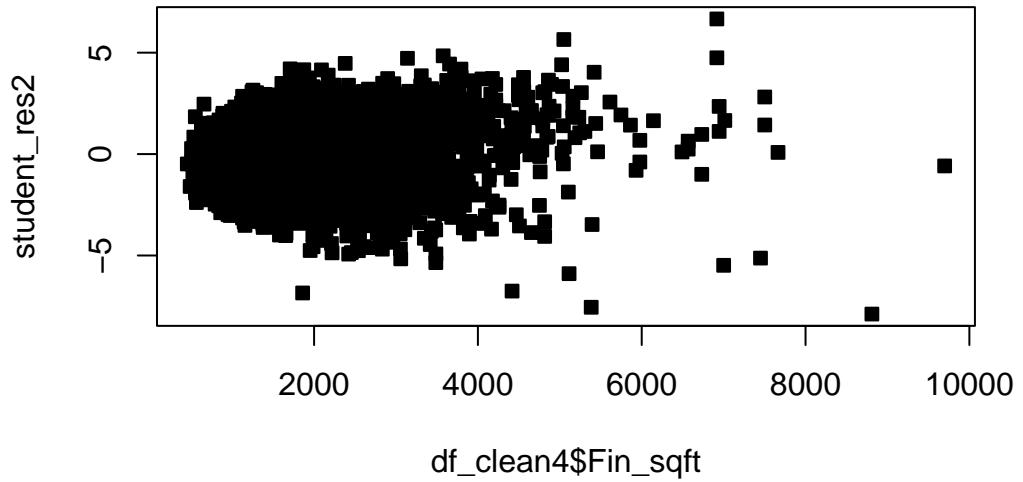
```
plot(df_clean4$Sale_date ,student_res2,pch=22,bg=1)
```



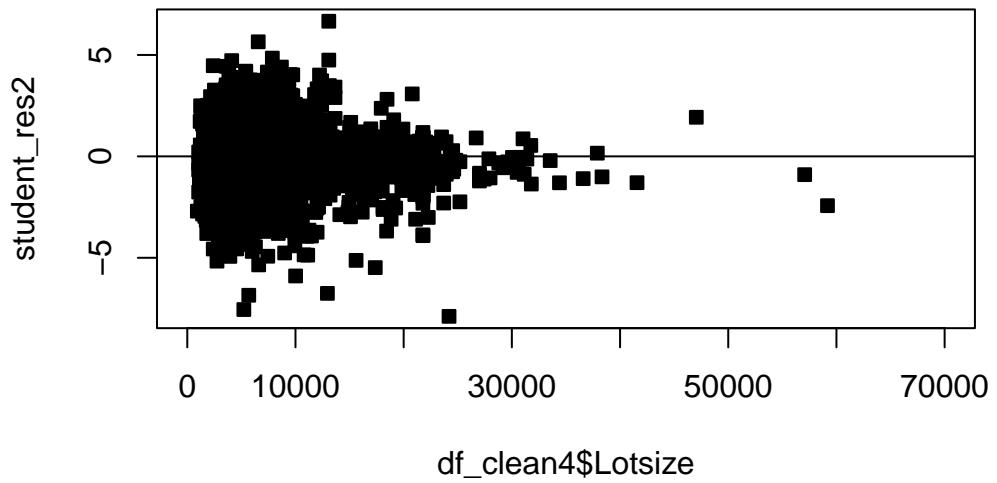
```
plot(df_clean4$Lotsize ,student_res2,pch=22, bg=1)
```



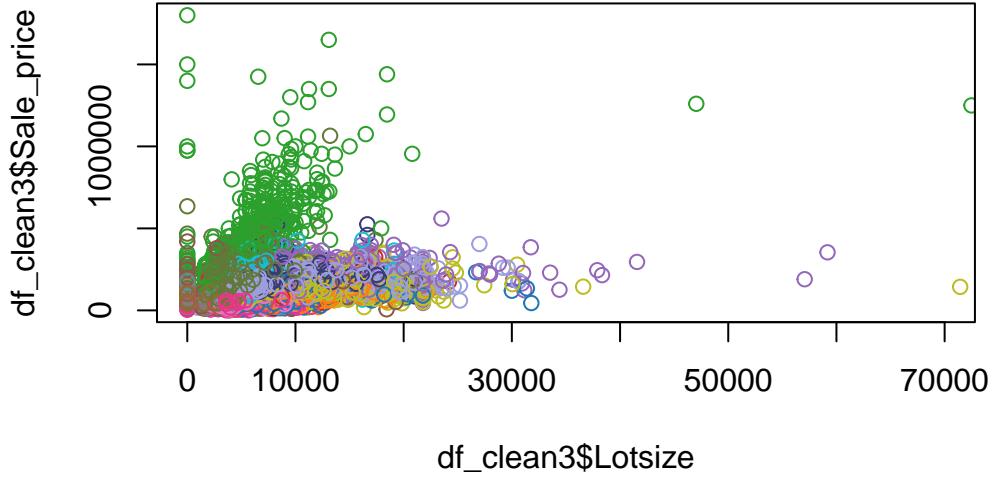
```
plot(df_clean4$Fin_sqft ,student_res2,pch=22, bg=1)
```



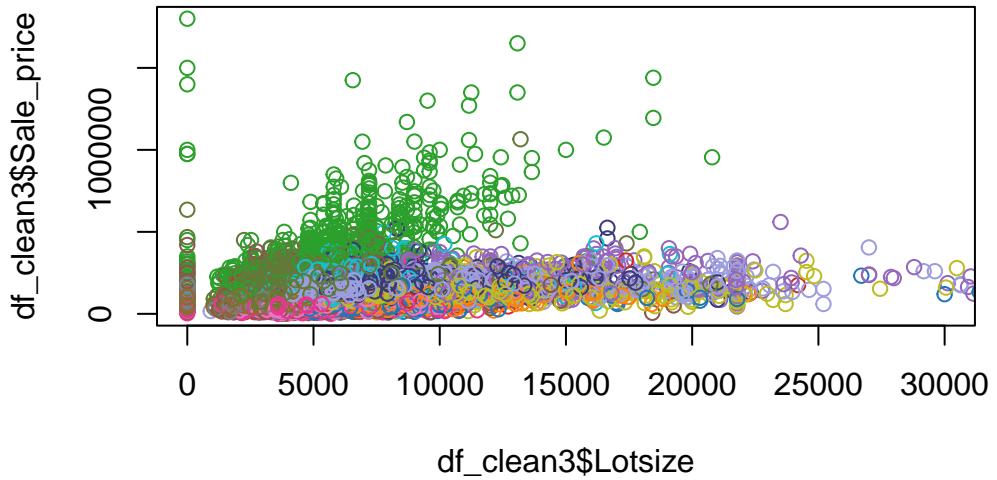
```
plot(df_clean4$Lotsize ,student_res2,pch=22, bg=1,xlim=c(0,70000))  
abline(h=0)
```



```
custom_palette <- c(  
  "#1f77b4", "#ff7f0e", "#2ca02c", "#d62728",  
  "#9467bd", "#8c564b", "#e377c2", "#7f7f7f",  
  "#bcbd22", "#17becf", "#393b79",  
  "#8c6d31", "#9c9ede", "#637939", "#eb348f"  
)  
  
plot(df_clean3$Lotsize, df_clean3$Sale_price,  
      xlim=c(0,70000),  
      col=custom_palette[df_clean3$District])
```



```
plot(df_clean3$Lotsize, df_clean3$Sale_price, xlim=c(0,30000),
      col=custom_palette[df_clean3$District])
```

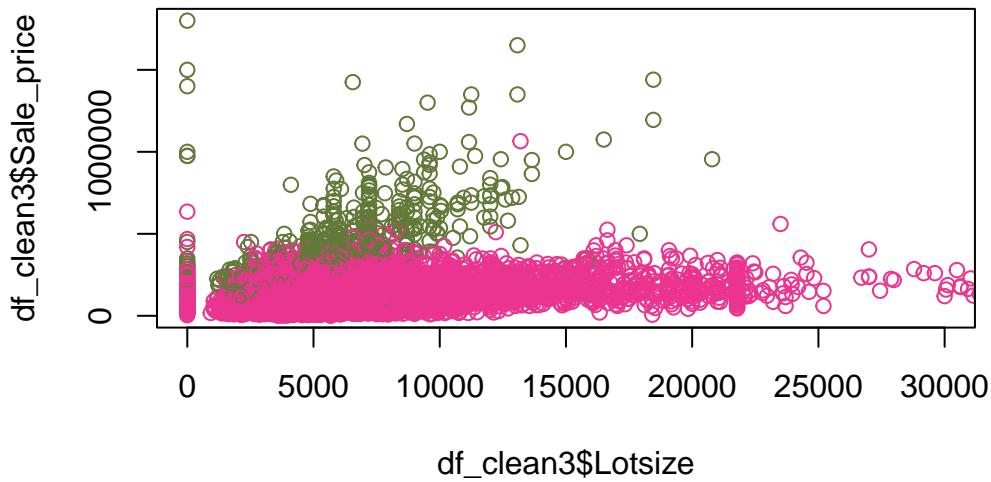


```

custom_palette <- c(
  "#eb348f", "#eb348f", "#637939", "#eb348f",
  "#eb348f", "#eb348f", "#eb348f", "#eb348f",
  "#eb348f", "#eb348f", "#eb348f",
  "#eb348f", "#eb348f", "#eb348f", "#eb348f"
)

plot(df_clean3$Lotsize, df_clean3$Sale_price, xlim=c(0,30000), col=custom_palette[df_clean3$Dis

```



```

#green is 3 and 14 here

# order is
# Red
# Green
# Blue
# Cyan
# Magenta
# Yellow
# Black
# Gray

```

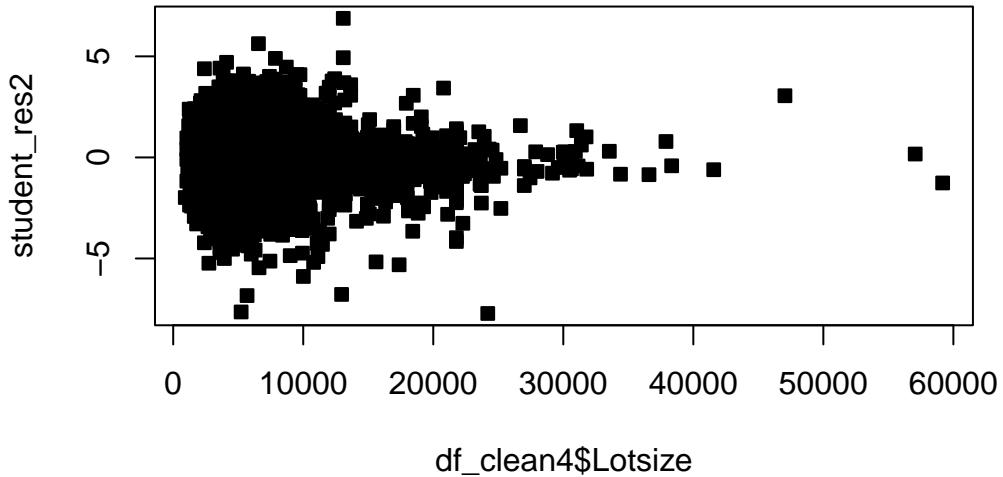
```

df_clean4$d_3=df_clean4$District==3
#df_clean4$d_3=mapply('||',df_clean4$District==3,df_clean4$District==14)
model2=lm(sqrt(Sale_price)~ District + Extwall +
          Stories + Year_Built + Fin_sqft +
          Units + Bdrms +
          Fbath + log(Lotsize) + Sale_date + d_3*log(Lotsize)-d_3,
          df_clean4)

model2=lm(sqrt(Sale_price)~ District + Extwall +
          Stories + Year_Built + Fin_sqft +
          Units + Bdrms +
          Fbath + log(Lotsize) + Sale_date + log(Lotsize)*District,
          df_clean4)

student_res2=rstudent(model2)
plot(df_clean4$Lotsize ,student_res2,pch=22, bg=1)

```



```

# model2=lm(Sale_price^(0.4)~,df_clean3)

summ2=summary(model2); summ2

```

Call:

```
lm(formula = sqrt(Sale_price) ~ District + Extwall + Stories +
  Year_Built + Fin_sqft + Units + Bdrms + Fbath + log(Lotsize) +
  Sale_date + log(Lotsize) * District, data = df_clean4)
```

Residuals:

Min	1Q	Median	3Q	Max
-542.77	-37.26	5.82	41.94	496.12

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-5.146e+02	5.836e+01	-8.818	< 2e-16 ***
District	-2.657e+01	2.617e+00	-10.150	< 2e-16 ***
ExtwallBlock	-5.663e+00	6.119e+00	-0.925	0.354740
ExtwallBrick	1.153e+01	1.198e+00	9.625	< 2e-16 ***
ExtwallFiber-Cement	1.916e+01	6.187e+00	3.096	0.001965 **
ExtwallFrame	-1.042e+01	1.619e+00	-6.437	1.24e-10 ***
ExtwallMasonry / Frame	7.347e+00	2.831e+00	2.595	0.009466 **
ExtwallPrem Wood	1.642e+01	9.309e+00	1.763	0.077851 .
ExtwallStone	8.615e+00	2.528e+00	3.407	0.000657 ***
ExtwallStucco	1.742e+01	3.554e+00	4.902	9.54e-07 ***
Stories1	4.078e+01	1.701e+01	2.398	0.016479 *
Stories1.5	5.520e+01	1.698e+01	3.251	0.001150 **
Stories2	6.383e+01	1.691e+01	3.774	0.000161 ***
Year_Built	2.076e-01	2.572e-02	8.072	7.22e-16 ***
Fin_sqft	9.922e-02	1.574e-03	63.021	< 2e-16 ***
Units1	1.243e+02	1.215e+01	10.225	< 2e-16 ***
Units2	1.859e+01	1.216e+01	1.529	0.126302
Units3	-2.874e+01	1.309e+01	-2.196	0.028078 *
Bdrms0	1.500e+02	3.063e+01	4.898	9.76e-07 ***
Bdrms1	1.301e+02	1.669e+01	7.796	6.65e-15 ***
Bdrms2	1.411e+02	1.490e+01	9.474	< 2e-16 ***
Bdrms3	1.441e+02	1.480e+01	9.731	< 2e-16 ***
Bdrms4	1.252e+02	1.475e+01	8.489	< 2e-16 ***
Bdrms5	1.218e+02	1.474e+01	8.263	< 2e-16 ***
Bdrms6	1.009e+02	1.477e+01	6.834	8.47e-12 ***
Bdrms7	7.057e+01	1.575e+01	4.481	7.45e-06 ***
Bdrms8	9.879e+01	1.657e+01	5.963	2.51e-09 ***
Fbath0	-7.195e+01	2.255e+01	-3.192	0.001417 **
Fbath1	-4.903e+01	1.572e+01	-3.120	0.001811 **
Fbath2	-2.305e+01	1.561e+01	-1.477	0.139781
Fbath3	2.206e+01	1.551e+01	1.422	0.154986

```

Fbath4           5.559e+01  1.663e+01   3.342  0.000832 ***
log(Lotsize)    -7.558e+00  3.074e+00  -2.458  0.013971 *
Sale_date        6.125e-03  4.316e-04  14.193  < 2e-16 ***
District:log(Lotsize) 3.514e+00  3.031e-01  11.595  < 2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

Residual standard error: 72.67 on 24408 degrees of freedom
Multiple R-squared: 0.45, Adjusted R-squared: 0.4492
F-statistic: 587.3 on 34 and 24408 DF, p-value: < 2.2e-16

```
summ2$adj.r.squared
```

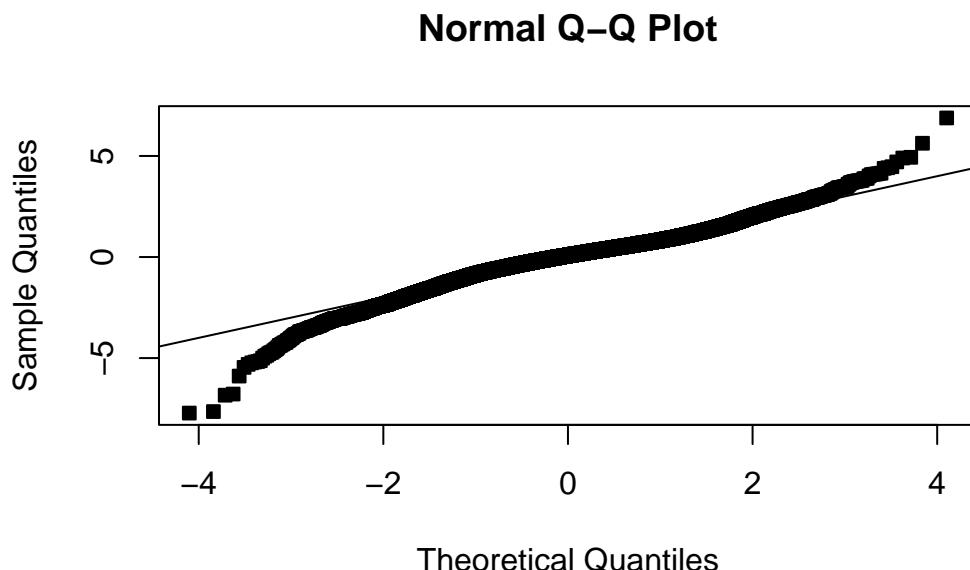
```
[1] 0.4492185
```

```

student_res2=rstudent(model2)

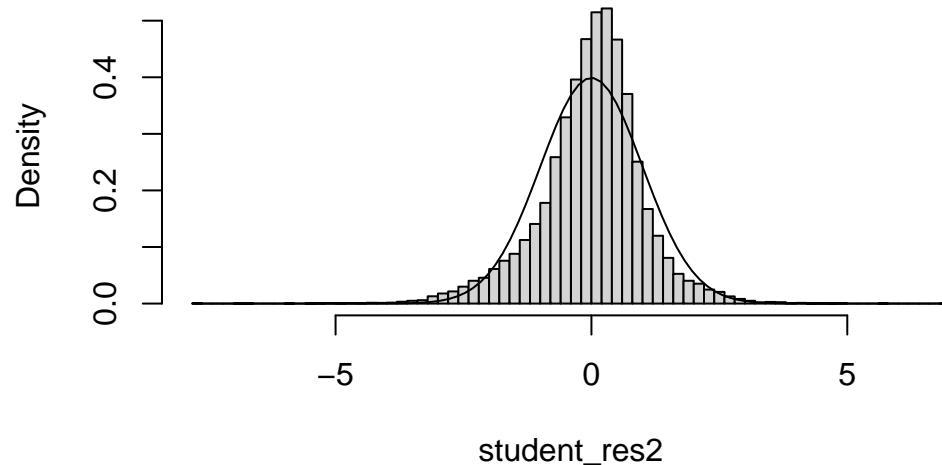
MSE2=summ2$sigma^2
qqnorm(student_res2,pch=22,bg=1)
abline(0,1)

```



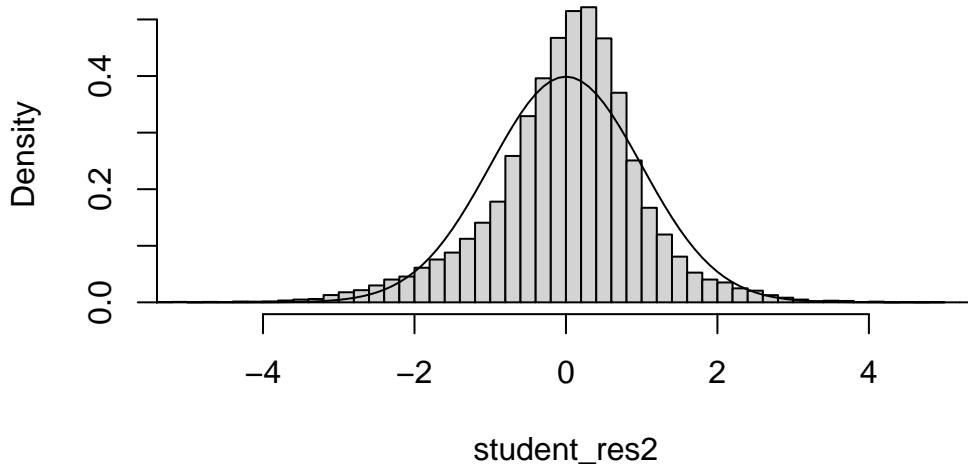
```
hist(student_res2,freq=F,breaks=100)
curve(dnorm(x,0,1),add=T)
```

Histogram of student_res2

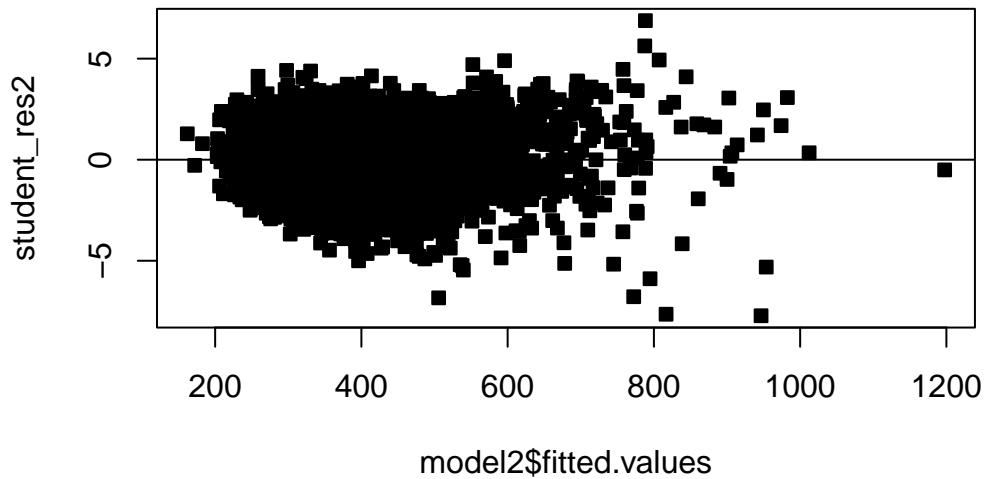


```
hist(student_res2,freq=F,xlim=c(-5,5),breaks=100)
curve(dnorm(x,0,1),add=T)
```

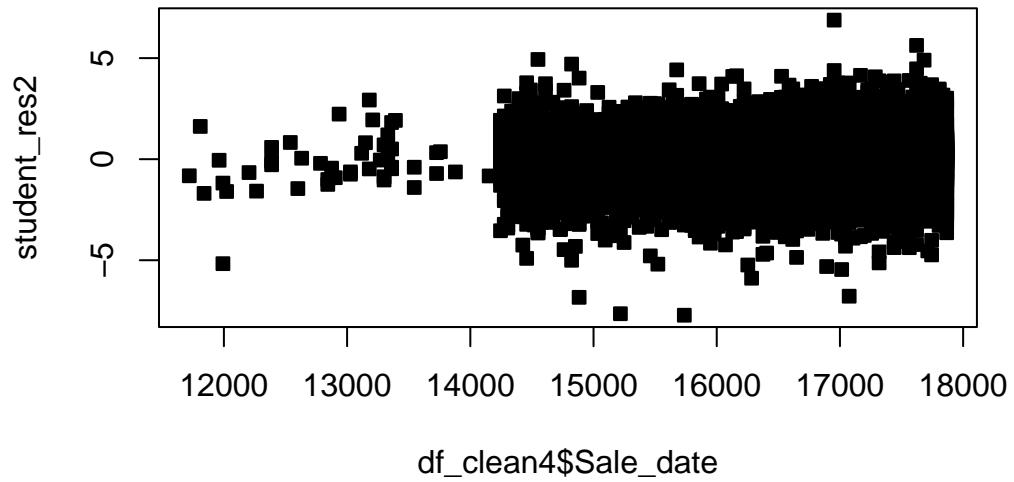
Histogram of student_res2



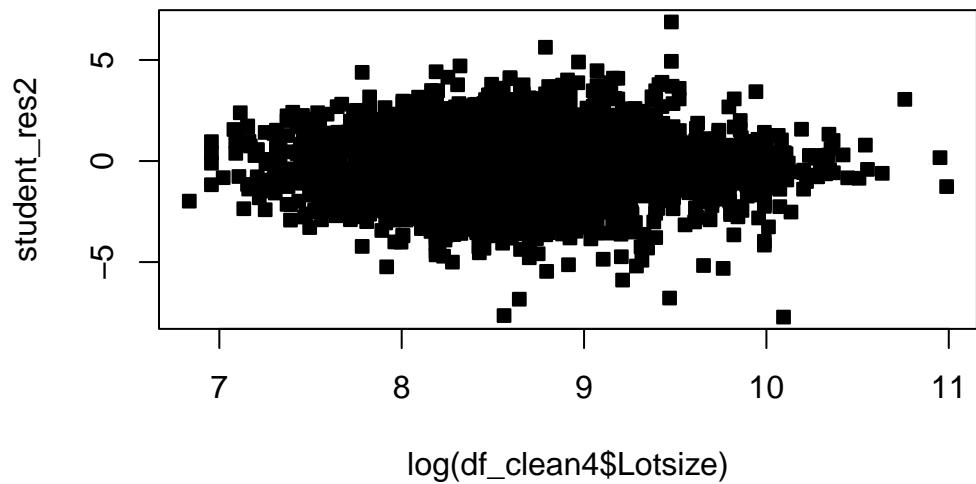
```
plot(model2$fitted.values,student_res2,pch=22,bg=1)
abline(h=0)
```



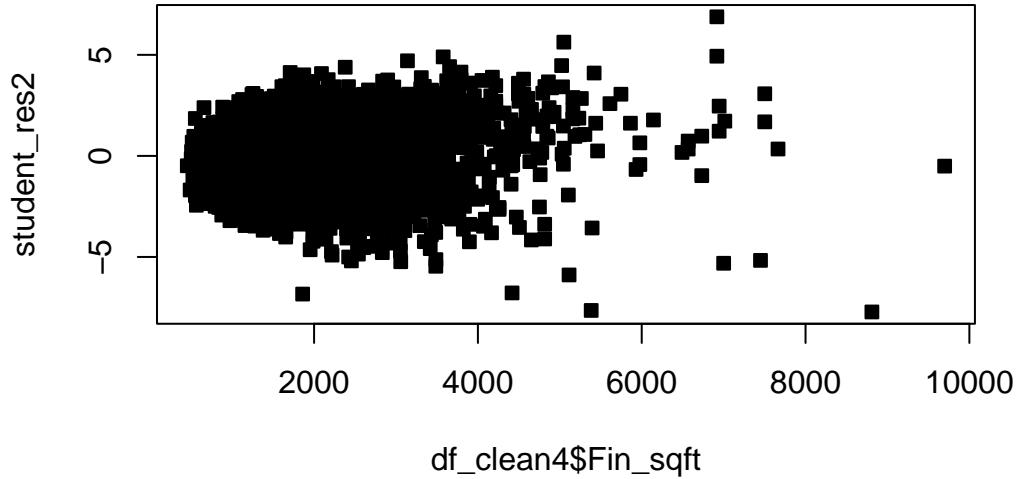
```
plot(df_clean4$Sale_date ,student_res2,pch=22, bg=1)
```



```
plot(log(df_clean4$Lotsize) ,student_res2,pch=22, bg=1)
```



```
plot(df_clean4$Fin_sqft ,student_res2,pch=22, bg=1)
```



```
# plot(df_clean4$Lotsize ,student_res2,pch=22, bg=1,xlim=c(0,70000))
# abline(h=0)
```

```
# df_clean4$d_3=df_clean4$District==3
# df_clean4$d_3or14=mapply('||',df_clean4$District==3,df_clean4$District==14)
model2=lm(sqrt(Sale_price)~District + Extwall + Stories + Year_Built +
          Fbath + Sale_date ,df_clean4)
# model2=lm(Sale_price^(0.4)~,df_clean3)

summ2=summary(model2); summ2
```

Call:

```
lm(formula = sqrt(Sale_price) ~ District + Extwall + Stories +
    Year_Built + Fin_sqft + Units + Bdrms + Fbath + Sale_date,
    data = df_clean4)
```

Residuals:

Min	1Q	Median	3Q	Max
-552.23	-37.27	6.58	42.12	481.52

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-1.005e+03	5.184e+01	-19.385	< 2e-16 ***
District	3.749e+00	1.150e-01	32.598	< 2e-16 ***
ExtwallBlock	-5.282e+00	6.163e+00	-0.857	0.391428
ExtwallBrick	1.209e+01	1.205e+00	10.035	< 2e-16 ***
ExtwallFiber-Cement	1.379e+01	6.216e+00	2.219	0.026525 *
ExtwallFrame	-9.325e+00	1.630e+00	-5.722	1.06e-08 ***
ExtwallMasonry / Frame	9.131e+00	2.850e+00	3.204	0.001358 **
ExtwallPrem Wood	1.819e+01	9.375e+00	1.940	0.052362 .
ExtwallStone	9.162e+00	2.546e+00	3.598	0.000321 ***
ExtwallStucco	1.866e+01	3.579e+00	5.213	1.87e-07 ***
Stories1	5.433e+01	1.710e+01	3.178	0.001487 **
Stories1.5	6.722e+01	1.708e+01	3.937	8.29e-05 ***
Stories2	7.451e+01	1.702e+01	4.379	1.20e-05 ***
Year_Built	4.088e-01	2.196e-02	18.617	< 2e-16 ***
Fin_sqft	1.041e-01	1.531e-03	67.975	< 2e-16 ***
Units1	1.241e+02	1.224e+01	10.138	< 2e-16 ***
Units2	1.628e+01	1.225e+01	1.329	0.183906
Units3	-2.981e+01	1.318e+01	-2.262	0.023709 *
Bdrms0	1.556e+02	3.085e+01	5.043	4.61e-07 ***
Bdrms1	1.349e+02	1.680e+01	8.026	1.05e-15 ***
Bdrms2	1.460e+02	1.500e+01	9.731	< 2e-16 ***
Bdrms3	1.495e+02	1.491e+01	10.026	< 2e-16 ***
Bdrms4	1.295e+02	1.485e+01	8.717	< 2e-16 ***
Bdrms5	1.262e+02	1.485e+01	8.503	< 2e-16 ***
Bdrms6	1.041e+02	1.487e+01	6.998	2.66e-12 ***
Bdrms7	7.311e+01	1.586e+01	4.610	4.05e-06 ***
Bdrms8	1.010e+02	1.668e+01	6.052	1.45e-09 ***
Fbath0	-6.371e+01	2.270e+01	-2.807	0.005010 **
Fbath1	-4.003e+01	1.582e+01	-2.531	0.011389 *
Fbath2	-1.436e+01	1.571e+01	-0.914	0.360934
Fbath3	3.044e+01	1.561e+01	1.950	0.051242 .
Fbath4	6.273e+01	1.675e+01	3.746	0.000180 ***
Sale_date	6.220e-03	4.347e-04	14.310	< 2e-16 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

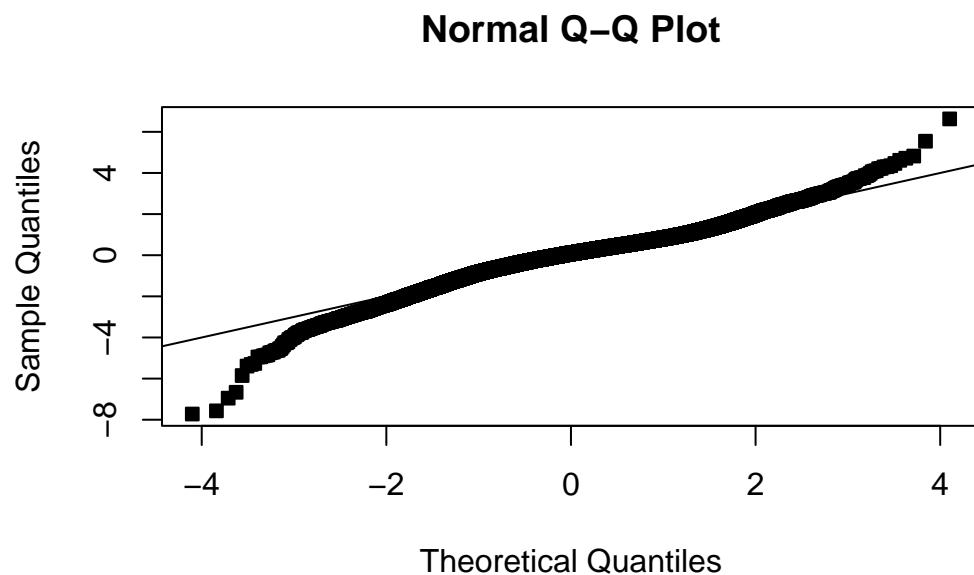
Residual standard error: 73.19 on 24410 degrees of freedom

```
Multiple R-squared:  0.442, Adjusted R-squared:  0.4413  
F-statistic: 604.2 on 32 and 24410 DF,  p-value: < 2.2e-16
```

```
summ2$adj.r.squared
```

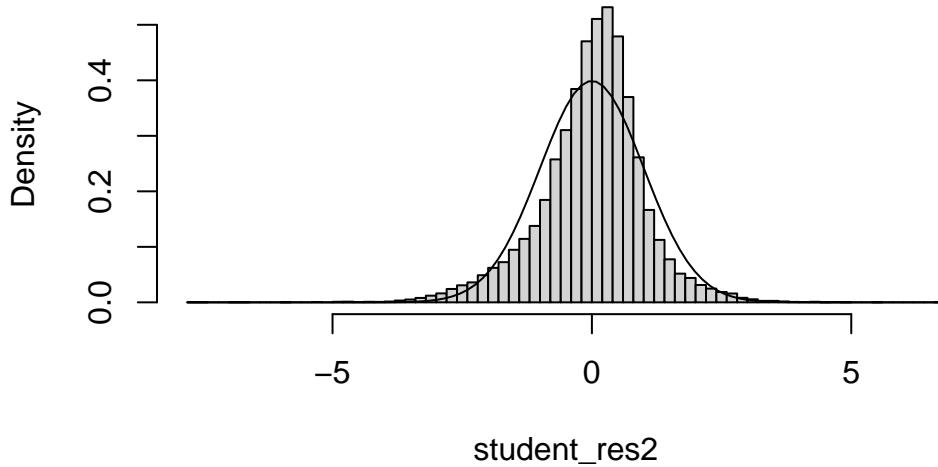
```
[1] 0.4412601
```

```
student_res2=rstudent(model2)  
  
MSE2=summ2$sigma^2  
qqnorm(student_res2,pch=22, bg=1)  
abline(0,1)
```



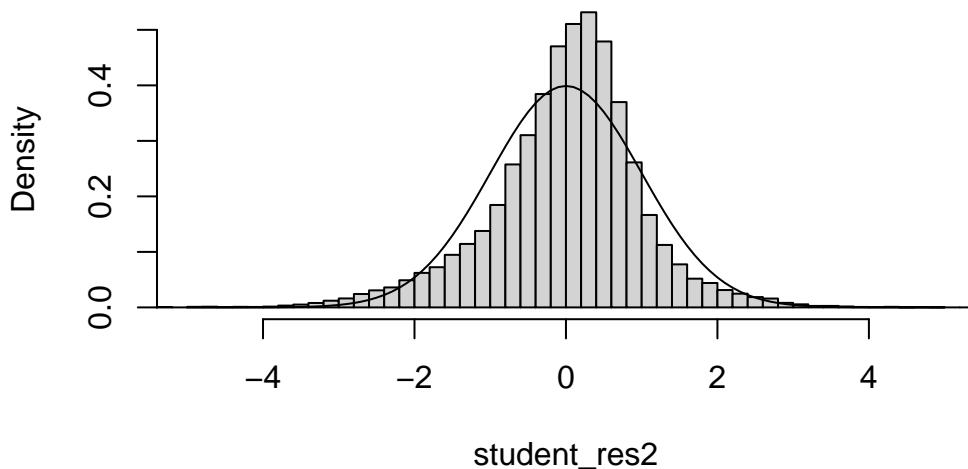
```
hist(student_res2,freq=F,breaks=100)  
curve(dnorm(x,0,1),add=T)
```

Histogram of student_res2

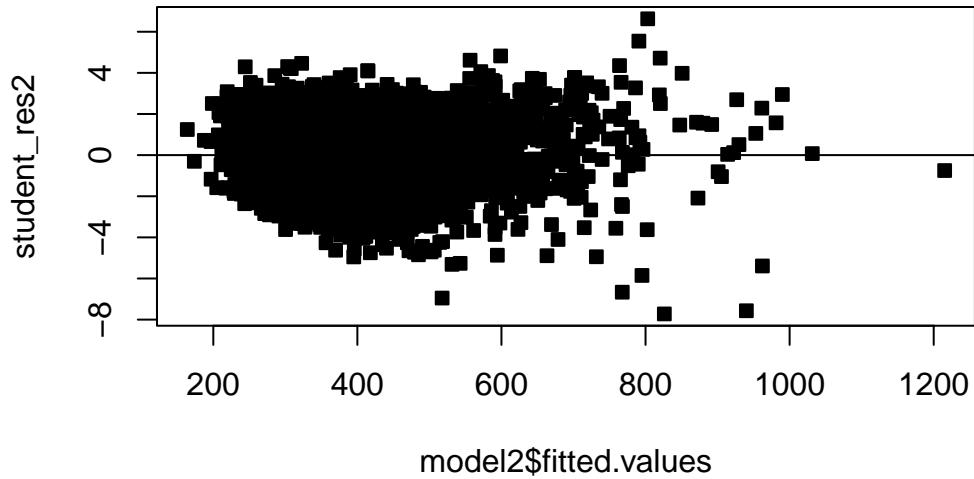


```
hist(student_res2,freq=F,xlim=c(-5,5),breaks=100)
curve(dnorm(x,0,1),add=T)
```

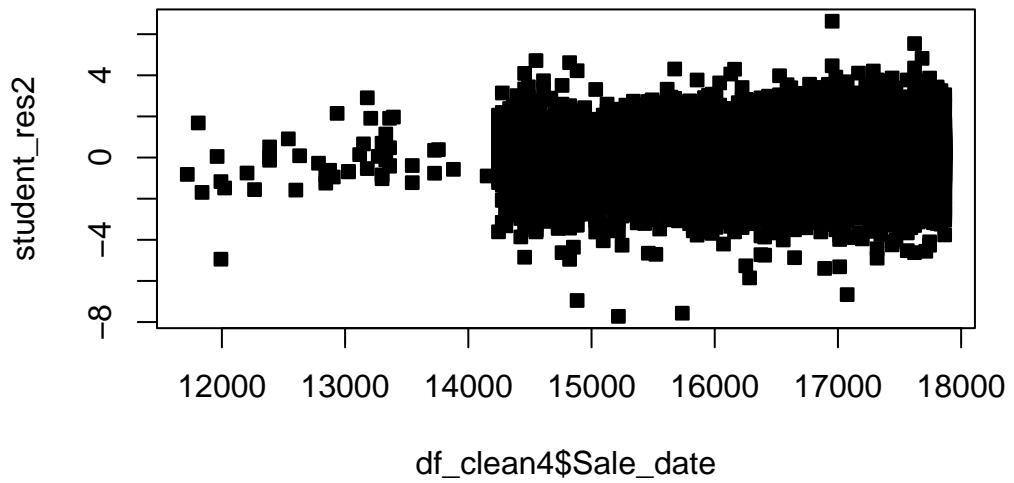
Histogram of student_res2



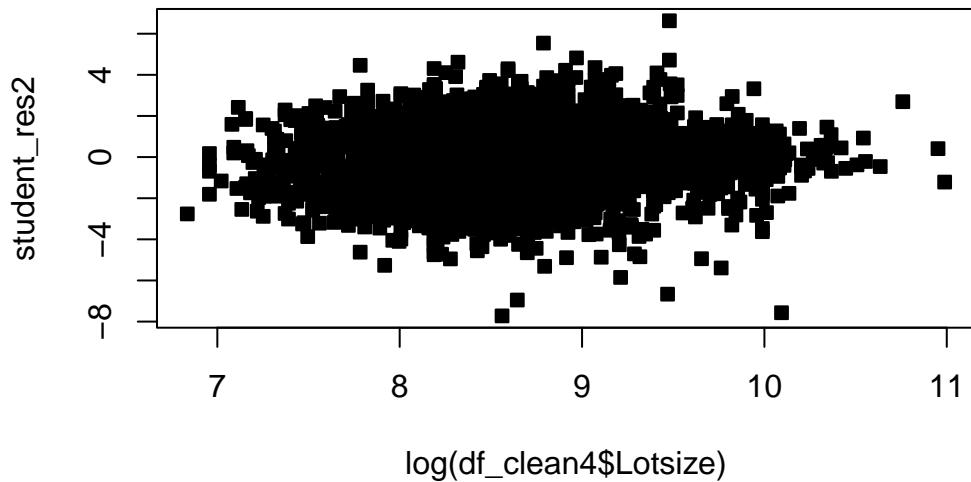
```
plot(model2$fitted.values,student_res2,pch=22,bg=1)
abline(h=0)
```



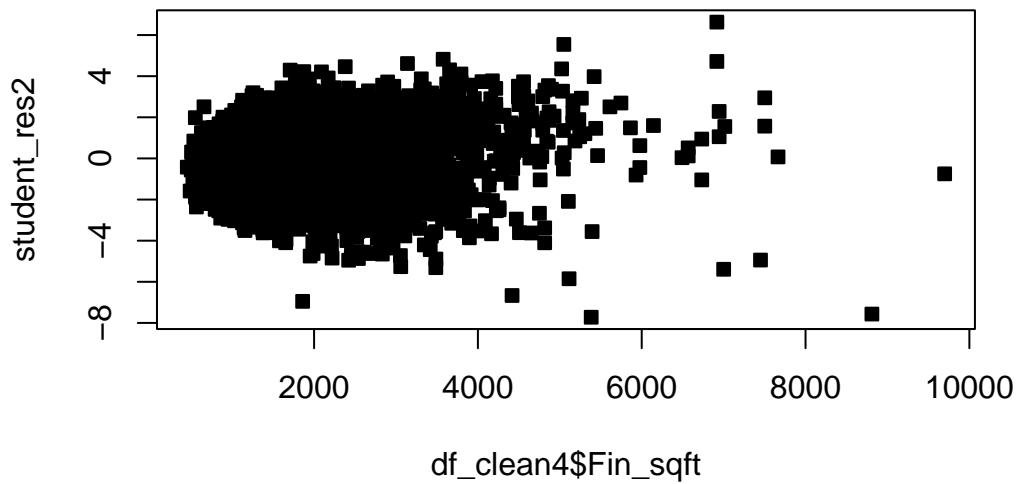
```
plot(df_clean4$Sale_date ,student_res2,pch=22,bg=1)
```



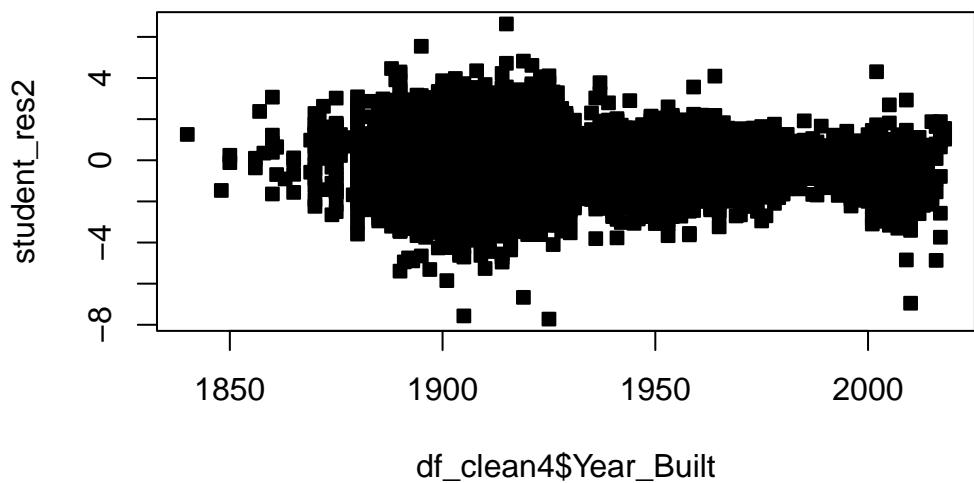
```
plot(log(df_clean4$Lotsize) ,student_res2,pch=22, bg=1)
```



```
plot(df_clean4$Fin_sqft ,student_res2,pch=22,bg=1)
```



```
plot(df_clean4$Year_Built ,student_res2,pch=22,bg=1)
```



```

# abline(h=0)

# df_clean4$d_3=df_clean4$District==3
# df_clean4$d_3or14=mapply('||',df_clean4$District==3,df_clean4$District==14)
model2=lm(sqrt(Sale_price)~District + Extwall + Stories + sqrt(Year_Built) + Fin_sqft + Fbath + Sale_date ,df_clean4)
# model2=lm(Sale_price^(0.4)~,df_clean3)

summ2=summary(model2); summ2

```

Call:

```

lm(formula = sqrt(Sale_price) ~ District + Extwall + Stories +
    sqrt(Year_Built) + Fin_sqft + Units + Bdrms + Fbath + Sale_date,
  data = df_clean4)

```

Residuals:

Min	1Q	Median	3Q	Max
-552.29	-37.29	6.60	42.10	481.44

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-1.801e+03	9.029e+01	-19.944	< 2e-16 ***
District	3.749e+00	1.150e-01	32.601	< 2e-16 ***
ExtwallBlock	-5.304e+00	6.163e+00	-0.861	0.389455
ExtwallBrick	1.207e+01	1.205e+00	10.011	< 2e-16 ***
ExtwallFiber-Cement	1.388e+01	6.215e+00	2.233	0.025572 *
ExtwallFrame	-9.313e+00	1.630e+00	-5.715	1.11e-08 ***
ExtwallMasonry / Frame	9.091e+00	2.850e+00	3.190	0.001426 **
ExtwallPrem Wood	1.822e+01	9.375e+00	1.943	0.052001 .
ExtwallStone	9.123e+00	2.546e+00	3.583	0.000341 ***
ExtwallStucco	1.865e+01	3.579e+00	5.210	1.90e-07 ***
Stories1	5.427e+01	1.710e+01	3.174	0.001506 **
Stories1.5	6.718e+01	1.708e+01	3.934	8.38e-05 ***
Stories2	7.446e+01	1.702e+01	4.376	1.21e-05 ***
sqrt(Year_Built)	3.607e+01	1.934e+00	18.656	< 2e-16 ***
Fin_sqft	1.041e-01	1.531e-03	67.988	< 2e-16 ***
Units1	1.241e+02	1.224e+01	10.137	< 2e-16 ***

```

Units2           1.625e+01  1.225e+01   1.326  0.184694
Units3          -2.983e+01  1.318e+01  -2.263  0.023639 *
Bdrms0          1.556e+02  3.085e+01   5.045  4.57e-07 ***
Bdrms1          1.349e+02  1.680e+01   8.030  1.02e-15 ***
Bdrms2          1.460e+02  1.500e+01   9.732  < 2e-16 ***
Bdrms3          1.495e+02  1.491e+01  10.027  < 2e-16 ***
Bdrms4          1.295e+02  1.485e+01   8.719  < 2e-16 ***
Bdrms5          1.263e+02  1.485e+01   8.504  < 2e-16 ***
Bdrms6          1.041e+02  1.487e+01   6.998  2.66e-12 ***
Bdrms7          7.312e+01  1.586e+01   4.610  4.04e-06 ***
Bdrms8          1.010e+02  1.668e+01   6.052  1.45e-09 ***
Fbath0          -6.361e+01  2.270e+01  -2.802  0.005078 **
Fbath1          -4.000e+01  1.582e+01  -2.529  0.011446 *
Fbath2          -1.432e+01  1.571e+01  -0.911  0.362183
Fbath3          3.048e+01  1.561e+01   1.952  0.050931 .
Fbath4          6.277e+01  1.675e+01   3.748  0.000179 ***
Sale_date        6.219e-03  4.346e-04  14.309  < 2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

Residual standard error: 73.19 on 24410 degrees of freedom
 Multiple R-squared: 0.442, Adjusted R-squared: 0.4413
 F-statistic: 604.3 on 32 and 24410 DF, p-value: < 2.2e-16

```
summ2$adj.r.squared
```

```
[1] 0.4412929
```

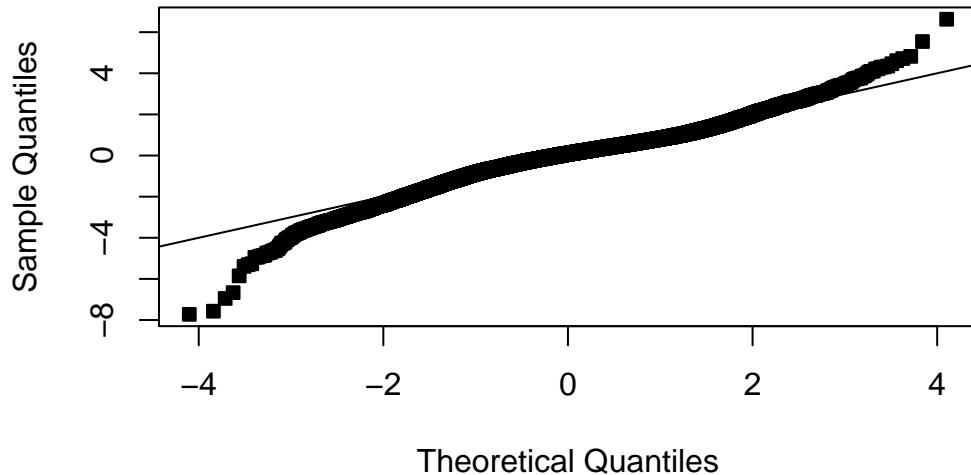
```

student_res2=rstudent(model2)

MSE2=summ2$sigma^2
qqnorm(student_res2,pch=22,bg=1)
abline(0,1)

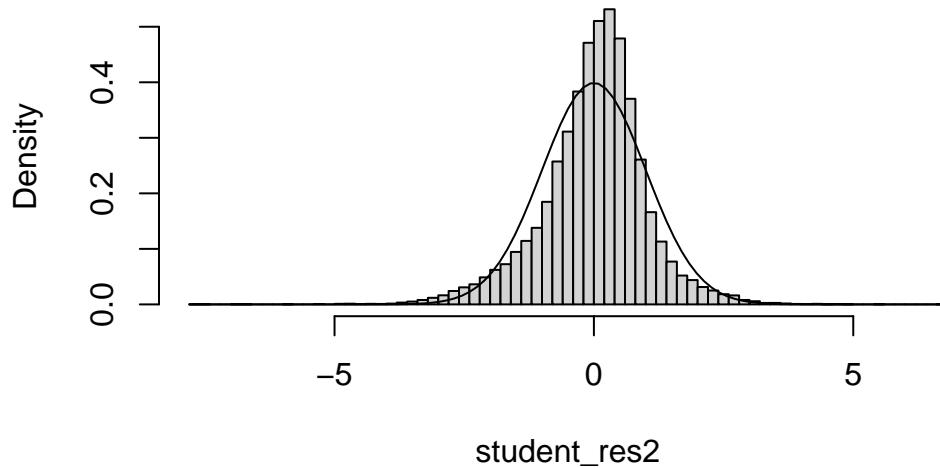
```

Normal Q–Q Plot

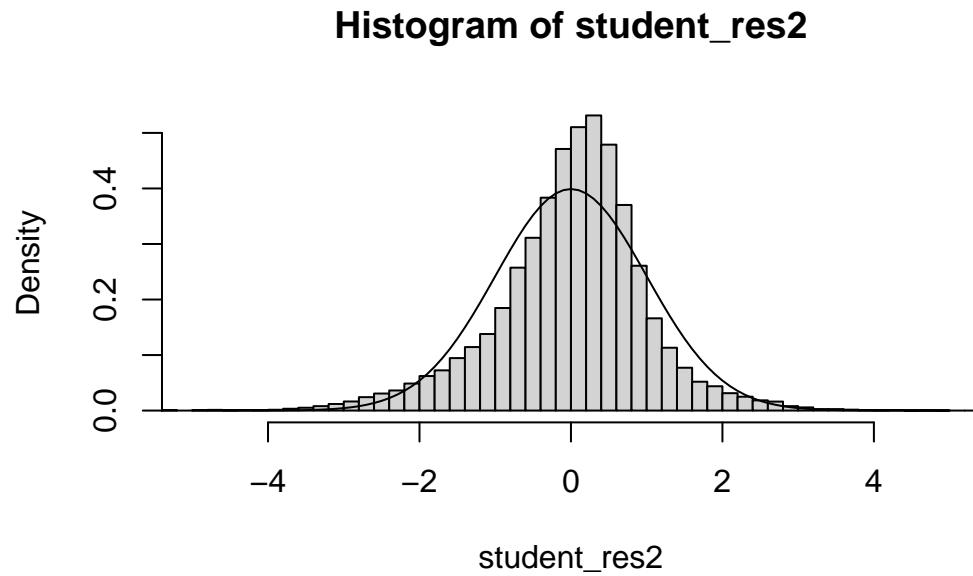


```
hist(student_res2,freq=F,breaks=100)
curve(dnorm(x,0,1),add=T)
```

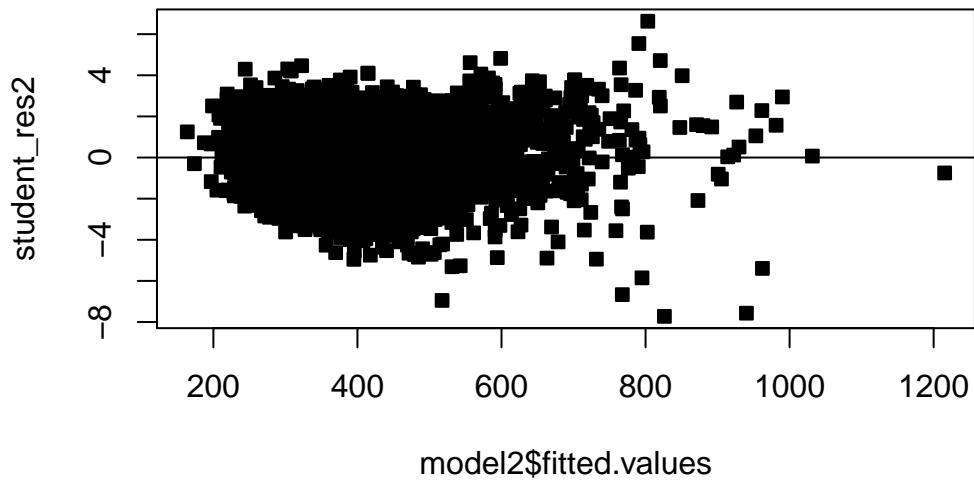
Histogram of student_res2



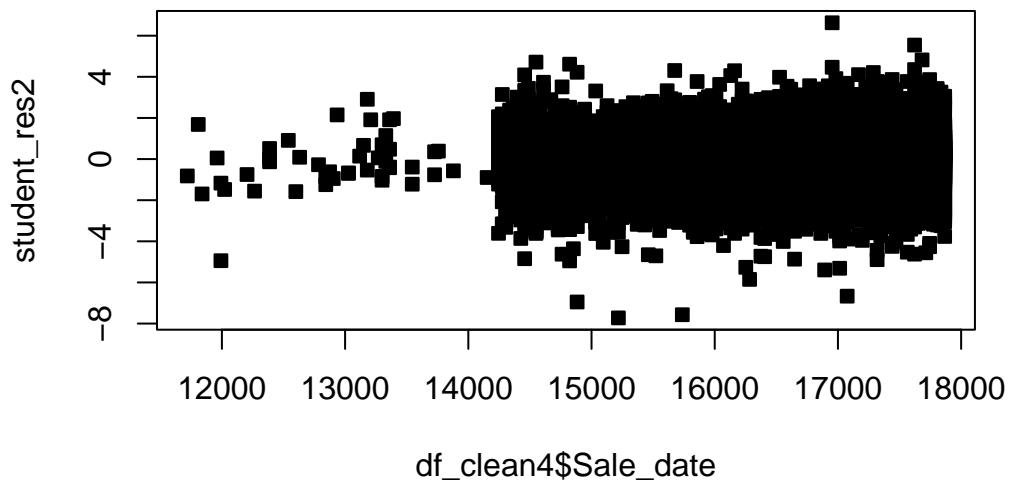
```
hist(student_res2,freq=F,xlim=c(-5,5),breaks=100)
curve(dnorm(x,0,1),add=T)
```



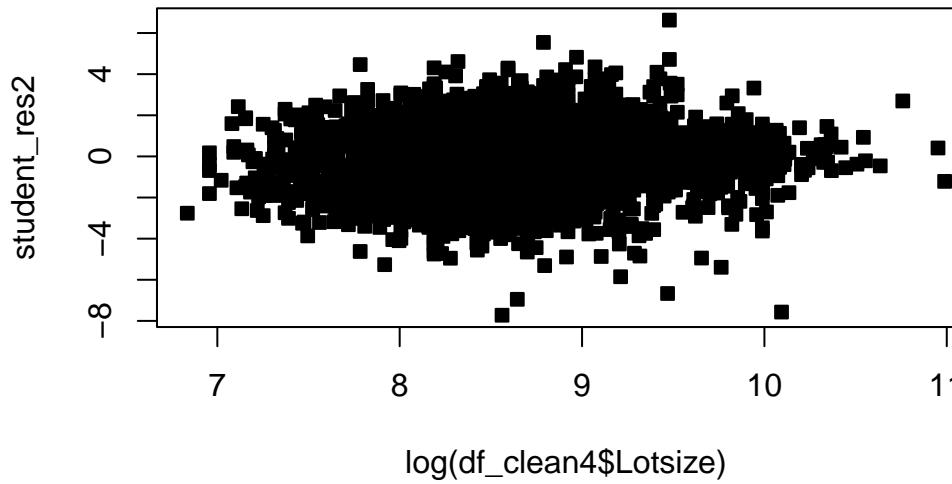
```
plot(model2$fitted.values,student_res2,pch=22,bg=1)
abline(h=0)
```



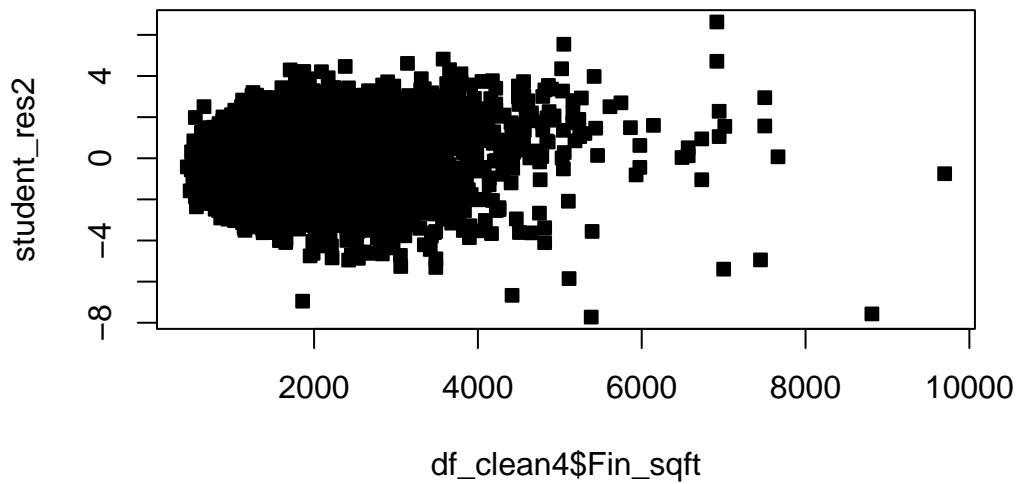
```
plot(df_clean4$Sale_date ,student_res2,pch=22,bg=1)
```



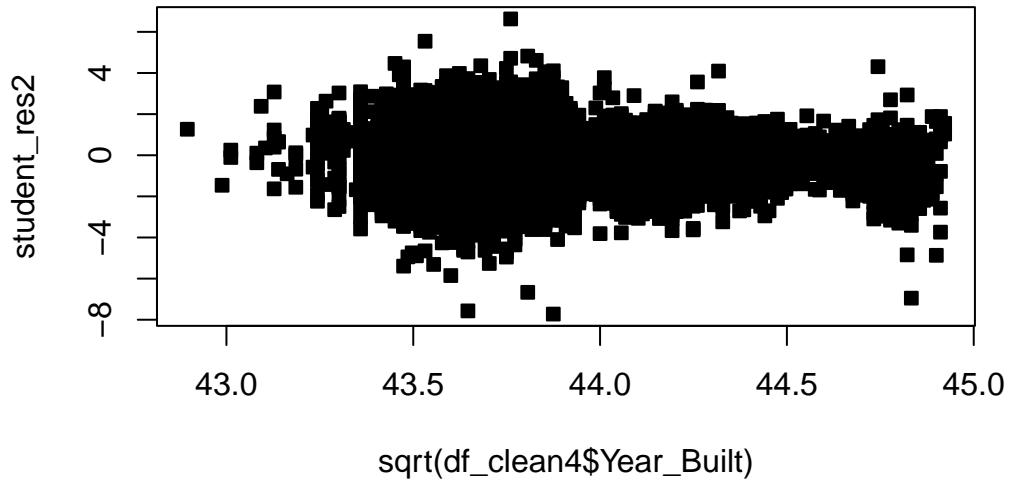
```
plot(log(df_clean4$Lotsize) ,student_res2,pch=22, bg=1)
```



```
plot(df_clean4$Fin_sqft ,student_res2,pch=22, bg=1)
```



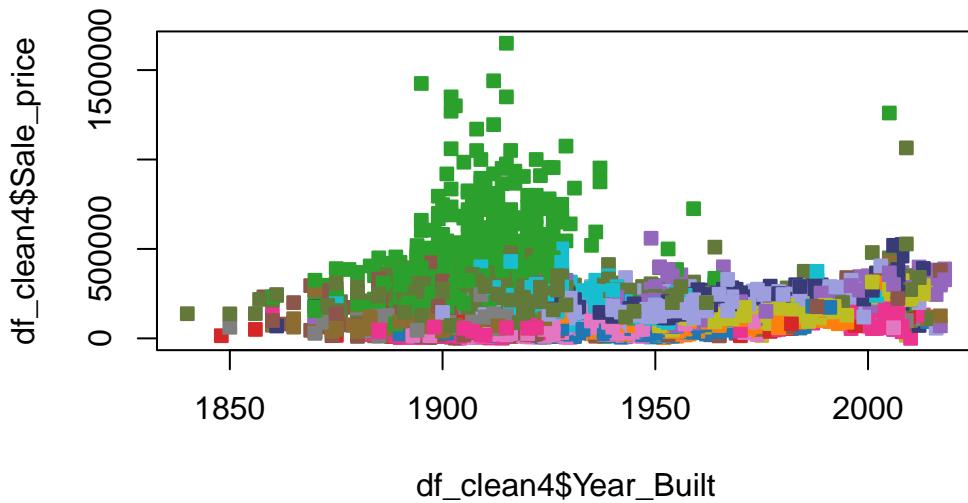
```
plot(sqrt(df_clean4$Year_Built) ,student_res2,pch=22, bg=1)
```



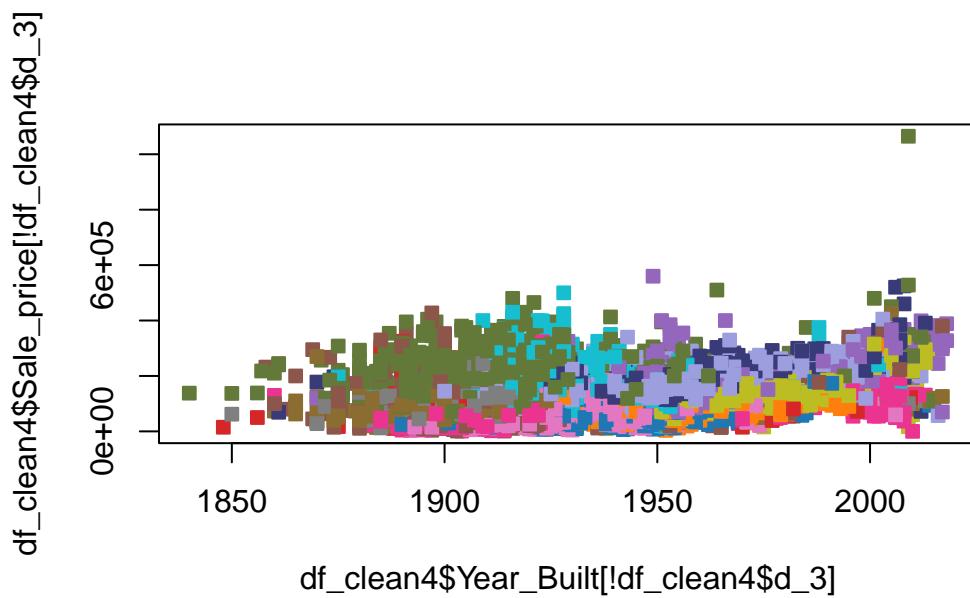
```
# abline(h=0)

custom_palette <- c(
  "#1f77b4", "#ff7f0e", "#2ca02c", "#d62728",
  "#9467bd", "#8c564b", "#e377c2", "#7f7f7f",
  "#bcbd22", "#17becf", "#393b79",
  "#8c6d31", "#9c9ede", "#637939", "#eb348f"
)

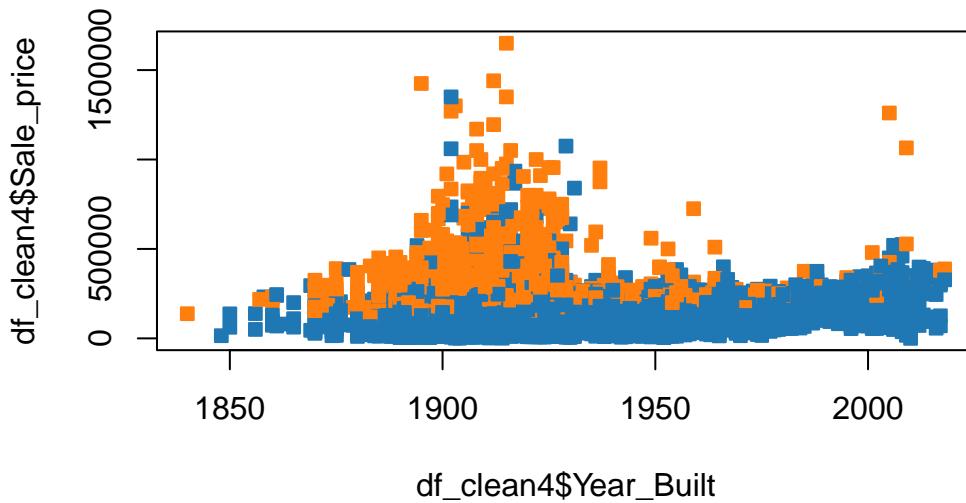
plot(df_clean4$Year_Built,df_clean4$Sale_price,pch=22, bg=custom_palette[df_clean4$District],
```



```
plot(df_clean4$Year_Built[!df_clean4$d_3] ,  
      df_clean4$Sale_price[!df_clean4$d_3] ,  
      pch=22 ,  
      bg=custom_palette[df_clean4$District[!df_clean4$d_3]] , col=custom_palette[df_clean4$District[!df_clean4$d_3]] )
```



```
df_clean4$r_t=student_res2>quantile(student_res2,.9)
plot(df_clean4$Year_Built,df_clean4$Sale_price,
     pch=22,
     bg=custom_palette[df_clean4$r_t+1],
     col=custom_palette[df_clean4$r_t+1])
```



```
# plot(df_clean4$Year_Built,df_clean4$Sale_price,col=custom_palette[df_clean4$Extwall])
# for(colu in names(df_clean4)){
#   if (is.factor(df_clean2[,colu])){
#     print(colu)
#     print(table(df_clean2[,colu]))
#     df_clean2[,colu]=droplevels(df_clean2[,colu])
#   }
# }
```



```
# df_clean4$d_3or14=mapply('||',df_clean4$District==3,df_clean4$District==14)
model2=lm(sqrt(Sale_price)~District + Extwall + Stories + Year_Built+ District*Year_Built+ Fbath + log(Lotsize) + Sale_date + District* log(Lotsize),df_clean4)
```

```
# model2=lm(Sale_price^(0.4)~,df_clean3)
```

```
summ2=summary(model2); summ2
```

Call:

```
lm(formula = sqrt(Sale_price) ~ District + Extwall + Stories +  
    Year_Built + District * Year_Built + Fin_sqft + Units + Bdrms +  
    Fbath + log(Lotsize) + Sale_date + District * log(Lotsize),  
    data = df_clean4)
```

Residuals:

Min	1Q	Median	3Q	Max
-547.36	-35.61	5.89	41.47	474.14

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	1.396e+03	9.630e+01	14.494	< 2e-16 ***
District	-2.441e+02	9.158e+00	-26.656	< 2e-16 ***
ExtwallBlock	-6.108e+00	6.044e+00	-1.011	0.312259
ExtwallBrick	1.146e+01	1.183e+00	9.684	< 2e-16 ***
ExtwallFiber-Cement	2.442e+01	6.115e+00	3.993	6.55e-05 ***
ExtwallFrame	-1.069e+01	1.599e+00	-6.682	2.41e-11 ***
ExtwallMasonry / Frame	8.342e+00	2.797e+00	2.983	0.002858 **
ExtwallPrem Wood	1.492e+01	9.195e+00	1.622	0.104761
ExtwallStone	9.094e+00	2.497e+00	3.641	0.000272 ***
ExtwallStucco	1.537e+01	3.511e+00	4.378	1.20e-05 ***
Stories1	4.059e+01	1.680e+01	2.416	0.015681 *
Stories1.5	5.480e+01	1.677e+01	3.268	0.001084 **
Stories2	6.143e+01	1.670e+01	3.678	0.000236 ***
Year_Built	-9.488e-01	5.316e-02	-17.847	< 2e-16 ***
Fin_sqft	9.479e-02	1.565e-03	60.560	< 2e-16 ***
Units1	1.238e+02	1.200e+01	10.312	< 2e-16 ***
Units2	2.178e+01	1.201e+01	1.813	0.069845 .
Units3	-2.191e+01	1.293e+01	-1.695	0.090108 .
Bdrms0	1.493e+02	3.025e+01	4.936	8.03e-07 ***
Bdrms1	1.229e+02	1.648e+01	7.455	9.28e-14 ***
Bdrms2	1.344e+02	1.472e+01	9.133	< 2e-16 ***
Bdrms3	1.393e+02	1.462e+01	9.524	< 2e-16 ***
Bdrms4	1.213e+02	1.456e+01	8.327	< 2e-16 ***
Bdrms5	1.187e+02	1.456e+01	8.151	3.78e-16 ***
Bdrms6	9.863e+01	1.459e+01	6.762	1.39e-11 ***
Bdrms7	6.771e+01	1.555e+01	4.353	1.35e-05 ***
Bdrms8	9.538e+01	1.636e+01	5.829	5.65e-09 ***

```

Fbath0           -6.106e+01  2.227e+01  -2.742  0.006118 **
Fbath1          -3.703e+01  1.553e+01  -2.385  0.017096 *
Fbath2          -1.015e+01  1.543e+01  -0.658  0.510580
Fbath3           3.187e+01  1.532e+01   2.080  0.037538 *
Fbath4           6.184e+01  1.643e+01   3.764  0.000168 ***
log(Lotsize)     3.120e+01  3.416e+00   9.133  < 2e-16 ***
Sale_date        5.995e-03  4.263e-04  14.064  < 2e-16 ***
District:Year_Built 1.315e-01  5.309e-03  24.762  < 2e-16 ***
District:log(Lotsize) -8.262e-01  3.469e-01  -2.382  0.017230 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

Residual standard error: 71.77 on 24407 degrees of freedom

Multiple R-squared: 0.4635, Adjusted R-squared: 0.4627

F-statistic: 602.4 on 35 and 24407 DF, p-value: < 2.2e-16

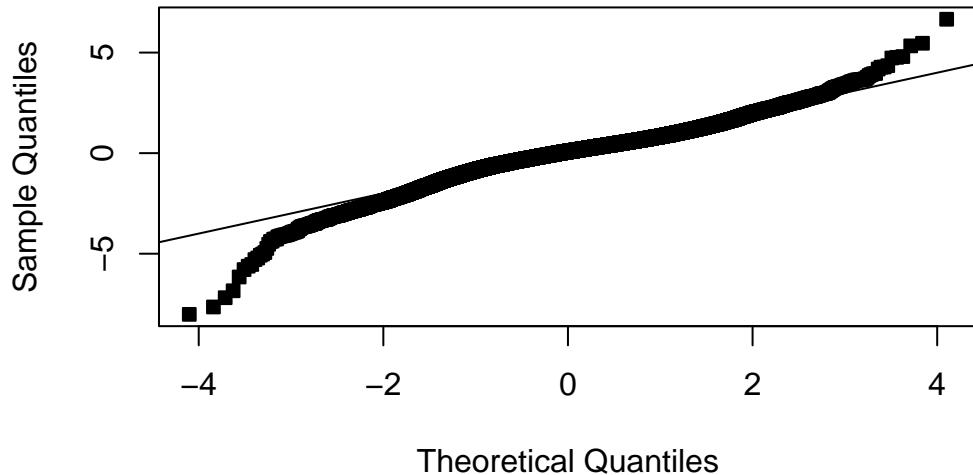
```
summ2$adj.r.squared
```

```
[1] 0.4626948
```

```
student_res2=rstudent(model2)

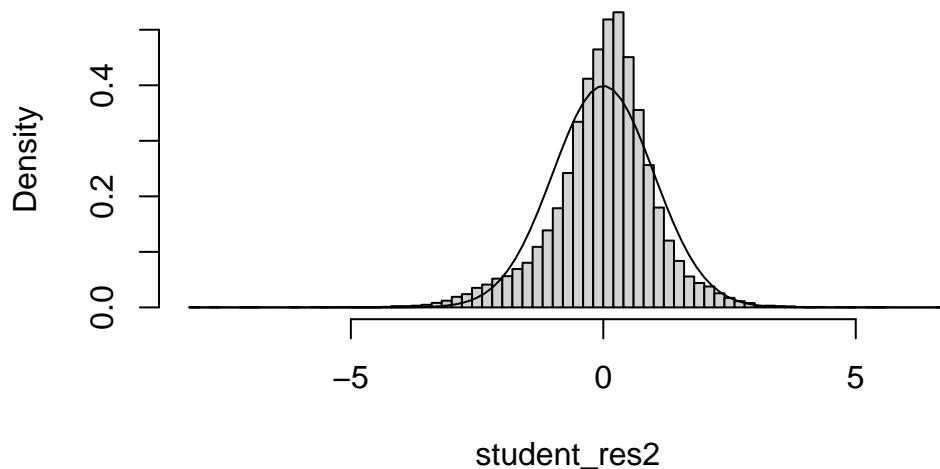
MSE2=summ2$sigma^2
qqnorm(student_res2,pch=22, bg=1)
abline(0,1)
```

Normal Q–Q Plot

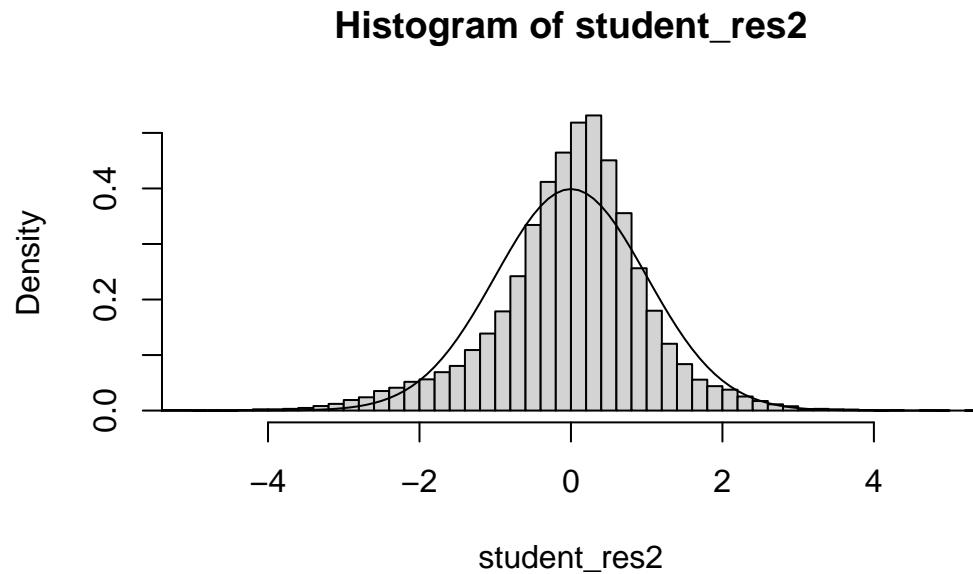


```
hist(student_res2,freq=F,breaks=100)
curve(dnorm(x,0,1),add=T)
```

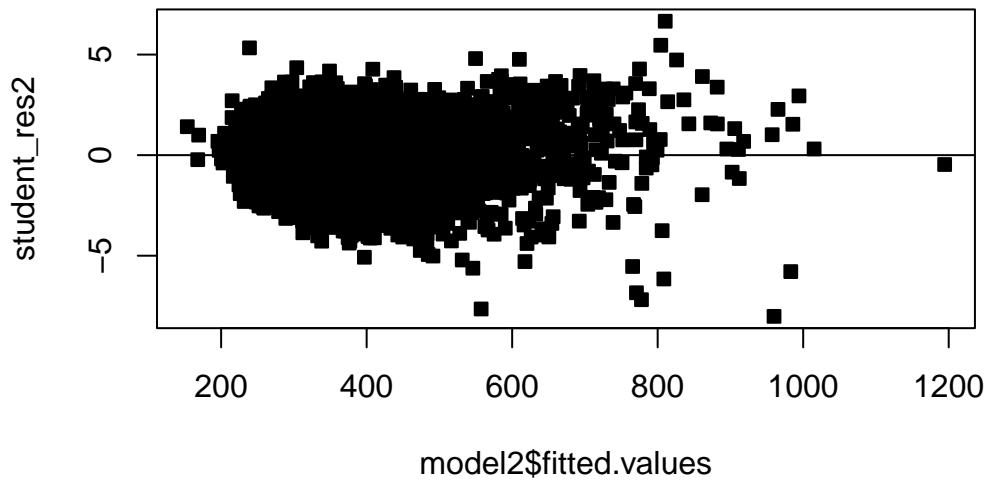
Histogram of student_res2



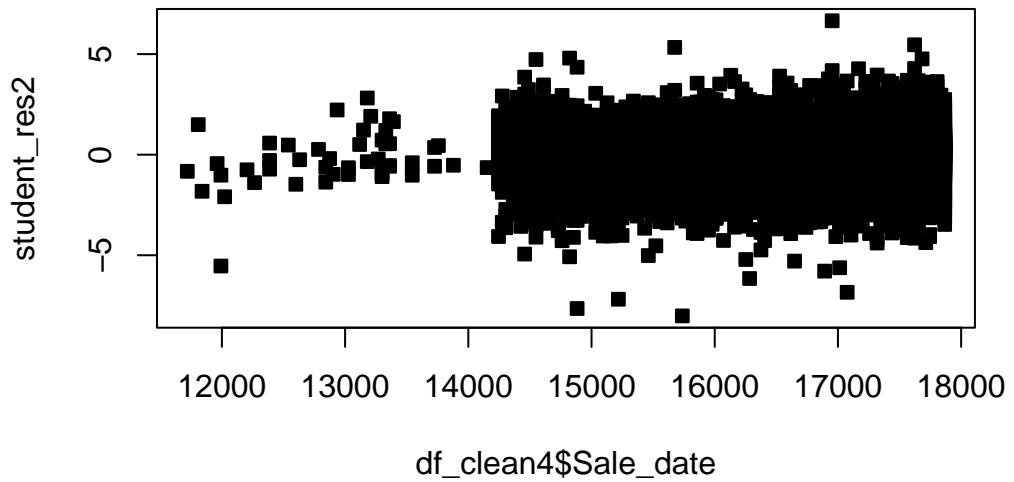
```
hist(student_res2,freq=F,xlim=c(-5,5),breaks=100)
curve(dnorm(x,0,1),add=T)
```



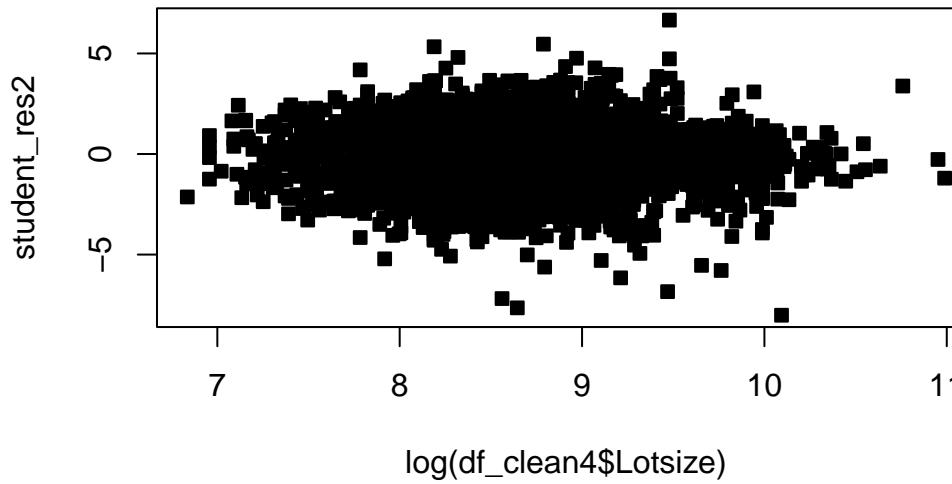
```
plot(model2$fitted.values,student_res2,pch=22,bg=1)
abline(h=0)
```



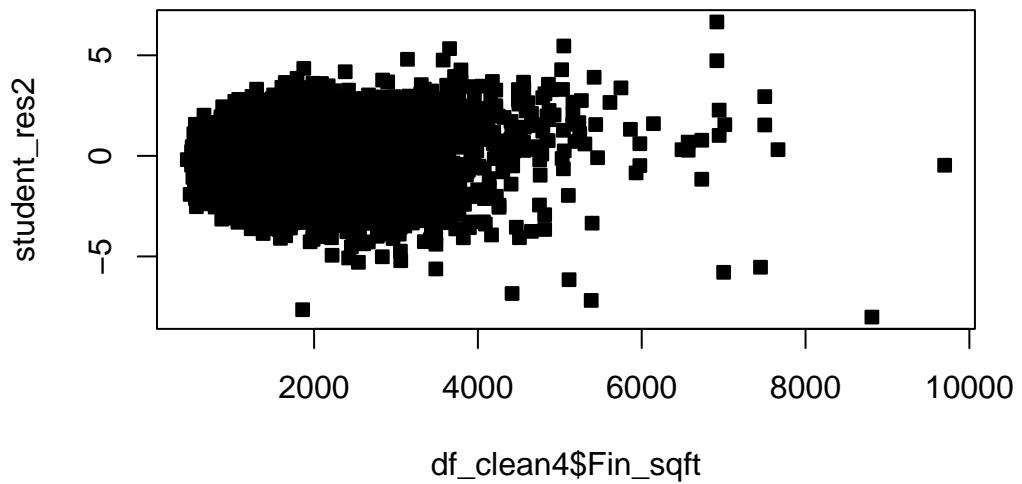
```
plot(df_clean4$Sale_date ,student_res2,pch=22,bg=1)
```



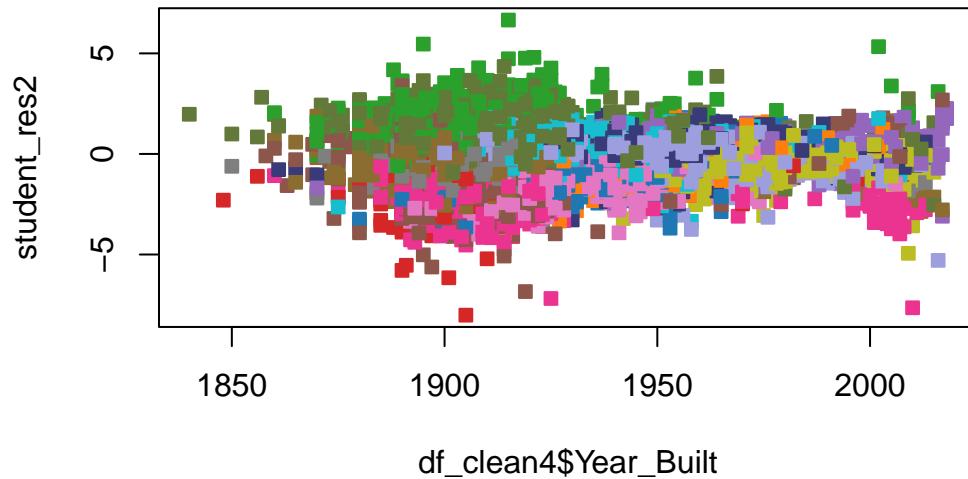
```
plot(log(df_clean4$Lotsize) ,student_res2,pch=22, bg=1)
```



```
plot(df_clean4$Fin_sqft ,student_res2,pch=22, bg=1)
```



```
plot(df_clean4$Year_Built ,student_res2,pch=22, bg=custom_palette[df_clean4$District], col=cus
```



```
df_clean4
```

	District	Extwall	Stories	Year_Built	Fin_sqft	Units	Bdrms	Fbath
1	7	Frame	2	1913	3476	>3	>8	1
2	3	Frame	2	1897	1992	>3	2	2
3	4	Frame	2	1907	2339	>3	0	1
4	4	Frame	2	1890	2329	>3	4	1
5	4	Stone	>2	1891	7450	2	7	>4
6	12	Frame	1.5	1906	2462	2	3	2
7	4	Frame	1.5	1890	2372	>3	2	2
8	11	Brick	1	1950	1149	1	3	1
9	1	Aluminum / Vinyl	1	1947	994	1	3	1
10	1	Stucco	2	1905	2938	>3	3	1
11	1	Brick	1	1951	1620	1	4	2
12	13	Brick	1	1956	986	1	3	1
13	3	Frame	2	1890	2360	>3	1	2
14	8	Aluminum / Vinyl	1	1903	1156	1	2	1
15	4	Frame	2	1895	3269	>3	6	1
16	15	Frame	2	1899	3380	>3	>8	1
17	4	Frame	2	1908	2775	>3	4	1

18	12	Frame	2	1889	2796	>3	0	2
19	12	Frame	2	1889	1930	>3	1	2
20	4	Frame	2	1913	2872	>3	3	2
21	13	Brick	2	1949	2430	>3	6	1
22	4	Frame	2	1890	3243	>3	8	1
23	6	Frame	2	1905	3346	>3	4	1
24	12	Frame	2	1900	2679	>3	7	2
25	12	Frame	2	1880	3459	>3	8	1
26	3	Stucco	2	1895	3208	>3	5	1
27	6	Block	2	1956	1920	>3	4	1
28	3	Stucco	2	1916	2800	>3	2	1
29	6	Brick	2	1908	2646	2	6	2
30	4	Frame	2	1908	3466	2	6	4
31	7	Frame	2	1913	3476	>3	>8	1
32	7	Frame	1	1932	761	1	3	1
33	6	Frame	2	1905	3346	>3	4	1
34	15	Frame	2	1899	4225	>3	>8	1
35	4	Frame	2	1908	3380	>3	4	1
36	4	Aluminum / Vinyl	2	1901	2898	2	6	4
37	8	Aluminum / Vinyl	2	1903	2880	>3	6	1
38	8	Aluminum / Vinyl	1.5	1892	2091	>3	4	1
39	4	Frame	2	1901	2770	>3	6	1
40	7	Frame	2	1913	2696	>3	4	1
41	12	Frame	2	1889	2796	>3	7	2
42	6	Block	2	1956	1920	>3	4	1
43	9	Aluminum / Vinyl	2	2007	2237	1	4	2
44	8	Aluminum / Vinyl	2	1903	3552	>3	7	1
45	8	Frame	2	1903	3552	2	7	4
46	2	Frame	1	1962	1169	1	3	2
47	1	Stone	1	1938	1188	1	2	1
48	1	Aluminum / Vinyl	1	1951	1054	1	3	1
49	1	Aluminum / Vinyl	1	1950	998	1	3	1
50	1	Aluminum / Vinyl	1	1951	988	1	3	1
51	1	Aluminum / Vinyl	2	2004	1470	1	3	2
52	1	Masonry / Frame	2	1949	2460	2	5	2
53	1	Brick	1.5	1900	4507	1	5	1
54	2	Brick	1	1954	1456	1	3	1
55	2	Aluminum / Vinyl	1.5	1962	1875	2	5	2
56	2	Aluminum / Vinyl	1	1966	1379	1	3	1
57	2	Brick	1	1962	1361	1	3	1
58	2	Brick	1	1964	1334	1	3	1
59	2	Brick	1	1962	1334	1	3	1
60	2	Brick	1	1959	1288	1	3	2

61	2	Frame	1	1970	1120	1	4	1
62	2	Frame	1	1955	864	1	3	1
63	2	Aluminum / Vinyl	1	1957	864	1	3	1
64	3	Stucco	>2	1894	3255	1	3	2
65	3	Frame	1	1910	977	1	3	1
66	3	Aluminum / Vinyl	2	1912	2152	2	4	2
67	3	Aluminum / Vinyl	1.5	1908	1656	2	4	2
68	3	Aluminum / Vinyl	1	1909	1359	1	3	2
69	3	Aluminum / Vinyl	2	1921	1248	1	3	1
70	5	Brick	1	1950	1338	1	3	1
71	5	Brick	1	1949	1284	1	3	1
72	5	Brick	1	1950	1201	1	2	1
73	5	Aluminum / Vinyl	1	1956	1176	1	4	2
74	5	Aluminum / Vinyl	1	1947	1165	1	4	1
75	5	Aluminum / Vinyl	1	1953	1144	1	3	1
76	5	Stone	1	1950	989	1	2	1
77	5	Masonry / Frame	2	1957	2234	2	6	2
78	5	Aluminum / Vinyl	1.5	1955	1995	2	5	2
79	5	Brick	1	1958	1110	1	3	1
80	6	Frame	1	1922	1029	1	2	1
81	7	Aluminum / Vinyl	1.5	1910	1729	2	6	2
82	8	Frame	2	1913	1364	1	3	1
83	8	Frame	1	1901	1256	1	3	1
85	9	Frame	2	1965	1591	1	4	1
86	9	Aluminum / Vinyl	2	1980	1455	1	3	1
87	10	Brick	1.5	1952	1435	1	2	1
88	10	Brick	1.5	1936	1276	1	2	1
89	10	Aluminum / Vinyl	1	1948	1012	1	3	1
90	10	Brick	2	1940	1556	1	4	1
91	10	Aluminum / Vinyl	1.5	1924	1697	2	3	2
92	10	Brick	1	1928	1853	1	4	1
93	10	Aluminum / Vinyl	1	1927	1025	1	3	1
94	10	Aluminum / Vinyl	2	1919	1452	1	4	1
95	10	Aluminum / Vinyl	1	1924	916	1	2	2
96	11	Brick	1.5	1941	1203	1	2	1
97	11	Aluminum / Vinyl	1	1938	1157	1	4	1
98	11	Aluminum / Vinyl	2	1992	2159	1	3	2
99	11	Brick	1.5	1937	1859	2	3	2
100	11	Brick	1	1932	1369	1	3	1
101	11	Aluminum / Vinyl	1	1961	1336	1	3	1
102	11	Aluminum / Vinyl	1	1979	1321	1	3	2
103	11	Brick	1	1958	1119	1	3	2
104	11	Brick	1	1953	1048	1	2	1

105	11	Aluminum / Vinyl	1	1949	870	1	2	1
106	13	Brick	1	1950	1188	1	3	2
107	13	Aluminum / Vinyl	1.5	1946	1122	1	2	1
108	13	Aluminum / Vinyl	1	1943	971	1	3	1
109	13	Brick	1	1966	1957	1	3	1
110	13	Brick	1	1967	1414	1	3	1
111	13	Aluminum / Vinyl	1	1959	1175	1	3	1
112	13	Brick	1	1964	1122	1	3	1
113	14	Aluminum / Vinyl	2	1954	1078	1	2	1
114	14	Aluminum / Vinyl	2	1910	2128	2	4	2
115	14	Aluminum / Vinyl	1	1924	973	1	3	1
117	14	Frame	1.5	1900	1340	1	3	2
118	14	Block	1.5	1920	1326	1	2	1
119	1	Brick	1.5	1938	1184	1	2	1
120	1	Aluminum / Vinyl	2	1929	2429	2	6	2
121	1	Brick	2	1943	1786	2	4	2
122	1	Aluminum / Vinyl	1	1923	1431	1	3	1
123	2	Brick	1	1955	1074	1	3	1
124	2	Aluminum / Vinyl	1	1956	1034	1	3	1
125	2	Aluminum / Vinyl	2	1959	1428	1	3	1
126	2	Aluminum / Vinyl	2	1960	2070	2	6	2
127	2	Brick	1	1955	1115	1	2	1
128	2	Aluminum / Vinyl	2	1970	2785	2	6	2
129	3	Brick	2	1946	2684	2	5	2
130	3	Frame	2	1887	3352	2	5	2
131	3	Brick	2	1907	2849	1	5	3
132	5	Brick	1.5	1952	1568	1	3	2
133	5	Stone	1	1947	1425	1	4	1
134	5	Stone	1	1952	1408	1	3	1
135	5	Aluminum / Vinyl	1	1951	1036	1	3	1
136	5	Aluminum / Vinyl	1	1949	978	1	4	1
137	5	Aluminum / Vinyl	2	1960	1686	1	3	1
138	5	Frame	2	1951	1540	1	3	1
139	5	Brick	1	1954	1282	1	3	1
140	5	Aluminum / Vinyl	1	1962	1268	1	3	1
141	5	Aluminum / Vinyl	1	1956	1132	1	3	1
142	5	Aluminum / Vinyl	1	1955	978	1	3	1
143	5	Masonry / Frame	2	1954	2498	3	5	3
144	6	Frame	2	1914	2425	2	6	2
145	6	Brick	2	1914	3087	2	5	2
146	6	Frame	1	1924	1696	1	4	1
147	7	Brick	1	1950	1598	1	4	2
148	7	Aluminum / Vinyl	1	1941	1272	1	3	1

149	7	Aluminum / Vinyl	1	1938	957	1	3	1
150	7	Frame	2	1920	2208	2	4	2
151	7	Brick	1	1960	1442	1	4	2
152	8	Aluminum / Vinyl	2	1921	2647	2	6	2
153	8	Brick	1	1927	1493	1	4	2
154	9	Brick	1	1958	1275	1	3	1
155	9	Aluminum / Vinyl	1	1936	1262	1	4	2
156	9	Aluminum / Vinyl	1	1972	1140	1	3	1
157	9	Aluminum / Vinyl	1	1976	906	1	3	1
158	9	Aluminum / Vinyl	1	1954	672	1	2	1
159	10	Aluminum / Vinyl	1	1940	1128	1	3	2
160	10	Brick	1.5	1936	1109	1	2	1
161	10	Aluminum / Vinyl	2	1988	2666	1	4	2
162	10	Frame	>2	1912	2600	1	4	2
163	10	Frame	1.5	1924	1665	2	3	2
164	10	Brick	1	1948	778	1	2	1
165	10	Brick	1	1926	1427	1	3	1
166	10	Stucco	1.5	1917	1398	1	3	1
167	11	Aluminum / Vinyl	1.5	1970	2032	1	5	1
168	11	Stone	1.5	1951	1940	1	3	2
169	11	Aluminum / Vinyl	1.5	1940	1197	1	3	1
170	11	Aluminum / Vinyl	1	1950	1176	1	3	1
171	11	Brick	1	1948	948	1	3	1
172	11	Aluminum / Vinyl	2	1953	1904	2	6	2
173	11	Aluminum / Vinyl	1	1943	1550	2	4	2
174	11	Brick	1	1954	1037	1	3	1
175	11	Aluminum / Vinyl	1	1928	1088	1	2	1
176	11	Brick	1.5	1937	1925	1	3	1
177	12	Aluminum / Vinyl	1	1919	1118	1	5	1
178	12	Aluminum / Vinyl	1	1921	1076	1	4	1
179	13	Aluminum / Vinyl	1	1947	1210	1	3	1
180	13	Aluminum / Vinyl	1	1940	1195	1	3	1
181	13	Brick	1	1955	1010	1	3	1
182	13	Aluminum / Vinyl	1	1939	1001	1	2	1
183	13	Aluminum / Vinyl	1	1979	1268	1	3	1
184	13	Brick	1	1967	1199	1	3	1
185	13	Aluminum / Vinyl	1	1966	1012	1	3	1
186	13	Aluminum / Vinyl	1	1953	880	1	2	1
187	13	Aluminum / Vinyl	1	1915	1424	1	3	0
188	13	Aluminum / Vinyl	1	1923	1238	1	4	1
189	14	Aluminum / Vinyl	1.5	1941	1346	1	4	1
190	14	Aluminum / Vinyl	2	1929	2695	2	4	2
191	14	Frame	2	1898	3148	1	4	3

192	14	Frame	1	1906	1896	1	4	2
193	14	Frame	2	1890	1636	1	4	2
194	14	Prem Wood	1	1920	1332	1	3	2
195	14	Fiber-Cement	1	1890	1274	1	3	2
196	14	Brick	1	1930	1196	1	3	1
197	15	Aluminum / Vinyl	2	1913	2502	2	6	2
199	15	Frame	1	1918	1434	1	3	1
200	15	Aluminum / Vinyl	1	1895	1362	1	4	1
201	1	Brick	1	1955	1259	1	4	1
202	1	Brick	2	1954	1940	2	4	2
203	1	Frame	1	1946	856	1	2	1
204	2	Brick	1	1956	1406	1	3	1
205	2	Stone	1	1955	1120	1	2	1
206	2	Aluminum / Vinyl	1	1957	951	1	3	1
207	2	Aluminum / Vinyl	2	1974	2484	2	6	2
208	3	Frame	2	1922	1852	1	3	1
209	3	Frame	1.5	1921	2101	1	4	2
210	3	Stucco	1	1915	1414	1	2	1
211	5	Brick	1.5	1953	2429	1	3	2
212	5	Brick	1	1951	1318	1	3	2
213	5	Brick	1.5	1949	1258	1	2	1
214	5	Aluminum / Vinyl	1	1950	1257	1	3	2
215	5	Aluminum / Vinyl	1	1952	934	1	3	1
216	5	Aluminum / Vinyl	1	1942	923	1	3	2
217	5	Aluminum / Vinyl	1	1956	784	1	2	1
218	5	Aluminum / Vinyl	2	1984	1686	1	3	2
219	5	Stone	2	1957	2146	2	6	2
220	5	Frame	2	1961	2092	2	6	2
221	5	Frame	1	1968	1500	1	3	1
222	5	Aluminum / Vinyl	1	1997	1262	1	3	1
223	5	Brick	1	1952	1239	1	3	1
224	5	Brick	1	1958	1232	1	3	1
225	5	Brick	1	1956	1223	1	3	1
226	5	Aluminum / Vinyl	1	1956	1154	1	3	1
227	5	Aluminum / Vinyl	1	1956	1077	1	3	1
228	5	Brick	1	1966	1059	1	3	1
229	5	Aluminum / Vinyl	1	1950	1036	1	3	1
230	5	Aluminum / Vinyl	1	1957	954	1	3	1
231	5	Frame	1	1948	833	1	2	1
232	5	Aluminum / Vinyl	2	1962	2484	2	6	2
233	5	Aluminum / Vinyl	2	1978	2451	2	6	2
234	6	Aluminum / Vinyl	2	1922	2086	2	4	2
235	6	Aluminum / Vinyl	1.5	1896	1728	2	4	2

236	6 Aluminum / Vinyl	1.5	1910	1468	2	4	2
237	6 Aluminum / Vinyl	1.5	1909	1740	1	3	2
238	6 Frame	1.5	1892	1366	1	3	1
239	6 Frame	1.5	1892	1366	1	3	1
240	6 Stone	1	1925	820	1	1	1
241	7 Masonry / Frame	2	1936	2780	2	4	2
242	7 Aluminum / Vinyl	1.5	1929	2082	2	4	2
243	7 Aluminum / Vinyl	1.5	1899	1452	2	4	1
244	7 Stone	1	1941	1118	1	2	1
245	7 Aluminum / Vinyl	1	1914	1515	1	5	1
246	8 Masonry / Frame	2	1912	2904	1	6	1
247	8 Aluminum / Vinyl	2	1883	2234	2	6	2
248	8 Aluminum / Vinyl	1.5	1904	1912	2	3	2
249	8 Aluminum / Vinyl	1	1916	1578	1	4	2
250	8 Aluminum / Vinyl	1.5	1912	1652	1	2	1
251	8 Aluminum / Vinyl	1	1910	1438	1	3	1
252	8 Aluminum / Vinyl	1	1886	1252	1	3	1
253	9 Aluminum / Vinyl	2	2008	2361	1	4	2
254	9 Aluminum / Vinyl	1	1971	1200	1	4	1
255	10 Aluminum / Vinyl	1	1950	1170	1	4	1
256	10 Aluminum / Vinyl	1.5	1930	1852	2	4	2
257	10 Brick	2	1950	1900	2	4	2
258	10 Aluminum / Vinyl	1	1926	1557	1	4	2
259	10 Frame	1	1919	1499	1	3	2
260	10 Aluminum / Vinyl	1	1925	1401	1	4	1
261	10 Frame	1	1930	1318	1	3	1
262	10 Aluminum / Vinyl	1	1927	1189	1	3	1
263	10 Aluminum / Vinyl	1	1926	1034	1	3	1
264	10 Aluminum / Vinyl	1	1940	864	1	2	1
265	11 Aluminum / Vinyl	1	1948	1188	1	3	1
266	11 Aluminum / Vinyl	1	1951	865	1	2	1
267	11 Stone	1	1948	1057	1	2	1
268	11 Frame	1	1953	998	1	3	1
269	11 Aluminum / Vinyl	1	1956	988	1	3	1
270	11 Brick	1	1950	869	1	2	1
271	11 Aluminum / Vinyl	1	1955	694	1	2	1
272	12 Aluminum / Vinyl	2	1894	1780	2	6	2
273	12 Frame	1	1924	1202	1	4	1
274	12 Aluminum / Vinyl	1	1895	1004	1	3	1
275	13 Stone	1.5	1937	1819	1	3	1
276	13 Aluminum / Vinyl	1	1941	1763	1	5	2
277	13 Masonry / Frame	2	1937	1494	1	4	1
278	13 Aluminum / Vinyl	1	1954	1476	1	3	2

279	13	Brick	1.5	1946	1406	1	2	1
280	13	Aluminum / Vinyl	1	1954	1034	1	3	1
281	13	Aluminum / Vinyl	1	1943	1006	1	3	1
282	13	Frame	2	1979	1746	1	3	2
283	13	Brick	2	1940	2076	2	4	2
284	13	Brick	1	1990	2044	1	3	2
285	13	Brick	1	1957	1308	1	4	1
286	13	Aluminum / Vinyl	1	1950	1269	1	2	1
287	13	Brick	1	1956	1102	1	2	1
288	13	Aluminum / Vinyl	1	1958	1056	1	3	1
289	13	Aluminum / Vinyl	1	1959	1051	1	3	1
290	13	Aluminum / Vinyl	1	1960	1048	1	3	1
291	13	Aluminum / Vinyl	1	1960	907	1	3	2
292	14	Brick	1.5	1956	2073	1	4	3
293	14	Stone	1	1950	1571	1	4	1
294	14	Brick	1	1947	926	1	3	1
295	14	Aluminum / Vinyl	1.5	1927	2109	2	4	3
296	14	Aluminum / Vinyl	2	1895	1968	1	5	2
297	14	Frame	2	1876	1674	2	3	2
298	14	Aluminum / Vinyl	1.5	1921	1391	2	3	2
299	14	Brick	1	1926	1548	1	4	1
300	14	Aluminum / Vinyl	1	1925	1430	1	3	1
301	14	Block	1	1947	858	1	2	1
302	14	Aluminum / Vinyl	1.5	1898	1611	1	3	2
303	14	Frame	1	1922	1334	1	4	2
304	14	Aluminum / Vinyl	1	1900	1220	1	3	2
305	15	Aluminum / Vinyl	2	1913	2902	2	6	2
306	15	Aluminum / Vinyl	1.5	1905	1596	2	3	2
307	15	Stucco	1	1916	1680	1	5	3
308	1	Aluminum / Vinyl	2	1939	1816	1	5	1
309	1	Aluminum / Vinyl	1.5	1929	1596	2	4	2
310	1	Aluminum / Vinyl	1.5	1929	1596	2	4	2
311	1	Frame	1.5	1925	1546	2	3	2
312	1	Aluminum / Vinyl	1	1927	1278	1	4	1
313	1	Aluminum / Vinyl	1	1953	1082	1	3	1
314	1	Aluminum / Vinyl	1	1926	1334	1	4	2
315	2	Aluminum / Vinyl	1	1956	1107	1	3	1
316	2	Aluminum / Vinyl	1	1942	1073	1	3	1
317	2	Aluminum / Vinyl	1	1951	862	1	2	1
318	2	Masonry / Frame	2	1956	2588	2	6	2
319	2	Aluminum / Vinyl	2	1957	2066	2	6	2
320	2	Aluminum / Vinyl	1	1965	1223	1	3	1
321	2	Aluminum / Vinyl	1	1963	1218	1	3	1

322	2	Brick	1	1947	1077	1	2	1
323	2	Aluminum / Vinyl	1	1957	988	1	3	1
324	3	Aluminum / Vinyl	2	1925	2848	2	6	2
325	3	Aluminum / Vinyl	2	1923	2724	2	6	2
326	3	Aluminum / Vinyl	1.5	1890	1570	2	2	2
327	3	Masonry / Frame	2	1909	3701	1	6	4
328	3	Frame	2	1909	2167	1	3	1
329	3	Aluminum / Vinyl	1	1890	1113	1	3	1
330	5	Stone	1	1948	1247	1	3	1
331	5	Brick	1	1949	1218	1	3	1
332	5	Aluminum / Vinyl	1	1952	1173	1	3	1
333	5	Aluminum / Vinyl	1	1952	1124	1	3	1
334	5	Aluminum / Vinyl	1.5	1941	1084	1	3	1
335	5	Frame	1.5	1941	1035	1	3	1
336	5	Aluminum / Vinyl	1	1951	954	1	3	1
337	5	Brick	1	1951	948	1	2	1
338	5	Aluminum / Vinyl	1	1952	722	1	2	1
339	5	Masonry / Frame	2	1972	2464	1	4	1
340	5	Aluminum / Vinyl	2	1954	1872	1	4	1
341	5	Aluminum / Vinyl	2	1988	1800	1	3	1
342	5	Aluminum / Vinyl	2	1948	1378	1	3	1
343	5	Brick	2	1966	2744	2	6	2
344	5	Masonry / Frame	2	1955	2192	2	6	2
345	5	Brick	1.5	1953	1930	2	4	2
346	5	Brick	1	1963	1446	1	3	1
347	5	Stone	1	1951	1280	1	2	2
348	5	Aluminum / Vinyl	1	1953	1263	1	3	1
349	5	Brick	1	1958	1219	1	3	1
350	5	Aluminum / Vinyl	1	1971	1217	1	4	1
351	5	Brick	1	1955	1200	1	3	1
352	5	Brick	1	1958	1076	1	3	2
353	5	Aluminum / Vinyl	1	1956	997	1	3	1
354	5	Aluminum / Vinyl	1	1958	963	1	3	2
355	5	Masonry / Frame	2	1967	2424	2	6	2
356	6	Frame	1.5	1902	1990	2	5	2
357	6	Brick	1	1928	1653	1	4	1
358	7	Stone	1	1935	1711	1	4	1
359	7	Brick	1.5	1937	1647	1	4	2
360	7	Brick	1	1948	1590	1	3	1
361	7	Stone	1	1947	1402	1	4	3
362	7	Aluminum / Vinyl	2	1923	2496	2	4	2
363	7	Stone	1.5	1943	1973	2	3	2
364	7	Aluminum / Vinyl	1.5	1929	1930	2	4	2

365	8	Frame	1	1885	652	1	2	1
366	8	Frame	2	1914	2540	2	6	2
368	9	Aluminum / Vinyl	1	1953	1020	1	4	1
369	9	Brick	1	1957	1217	1	3	2
370	9	Brick	1	1957	1188	1	3	1
371	9	Masonry / Frame	1	1957	1161	1	3	1
372	10	Aluminum / Vinyl	1.5	1947	1636	1	3	1
373	10	Brick	1	1945	946	1	3	2
374	10	Masonry / Frame	2	1926	2407	1	3	2
375	10	Aluminum / Vinyl	1	1900	1240	1	3	1
376	10	Stucco	1.5	1925	1759	2	3	2
377	10	Brick	1	1926	2011	1	3	1
378	10	Brick	1	1927	2005	1	4	2
379	10	Brick	1	1927	1733	1	3	1
380	10	Aluminum / Vinyl	1	1920	1620	1	4	1
381	10	Brick	1	1931	1557	1	3	1
382	10	Brick	1	1927	1214	1	2	1
383	10	Stone	1	1952	1728	1	3	1
384	10	Stone	1	1955	1289	1	3	1
385	10	Frame	1	1951	1202	1	3	1
386	10	Aluminum / Vinyl	1	1953	792	1	2	2
387	10	Brick	1	1948	788	1	2	1
388	10	Aluminum / Vinyl	1.5	1926	1223	1	4	1
389	10	Frame	1	1916	934	1	3	1
390	11	Aluminum / Vinyl	1	1941	1320	1	3	2
391	11	Aluminum / Vinyl	1	1950	1220	1	3	1
392	11	Aluminum / Vinyl	1	1954	1187	1	4	1
393	11	Aluminum / Vinyl	1	1953	1163	1	3	1
394	11	Brick	1	1958	1100	1	2	2
395	11	Brick	1	1949	863	1	2	1
396	11	Prem Wood	2	2002	2674	1	4	2
397	11	Aluminum / Vinyl	2	1949	1275	1	3	1
398	11	Brick	2	1957	2550	2	6	2
399	11	Aluminum / Vinyl	2	1957	1884	2	6	2
400	11	Frame	1	1927	1618	1	5	2
401	11	Frame	1	1954	1478	1	3	1
402	11	Frame	1	1964	1292	1	4	1
403	11	Aluminum / Vinyl	1	1959	1233	1	3	1
404	11	Brick	1	1954	1149	1	2	1
405	11	Aluminum / Vinyl	1	1961	1062	1	3	1
406	11	Aluminum / Vinyl	1	1954	972	1	3	1
407	11	Aluminum / Vinyl	1	1955	972	1	3	1
408	11	Frame	1	1951	958	1	2	1

409	11 Aluminum / Vinyl	1	1954	943	1	3	1
410	11 Aluminum / Vinyl	1	1954	906	1	3	1
411	11 Frame	1	1951	811	1	2	1
412	11 Aluminum / Vinyl	1	1956	672	1	2	1
413	13 Brick	1.5	1948	1897	1	4	1
414	13 Aluminum / Vinyl	1	1941	1365	1	4	1
415	13 Stone	1	1940	927	1	2	1
416	13 Brick	1	1939	891	1	1	1
417	13 Aluminum / Vinyl	2	1940	1869	1	3	1
418	13 Frame	1.5	1912	2151	2	6	2
419	13 Aluminum / Vinyl	1	1929	1035	1	3	1
420	13 Brick	1	1960	1541	1	3	1
421	13 Brick	1	1969	1534	1	2	2
422	13 Brick	1	1959	1257	1	3	1
423	13 Aluminum / Vinyl	1	1960	1254	1	3	1
424	13 Frame	1	1966	1176	1	3	1
425	13 Aluminum / Vinyl	1	1954	1116	1	3	1
426	13 Brick	1	1963	1092	1	3	2
427	13 Aluminum / Vinyl	1	1959	1021	1	3	1
428	13 Aluminum / Vinyl	1	1954	1008	1	3	1
429	13 Aluminum / Vinyl	1	1961	983	1	3	1
430	13 Aluminum / Vinyl	1	1950	912	1	3	1
431	13 Aluminum / Vinyl	1	1954	864	1	3	1
432	13 Aluminum / Vinyl	1	1955	672	1	2	1
433	14 Block	1	1944	1055	1	3	2
434	14 Aluminum / Vinyl	1.5	1940	1003	1	2	1
435	14 Frame	1	1948	782	1	2	1
436	14 Aluminum / Vinyl	2	1945	1360	1	3	1
437	14 Aluminum / Vinyl	2	1937	1056	1	2	1
438	14 Aluminum / Vinyl	1.5	1927	2059	2	4	2
439	14 Frame	1	1926	1412	1	3	1
440	14 Aluminum / Vinyl	1	1923	1251	1	4	1
441	14 Aluminum / Vinyl	1	1918	908	1	2	1
442	14 Aluminum / Vinyl	1	1942	848	1	2	1
443	14 Aluminum / Vinyl	2	1909	1956	1	4	1
444	14 Stucco	1.5	1916	1561	1	4	2
445	14 Aluminum / Vinyl	1.5	1909	1523	1	3	1
446	14 Aluminum / Vinyl	2	1901	1503	1	3	1
447	1 Brick	1.5	1937	1461	1	3	1
448	1 Frame	1	1956	1212	1	2	1
449	1 Frame	1	1941	1048	1	3	1
450	1 Aluminum / Vinyl	1	1942	920	1	3	1
451	1 Aluminum / Vinyl	1	1937	919	1	2	1

452	1	Brick	2	1954	1810	2	6	2
453	1	Brick	2	1943	1786	2	4	2
454	1	Aluminum / Vinyl	1	1956	1425	1	3	2
455	1	Aluminum / Vinyl	1	1927	876	1	3	1
456	1	Prem Wood	1.5	1931	2883	1	4	1
457	2	Brick	1.5	1952	1450	1	4	2
458	2	Brick	1	1956	1365	1	3	2
459	2	Aluminum / Vinyl	1.5	1963	1885	2	5	2
460	2	Aluminum / Vinyl	1	1952	969	1	2	1
461	2	Aluminum / Vinyl	1	1952	969	1	2	1
462	2	Aluminum / Vinyl	1	1952	969	1	2	1
463	2	Aluminum / Vinyl	1	1952	969	1	2	1
464	2	Aluminum / Vinyl	1	1971	936	1	3	1
465	2	Aluminum / Vinyl	1	1955	672	1	2	1
466	2	Aluminum / Vinyl	1	1930	2152	1	3	2
467	3	Frame	1	1951	1653	1	4	1
468	3	Brick	1.5	1923	2351	1	4	2
469	3	Brick	1.5	1923	2351	1	4	2
470	3	Masonry / Frame	2	1925	1984	1	4	1
471	3	Frame	2	1889	2478	2	7	2
472	3	Brick	2	1923	5438	1	5	4
473	3	Aluminum / Vinyl	1	1927	1530	1	4	2
474	3	Masonry / Frame	2	1915	3417	1	5	3
475	3	Frame	2	1899	2340	1	5	2
476	3	Aluminum / Vinyl	2	1890	2077	1	4	2
477	3	Stone	1.5	1925	1787	1	3	2
478	3	Frame	2	1901	1717	1	4	1
479	3	Frame	1	1910	1501	1	3	1
480	3	Frame	2	1904	1254	1	4	1
481	3	Aluminum / Vinyl	1	1895	1230	1	5	2
482	3	Aluminum / Vinyl	1	1923	1132	1	3	1
483	3	Aluminum / Vinyl	1.5	1897	1095	1	2	1
484	5	Stone	1	1938	1745	1	3	2
485	5	Brick	1	1952	1543	1	4	2
486	5	Brick	1	1947	1464	1	3	1
487	5	Brick	1	1951	1438	1	4	1
488	5	Brick	1.5	1949	1409	1	3	1
489	5	Aluminum / Vinyl	1	1940	1402	1	4	1
490	5	Aluminum / Vinyl	1	1952	1399	1	4	1
491	5	Brick	1	1940	1381	1	2	2
492	5	Aluminum / Vinyl	1	1952	1368	1	3	1
493	5	Aluminum / Vinyl	1	1948	1251	1	3	1
494	5	Aluminum / Vinyl	1	1950	1171	1	3	1

495	5 Aluminum / Vinyl	1	1950	1170	1	3	1
496	5 Aluminum / Vinyl	1	1950	1147	1	3	1
497	5 Aluminum / Vinyl	1	1956	1114	1	3	1
498	5 Aluminum / Vinyl	1	1953	1104	1	3	1
499	5 Aluminum / Vinyl	1	1950	1011	1	3	1
500	5 Aluminum / Vinyl	1	1955	994	1	3	2
501	5 Aluminum / Vinyl	1	1950	888	1	2	1
502	5 Brick	1	1947	883	1	2	1
503	5 Aluminum / Vinyl	1	1952	693	1	2	1
504	5 Aluminum / Vinyl	2	2008	2506	1	4	2
505	5 Masonry / Frame	2	1956	1598	1	3	1
506	5 Aluminum / Vinyl	2	1950	1572	1	3	1
507	5 Masonry / Frame	2	1938	1557	1	3	1
508	5 Stone	1	1952	1657	1	3	1
509	5 Brick	1	1958	1627	1	3	2
510	5 Aluminum / Vinyl	1	1959	1431	1	4	1
511	5 Brick	1	1959	1429	1	3	1
512	5 Aluminum / Vinyl	1	1993	1226	1	3	2
513	5 Brick	1	1956	1223	1	3	1
514	5 Brick	1	1957	1201	1	3	1
515	5 Brick	1	1959	1151	1	2	1
516	5 Aluminum / Vinyl	1	1954	1142	1	3	2
517	5 Aluminum / Vinyl	1	1957	1053	1	3	1
518	5 Frame	1	1951	1053	1	3	1
519	5 Brick	1	1951	1033	1	3	1
520	5 Brick	1	1954	1006	1	2	1
521	5 Aluminum / Vinyl	1	1956	983	1	3	1
522	5 Stone	1	1950	980	1	2	1
523	5 Frame	1	1954	962	1	3	1
524	6 Frame	2	1904	3476	2	6	2
525	6 Aluminum / Vinyl	1.5	1919	1969	1	4	2
526	6 Aluminum / Vinyl	1.5	1910	1210	1	3	1
527	6 Frame	1	1903	998	1	3	1
528	7 Block	1	1944	1014	1	3	1
529	7 Aluminum / Vinyl	2	1924	2674	2	6	2
530	7 Aluminum / Vinyl	1	1924	1497	1	4	1
531	7 Frame	1	1926	1453	1	5	1
532	7 Masonry / Frame	1	1946	1035	1	3	1
533	7 Aluminum / Vinyl	1	1947	1029	1	3	1
534	7 Masonry / Frame	2	1936	1678	1	3	1
535	8 Aluminum / Vinyl	2	2008	1672	1	3	2
536	8 Frame	1.5	1918	1809	2	3	2
537	8 Aluminum / Vinyl	1.5	1926	2095	2	5	2

538	8	Aluminum / Vinyl	1	1927	1601	1	5	1
539	8	Frame	2	1913	1364	1	3	1
540	8	Aluminum / Vinyl	1	1904	1161	1	3	1
541	8	Aluminum / Vinyl	1	1900	1074	1	3	1
542	8	Masonry / Frame	2	1914	3632	3	7	4
543	9	Aluminum / Vinyl	1	1980	1320	1	3	1
544	9	Brick	1	1959	924	1	3	1
545	9	Frame	1	1977	906	1	3	1
546	10	Stone	1.5	1937	1815	1	3	2
547	10	Masonry / Frame	1.5	1950	1505	1	3	1
548	10	Aluminum / Vinyl	1	1953	1307	1	3	1
549	10	Brick	1	1953	1255	1	3	1
550	10	Aluminum / Vinyl	1	1948	1094	1	3	1
551	10	Aluminum / Vinyl	1	1948	978	1	2	1
552	10	Aluminum / Vinyl	1	1951	920	1	2	1
553	10	Brick	1	1947	845	1	2	1
554	10	Stucco	2	1914	3591	2	6	3
555	10	Stone	2	1948	2520	2	4	2
556	10	Brick	1	1931	1741	1	4	2
557	10	Frame	1	1927	1584	1	3	2
558	10	Aluminum / Vinyl	1	1925	1225	1	3	1
559	10	Aluminum / Vinyl	1	1927	1010	1	2	1
560	10	Aluminum / Vinyl	1	1925	768	1	1	1
561	10	Aluminum / Vinyl	1	1955	1063	1	3	2
562	10	Brick	1	1957	1032	1	3	1
563	10	Aluminum / Vinyl	1	1943	810	1	2	1
564	10	Aluminum / Vinyl	2	1926	1320	1	3	2
565	11	Stone	1	1946	1278	1	2	1
566	11	Stone	1	1945	1182	1	4	1
567	11	Aluminum / Vinyl	1	1954	1103	1	4	1
568	11	Brick	1	1945	992	1	3	1
570	11	Aluminum / Vinyl	2	1964	1754	1	3	1
571	11	Stone	1.5	1937	2045	2	4	2
572	11	Brick	1	1952	1533	1	4	2
573	11	Frame	1	1960	1285	1	3	1
574	11	Aluminum / Vinyl	1	1958	1202	1	3	1
575	11	Aluminum / Vinyl	1	1959	1177	1	3	1
576	11	Brick	1	1951	1166	1	3	1
577	11	Brick	1	1956	1145	1	3	1
578	11	Aluminum / Vinyl	1	1960	1097	1	3	1
579	11	Brick	1	1958	1086	1	2	1
580	11	Aluminum / Vinyl	1	1959	1072	1	3	1
581	11	Brick	1	1956	1061	1	3	1

582	11	Brick	1	1954	1053	1	3	1
583	11	Brick	1	1956	1035	1	2	1
584	11	Brick	1	1950	1031	1	2	2
585	11	Brick	1	1950	1008	1	3	1
586	11	Aluminum / Vinyl	1	1954	955	1	3	1
587	11	Aluminum / Vinyl	1	1959	943	1	3	1
588	11	Brick	1	1955	925	1	2	1
589	11	Aluminum / Vinyl	1	1953	879	1	3	1
590	11	Aluminum / Vinyl	1	1953	879	1	3	1
591	11	Aluminum / Vinyl	1	1956	876	1	3	1
592	11	Frame	1	1952	802	1	2	1
593	11	Aluminum / Vinyl	1	1956	672	1	2	1
594	11	Aluminum / Vinyl	1	1936	1427	1	3	2
595	13	Frame	1.5	1986	2523	1	3	2
596	13	Aluminum / Vinyl	1.5	1939	1096	1	3	1
598	13	Aluminum / Vinyl	2	1929	1065	1	3	1
599	13	Aluminum / Vinyl	2	2000	2018	2	4	2
600	13	Brick	1	1982	1837	1	3	3
601	13	Brick	1	1971	1693	1	3	2
602	13	Brick	1	1959	1548	1	2	2
603	13	Aluminum / Vinyl	1	1967	1538	1	3	2
604	13	Aluminum / Vinyl	1	1975	1480	1	3	1
605	13	Aluminum / Vinyl	1	1984	1351	1	3	1
606	13	Aluminum / Vinyl	1	1950	1186	1	2	1
607	13	Aluminum / Vinyl	1	1959	1171	1	3	1
608	13	Aluminum / Vinyl	1	1967	1151	1	3	1
609	13	Brick	1	1959	1150	1	3	1
610	13	Brick	1	1960	1150	1	3	1
611	13	Brick	1	1955	1119	1	3	2
612	13	Brick	1	1959	1101	1	3	1
613	13	Aluminum / Vinyl	1	1961	981	1	3	1
615	14	Frame	1	1948	1540	1	4	1
616	14	Stone	1	1936	1246	1	3	1
617	14	Brick	1.5	1936	1222	1	2	1
618	14	Brick	1	1955	1108	1	2	1
619	14	Aluminum / Vinyl	1	1947	1102	1	3	1
620	14	Aluminum / Vinyl	1	1950	1021	1	3	1
621	14	Aluminum / Vinyl	2	1948	1378	1	3	1
622	14	Aluminum / Vinyl	1	1928	1638	2	3	2
623	14	Brick	2	1951	2260	2	4	2
624	14	Aluminum / Vinyl	1.5	1898	2343	2	5	2
625	14	Aluminum / Vinyl	1.5	1910	1894	2	3	2
626	14	Aluminum / Vinyl	1.5	1898	1748	2	4	2

627	14 Aluminum / Vinyl	1.5	1927	1715	1	4	1
628	14 Frame	1	1926	1607	1	3	1
629	14 Aluminum / Vinyl	1	1928	1477	1	3	1
630	14 Aluminum / Vinyl	1	1922	1164	1	3	1
631	14 Aluminum / Vinyl	1	1948	864	1	3	1
632	14 Aluminum / Vinyl	1	1950	808	1	2	1
633	14 Aluminum / Vinyl	1	1898	1449	1	3	2
634	14 Aluminum / Vinyl	2	1892	1240	1	2	1
635	14 Aluminum / Vinyl	1	1912	954	1	3	1
636	14 Aluminum / Vinyl	1	1922	896	1	2	1
637	15 Brick	2	1905	1894	1	4	1
638	1 Block	1.5	1950	1425	1	4	2
639	1 Aluminum / Vinyl	1	1942	1110	1	3	1
640	1 Brick	1	1951	1070	1	3	1
641	1 Brick	2	1953	2016	2	6	2
642	1 Aluminum / Vinyl	2	1956	1938	2	6	2
643	1 Aluminum / Vinyl	1.5	1937	1459	2	3	2
644	1 Brick	1	1929	1673	1	4	1
645	1 Aluminum / Vinyl	1	1925	1632	1	5	1
646	1 Masonry / Frame	1	1961	1646	1	3	2
647	1 Brick	1	1956	1270	1	3	1
648	1 Brick	1	1962	1042	1	3	2
649	1 Aluminum / Vinyl	1	1955	1040	1	3	1
650	1 Frame	1.5	1913	1186	1	3	1
651	2 Aluminum / Vinyl	1	1997	1481	1	3	2
652	2 Brick	1.5	1955	1839	1	4	2
653	2 Brick	1	1954	1553	1	4	1
654	2 Aluminum / Vinyl	1	1947	1172	1	3	1
655	2 Brick	1	1956	1096	1	2	1
656	2 Aluminum / Vinyl	1	1940	1028	1	3	1
657	2 Aluminum / Vinyl	2	2001	2321	1	3	2
658	2 Aluminum / Vinyl	2	1948	1267	1	3	1
659	2 Brick	1	1970	1334	1	3	2
660	2 Brick	1	1960	1185	1	3	1
661	2 Brick	1	1958	1159	1	3	1
662	2 Brick	1	1953	1126	1	3	1
663	2 Aluminum / Vinyl	1	1956	1058	1	3	1
664	2 Aluminum / Vinyl	1	1961	1056	1	3	1
665	2 Aluminum / Vinyl	1	1956	948	1	3	1
666	2 Aluminum / Vinyl	1	1955	936	1	3	1
667	2 Aluminum / Vinyl	1	1952	761	1	2	1
668	3 Frame	1.5	1926	1880	2	3	2
669	3 Aluminum / Vinyl	1.5	1890	1789	2	4	2

670	3	Frame	2	1906	2640	1	4	2
671	3	Frame	2	1900	2138	1	3	1
672	3	Stucco	2	1915	1923	1	4	1
673	3	Aluminum / Vinyl	1.5	1897	1364	1	3	1
675	5	Masonry / Frame	1.5	1947	1668	1	3	2
676	5	Brick	1	1950	1530	1	3	1
677	5	Aluminum / Vinyl	1	1940	1515	1	3	1
678	5	Brick	1	1949	1428	1	3	2
679	5	Brick	1	1947	1370	1	3	1
680	5	Brick	1	1948	1367	1	3	1
681	5	Aluminum / Vinyl	1	1953	1317	1	3	1
682	5	Aluminum / Vinyl	1	1951	1232	1	3	1
683	5	Aluminum / Vinyl	1	1950	1229	1	3	1
684	5	Stone	1	1948	1188	1	2	1
685	5	Aluminum / Vinyl	1	1956	1180	1	4	2
686	5	Aluminum / Vinyl	1	1952	1180	1	3	1
687	5	Brick	1	1952	1125	1	4	1
688	5	Aluminum / Vinyl	1	1951	1107	1	3	1
689	5	Frame	1	1946	1090	1	3	2
690	5	Brick	1	1955	1088	1	2	1
691	5	Stone	1	1940	1057	1	2	1
692	5	Aluminum / Vinyl	1	1953	1030	1	3	1
693	5	Aluminum / Vinyl	1	1952	1000	1	3	1
694	5	Aluminum / Vinyl	1	1949	971	1	3	1
695	5	Fiber-Cement	2	2009	2150	1	4	2
696	5	Masonry / Frame	2	1937	1674	1	3	1
697	5	Aluminum / Vinyl	2	1948	2032	2	4	2
698	5	Aluminum / Vinyl	1.5	1963	1866	2	4	2
699	5	Brick	1	1967	1665	1	3	2
700	5	Brick	1	1956	1223	1	3	1
701	5	Aluminum / Vinyl	1	1972	1204	1	4	1
702	5	Aluminum / Vinyl	1	1949	1140	1	3	1
703	5	Brick	1	1964	1090	1	3	1
704	5	Brick	1	1957	1080	1	3	2
705	5	Brick	1	1951	1056	1	2	2
706	5	Aluminum / Vinyl	1	1950	1022	1	3	1
707	5	Brick	1	1951	1016	1	3	1
708	5	Frame	1	1956	988	1	3	1
709	5	Aluminum / Vinyl	1	1956	948	1	2	1
710	5	Aluminum / Vinyl	1	1950	904	1	3	1
711	5	Aluminum / Vinyl	1	1951	833	1	2	1
712	5	Aluminum / Vinyl	1	1950	707	1	2	1
713	5	Aluminum / Vinyl	1	1950	1099	1	3	1

714	5	Masonry / Frame	2	1951	2040	2	4	2
715	6	Aluminum / Vinyl	2	1984	2052	1	4	2
716	6	Aluminum / Vinyl	2	2008	1848	1	3	1
717	6	Frame	1.5	1926	2000	2	4	2
718	6	Aluminum / Vinyl	2	1890	1998	2	4	2
720	6	Frame	1	1885	2212	1	3	1
721	7	Brick	1.5	1945	1486	1	3	1
722	7	Aluminum / Vinyl	1	1948	1099	1	3	1
723	7	Aluminum / Vinyl	1	1948	1063	1	3	1
724	7	Aluminum / Vinyl	2	1941	1346	1	3	1
725	7	Aluminum / Vinyl	2	1924	2535	2	6	2
726	7	Brick	1.5	1919	2391	2	4	2
727	7	Brick	2	1950	2394	2	4	2
728	7	Aluminum / Vinyl	1.5	1931	1279	1	3	1
729	7	Stone	1	1933	1244	1	3	2
730	8	Aluminum / Vinyl	2	1911	3331	2	7	3
731	8	Aluminum / Vinyl	1	1919	1512	1	4	1
732	8	Aluminum / Vinyl	1	1926	1427	1	3	1
733	8	Aluminum / Vinyl	1	1921	1325	1	3	1
734	8	Aluminum / Vinyl	1	1959	917	1	3	1
735	8	Aluminum / Vinyl	1.5	1910	1294	1	2	1
736	8	Aluminum / Vinyl	2	1912	2438	3	6	3
737	9	Aluminum / Vinyl	1	1955	1274	1	4	2
738	9	Aluminum / Vinyl	2	2004	2016	1	3	2
739	9	Aluminum / Vinyl	1	1930	1089	1	3	1
740	9	Aluminum / Vinyl	1	1948	720	1	2	1
741	9	Aluminum / Vinyl	1	2008	1721	1	3	2
742	9	Aluminum / Vinyl	1	1957	1211	1	3	1
743	9	Aluminum / Vinyl	1	1971	1200	1	4	1
744	9	Aluminum / Vinyl	1	1972	1200	1	4	1
745	9	Aluminum / Vinyl	1	1962	1132	1	3	2
746	9	Brick	1	1961	1117	1	3	1
747	9	Aluminum / Vinyl	1	1981	1077	1	2	2
748	9	Aluminum / Vinyl	1	1969	1063	1	3	1
749	9	Frame	1	1956	1033	1	3	1
750	9	Aluminum / Vinyl	1	1965	1006	1	3	1
751	9	Aluminum / Vinyl	1	1954	958	1	3	1
752	9	Frame	1	1980	912	1	3	2
753	9	Aluminum / Vinyl	1	1977	1512	1	3	1
754	10	Aluminum / Vinyl	1	1951	1292	1	3	2
755	10	Brick	1	1951	1536	1	3	1
756	10	Brick	1.5	1952	1435	1	2	1
757	10	Brick	1	1955	1344	1	3	1

758	10	Brick	1	1948	1336	1	3	1
759	10	Stone	1	1939	1335	1	3	1
760	10	Aluminum / Vinyl	1	1948	1206	1	3	1
761	10	Aluminum / Vinyl	1	1950	1196	1	3	1
762	10	Aluminum / Vinyl	1	1953	1184	1	2	1
763	10	Aluminum / Vinyl	1	1948	1170	1	4	1
764	10	Brick	1.5	1946	1060	1	2	1
765	10	Aluminum / Vinyl	1	1948	1047	1	3	1
766	10	Aluminum / Vinyl	1	1952	784	1	2	1
767	10	Brick	2	1928	2900	2	6	2
768	10	Aluminum / Vinyl	2	1917	2190	2	4	2
769	10	Aluminum / Vinyl	2	1925	1990	2	4	2
770	10	Frame	1.5	1913	1980	2	3	2
771	10	Masonry / Frame	2	1925	2698	2	4	2
772	10	Stone	2	1939	2183	2	5	2
773	10	Brick	1	1928	2116	1	5	2
774	10	Frame	1	1924	1637	1	4	1
775	10	Frame	1	1927	1316	1	3	2
776	10	Aluminum / Vinyl	1	1926	934	1	3	1
777	10	Frame	1	1927	926	1	2	1
778	10	Aluminum / Vinyl	1	1953	1384	1	3	1
779	10	Brick	1	1954	1303	1	3	1
780	10	Aluminum / Vinyl	1	1953	955	1	2	1
781	10	Aluminum / Vinyl	2	1900	1769	1	3	2
782	10	Frame	1	1923	1140	1	3	1
783	11	Aluminum / Vinyl	1	1962	1788	1	4	2
784	11	Brick	1	1939	1581	1	3	1
785	11	Aluminum / Vinyl	1.5	1954	1347	1	4	1
786	11	Brick	1	1954	1248	1	3	1
787	11	Aluminum / Vinyl	1	1955	1181	1	3	1
788	11	Aluminum / Vinyl	1	1947	1063	1	2	1
789	11	Aluminum / Vinyl	1	1950	1060	1	3	1
790	11	Brick	1	1951	1017	1	2	1
791	11	Aluminum / Vinyl	1	1949	925	1	3	1
792	11	Masonry / Frame	2	1951	2383	1	3	2
793	11	Aluminum / Vinyl	2	1987	2331	1	3	2
794	11	Frame	2	1984	2034	1	3	2
795	11	Masonry / Frame	2	1955	1846	1	4	2
796	11	Brick	1	1929	1865	1	3	1
797	11	Aluminum / Vinyl	1	1954	1436	1	2	1
798	11	Stone	1	1955	1407	1	3	2
799	11	Aluminum / Vinyl	1	1954	1183	1	3	1
800	11	Brick	1	1955	1153	1	3	1

801	11	Brick	1	1956	1150	1	3	1
802	11	Frame	1	1955	1147	1	3	1
803	11	Aluminum / Vinyl	1	1964	1094	1	3	1
804	11	Aluminum / Vinyl	1	1959	1073	1	3	1
805	11	Brick	1	1954	1013	1	3	1
806	11	Brick	1	1954	1013	1	3	1
807	11	Brick	1	1954	1010	1	3	1
808	11	Brick	1	1951	1008	1	3	1
809	11	Aluminum / Vinyl	1	1954	1001	1	3	1
810	11	Brick	1	1955	977	1	3	1
811	11	Aluminum / Vinyl	1	1954	941	1	3	1
812	11	Brick	1	1944	824	1	2	1
813	11	Aluminum / Vinyl	1	1952	778	1	2	1
814	11	Prem Wood	1	1964	2416	1	4	2
815	11	Aluminum / Vinyl	2	1975	2478	2	6	2
816	11	Aluminum / Vinyl	2	1963	2214	2	6	2
817	12	Aluminum / Vinyl	2	1966	1162	1	3	1
818	12	Aluminum / Vinyl	1	1903	828	1	2	1
819	12	Aluminum / Vinyl	2	1908	2316	2	6	2
820	12	Frame	1.5	1893	1728	2	4	2
821	13	Brick	1	1955	2184	1	5	2
822	13	Aluminum / Vinyl	1	1958	1408	1	4	1
823	13	Brick	1	1957	1026	1	2	1
824	13	Brick	1.5	1940	986	1	2	1
825	13	Aluminum / Vinyl	1	1923	877	1	2	2
826	13	Brick	1	1956	1829	1	4	2
827	13	Frame	1	1965	1555	1	4	1
828	13	Brick	1	1967	1427	1	4	1
829	13	Brick	1	1964	1289	1	3	1
830	13	Brick	1	1957	1168	1	3	1
831	13	Brick	1	1956	1150	1	2	2
832	13	Aluminum / Vinyl	1	1965	1124	1	3	1
833	13	Aluminum / Vinyl	1	1958	1120	1	3	1
834	13	Brick	1	1963	1116	1	3	1
835	13	Aluminum / Vinyl	1	1982	1064	1	3	1
836	13	Aluminum / Vinyl	1	1959	1053	1	3	1
837	13	Aluminum / Vinyl	1	1959	1029	1	3	1
838	13	Brick	1	1960	1025	1	3	1
839	13	Aluminum / Vinyl	1	1952	1016	1	3	1
840	13	Aluminum / Vinyl	1	1951	864	1	3	1
841	13	Aluminum / Vinyl	1	1951	783	1	2	1
842	13	Aluminum / Vinyl	1	1955	1273	1	2	1
843	14	Aluminum / Vinyl	1.5	1954	1409	1	4	1

844	14	Stucco	1	1944	1198	1	3	1
845	14	Brick	1	1948	1153	1	3	2
846	14	Aluminum / Vinyl	2	1954	1553	1	3	1
847	14	Aluminum / Vinyl	2	1938	1056	1	2	1
848	14	Aluminum / Vinyl	1.5	1927	2093	2	3	2
849	14	Aluminum / Vinyl	2	1923	2067	2	4	2
850	14	Aluminum / Vinyl	2	1905	3278	2	6	2
851	14	Aluminum / Vinyl	1.5	1906	2488	2	4	2
852	14	Aluminum / Vinyl	2	1884	2250	2	6	3
853	14	Aluminum / Vinyl	1.5	1890	1768	2	3	2
854	14	Aluminum / Vinyl	1.5	1908	1603	2	4	2
855	14	Aluminum / Vinyl	1.5	1922	1363	2	4	2
856	14	Frame	1	1933	1444	1	3	1
857	14	Brick	1	1956	1099	1	2	1
858	14	Brick	1	1959	980	1	2	1
859	14	Aluminum / Vinyl	1	1950	912	1	3	1
860	14	Brick	1	1953	892	1	2	1
861	14	Aluminum / Vinyl	1	1950	672	1	2	1
862	14	Aluminum / Vinyl	1.5	1890	2009	1	4	1
863	14	Frame	1.5	1890	1541	1	4	2
864	14	Aluminum / Vinyl	2	1925	1525	1	3	1
865	14	Aluminum / Vinyl	1	1910	1518	1	5	1
866	14	Aluminum / Vinyl	2	1909	1476	1	3	2
867	14	Aluminum / Vinyl	1.5	1905	1366	1	2	1
868	14	Aluminum / Vinyl	2	1909	1267	1	3	1
869	14	Aluminum / Vinyl	1.5	1920	1238	1	4	2
870	14	Stucco	1	1916	1135	1	2	1
871	14	Aluminum / Vinyl	1	1912	1070	1	3	1
872	14	Aluminum / Vinyl	1	1902	968	1	2	1
873	14	Aluminum / Vinyl	1	1908	892	1	3	1
874	14	Brick	1.5	1929	1639	1	3	1
875	15	Aluminum / Vinyl	2	2006	1458	1	3	1
876	15	Frame	2	1915	2616	2	6	2
877	15	Aluminum / Vinyl	2	1900	2009	2	4	2
878	15	Frame	1	1918	1835	1	5	1
879	15	Aluminum / Vinyl	1	1918	1506	1	5	1
880	1	Aluminum / Vinyl	1	1950	1071	1	3	1
881	1	Frame	2	1940	1186	1	3	1
882	1	Stone	1.5	1942	2168	2	3	2
883	1	Aluminum / Vinyl	1	1926	1169	1	3	1
884	1	Aluminum / Vinyl	1	1980	1619	1	3	2
885	1	Aluminum / Vinyl	1	1955	1082	1	3	1
886	1	Aluminum / Vinyl	1	1955	1082	1	3	1

887	1 Aluminum / Vinyl	1	1952	765	1	2	1
888	2 Aluminum / Vinyl	1	1951	1125	1	4	1
889	2 Aluminum / Vinyl	1	1962	1260	1	3	1
890	2 Brick	1	1955	1160	1	3	2
891	2 Brick	1	1956	1082	1	3	1
892	2 Brick	1	1955	1024	1	3	1
893	2 Frame	1	1961	1002	1	3	1
894	2 Aluminum / Vinyl	1	1955	950	1	3	1
895	2 Aluminum / Vinyl	1	1956	936	1	3	1
896	2 Aluminum / Vinyl	1	1957	874	1	3	1
897	2 Aluminum / Vinyl	1	1955	672	1	2	1
898	2 Aluminum / Vinyl	1	1955	1414	1	3	1
899	2 Masonry / Frame	2	1963	2281	2	6	2
900	2 Brick	1	1931	1436	1	4	1
901	3 Brick	2	1925	2934	2	4	2
902	3 Brick	1.5	1926	2555	2	5	2
903	3 Aluminum / Vinyl	1.5	1922	1641	2	3	2
904	3 Aluminum / Vinyl	1.5	1898	1846	2	5	2
905	3 Aluminum / Vinyl	1	1923	1919	1	4	2
906	3 Aluminum / Vinyl	2	1907	1993	1	3	1
907	3 Block	2	1905	1722	1	3	1
908	3 Aluminum / Vinyl	1	1889	1137	1	2	1
910	3 Brick	2	1914	3307	1	4	2
911	5 Aluminum / Vinyl	1	1941	1648	1	3	2
912	5 Aluminum / Vinyl	1	1952	1457	1	4	1
913	5 Frame	1	1950	1426	1	3	1
914	5 Brick	1	1955	1376	1	3	1
915	5 Brick	1	1949	1220	1	3	1
916	5 Aluminum / Vinyl	1	1948	1206	1	3	1
917	5 Brick	1.5	1947	1205	1	3	2
918	5 Aluminum / Vinyl	1	1952	1171	1	3	1
919	5 Stucco	1	1952	1156	1	3	2
920	5 Aluminum / Vinyl	1	1952	1153	1	3	1
921	5 Aluminum / Vinyl	1	1950	1132	1	3	1
922	5 Aluminum / Vinyl	1	1957	1130	1	4	1
923	5 Brick	1	1952	1088	1	3	1
924	5 Block	1	1940	1084	1	3	1
925	5 Aluminum / Vinyl	1	1950	1054	1	3	1
926	5 Aluminum / Vinyl	1	1951	1036	1	3	1
927	5 Brick	1	1953	1025	1	2	1
928	5 Aluminum / Vinyl	1	1950	1012	1	3	1
929	5 Aluminum / Vinyl	1	1942	981	1	3	1
930	5 Aluminum / Vinyl	1	1953	973	1	3	1

931	5	Aluminum / Vinyl	1	1950	971	1	3	1
932	5	Aluminum / Vinyl	1	1950	967	1	3	1
933	5	Aluminum / Vinyl	1	1953	963	1	3	1
934	5	Brick	1	1950	962	1	3	1
935	5	Aluminum / Vinyl	1	1950	691	1	2	1
936	5	Masonry / Frame	2	1958	2388	2	6	2
937	5	Masonry / Frame	2	1957	2330	2	6	2
938	5	Aluminum / Vinyl	1	1926	1345	1	4	1
939	5	Brick	1	1954	1744	1	2	1
940	5	Aluminum / Vinyl	1	1964	1399	1	3	1
941	5	Aluminum / Vinyl	1	1955	1361	1	3	1
942	5	Brick	1	1952	1200	1	3	2
943	5	Brick	1	1955	1161	1	3	1
944	5	Brick	1	1957	1134	1	3	1
945	5	Aluminum / Vinyl	1	1950	1130	1	3	2
946	5	Aluminum / Vinyl	1	1960	1120	1	3	1
947	5	Brick	1	1955	1068	1	2	1
948	5	Brick	1	1958	1040	1	3	2
949	5	Aluminum / Vinyl	1	1955	1022	1	3	1
950	5	Frame	1	1956	1008	1	3	1
951	5	Brick	1	1952	981	1	2	1
952	5	Stone	1	1950	980	1	2	1
953	5	Aluminum / Vinyl	1	1955	974	1	3	1
954	5	Frame	1	1955	974	1	3	1
955	5	Aluminum / Vinyl	1	1956	974	1	3	2
956	5	Aluminum / Vinyl	1	1955	948	1	3	1
957	5	Frame	1	1956	948	1	3	1
958	5	Aluminum / Vinyl	1	1957	907	1	2	1
959	5	Aluminum / Vinyl	1	1950	696	1	2	1
960	6	Aluminum / Vinyl	1	1895	798	1	2	1
961	6	Frame	2	1913	2778	2	6	2
962	6	Stucco	1.5	1914	1488	2	3	1
963	6	Aluminum / Vinyl	1.5	1925	1354	2	2	2
964	6	Frame	2	1900	2858	1	4	2
965	6	Aluminum / Vinyl	1	1900	1322	1	3	1
966	6	Frame	1	1900	1220	1	3	1
967	6	Frame	2	1912	2960	3	6	3
968	7	Stone	1	1948	1719	1	4	1
969	7	Masonry / Frame	2	1946	1455	1	3	1
970	7	Brick	2	1926	3128	2	6	2
971	7	Masonry / Frame	2	1937	2668	2	6	2
972	7	Frame	2	1912	1949	2	4	2
973	7	Brick	1	1926	1651	1	4	1

974	7	Brick	1	1952	1011	1	2	1
975	7	Aluminum / Vinyl	1.5	1915	1402	1	4	1
976	7	Aluminum / Vinyl	1	1916	1110	1	3	1
977	8	Aluminum / Vinyl	1	1885	1170	1	4	2
978	8	Brick	2	1908	2020	2	5	2
979	8	Aluminum / Vinyl	1.5	1898	1592	2	4	2
980	8	Aluminum / Vinyl	1	1890	1426	2	3	1
981	8	Aluminum / Vinyl	1	1896	1482	1	4	1
982	8	Frame	1	1898	1405	1	4	2
983	8	Aluminum / Vinyl	1	1920	1179	1	3	1
984	9	Aluminum / Vinyl	2	2001	2421	1	3	2
985	9	Aluminum / Vinyl	2	1978	1826	1	3	1
986	9	Aluminum / Vinyl	2	1996	1503	1	3	2
987	9	Frame	1	1938	711	1	2	1
988	9	Stone	1	1958	1750	1	3	1
989	9	Frame	1	1965	1227	1	3	1
990	9	Aluminum / Vinyl	1	1971	1200	1	3	1
991	9	Frame	1	1972	1200	1	4	1
992	9	Aluminum / Vinyl	1	1972	1120	1	3	1
993	9	Aluminum / Vinyl	1	1966	1107	1	3	1
994	9	Frame	1	1957	1080	1	3	1
995	9	Aluminum / Vinyl	1	1956	1064	1	3	1
996	9	Aluminum / Vinyl	1	1968	1063	1	3	1
997	9	Brick	1	1958	973	1	3	1
998	9	Brick	1	1958	927	1	3	1
999	9	Frame	1	1974	906	1	3	1
1000	10	Brick	1	1942	1624	1	3	1
1001	10	Aluminum / Vinyl	1	1952	1389	1	3	1
1002	10	Aluminum / Vinyl	1.5	1951	1353	1	3	2
1003	10	Brick	1	1947	1319	1	3	1
1004	10	Aluminum / Vinyl	1	1947	1275	1	3	1
1005	10	Frame	1	1952	1217	1	3	1
1006	10	Aluminum / Vinyl	1	1951	1119	1	3	1
1007	10	Aluminum / Vinyl	1	1947	1101	1	3	1
1008	10	Aluminum / Vinyl	1	1948	982	1	3	1
1009	10	Frame	2	1957	1980	1	3	2
1010	10	Aluminum / Vinyl	2	2004	1459	1	3	2
1011	10	Masonry / Frame	2	1926	1407	1	3	1
1012	10	Masonry / Frame	2	1929	2422	2	4	2
1013	10	Brick	1.5	1926	2365	2	4	2
1014	10	Aluminum / Vinyl	2	1928	2330	2	4	2
1015	10	Aluminum / Vinyl	1.5	1924	1830	2	4	2
1016	10	Aluminum / Vinyl	1.5	1929	1797	2	4	2

1017	10	Aluminum / Vinyl	2	1940	2012	2	4	2
1018	10	Brick	2	1952	1944	2	4	2
1019	10	Aluminum / Vinyl	2	1956	1872	2	4	2
1020	10	Aluminum / Vinyl	1	1926	1565	1	3	2
1021	10	Frame	1	1928	1452	1	4	1
1022	10	Frame	1	1928	1200	1	4	1
1023	10	Frame	1	1925	1188	1	2	1
1024	10	Aluminum / Vinyl	1	1927	1151	1	3	1
1025	10	Aluminum / Vinyl	1	1953	1384	1	3	1
1026	10	Aluminum / Vinyl	1.5	1904	1568	1	4	2
1027	10	Aluminum / Vinyl	1	1925	1448	1	3	1
1028	10	Aluminum / Vinyl	1	1905	1363	1	4	1
1029	10	Aluminum / Vinyl	1.5	1925	1215	1	3	1
1030	10	Aluminum / Vinyl	1	1910	936	1	2	2
1031	11	Stone	1	1938	1517	1	3	1
1032	11	Brick	1	1936	1412	1	3	1
1033	11	Stone	1	1942	1325	1	3	1
1034	11	Brick	1	1952	1264	1	2	1
1035	11	Brick	1	1955	1207	1	3	2
1036	11	Aluminum / Vinyl	1	1955	1193	1	4	1
1037	11	Brick	1	1953	1091	1	3	1
1038	11	Aluminum / Vinyl	1	1952	1034	1	3	1
1039	11	Aluminum / Vinyl	1	1952	983	1	3	1
1040	11	Aluminum / Vinyl	2	1954	1450	1	3	2
1041	11	Masonry / Frame	1.5	1964	2330	2	5	3
1042	11	Frame	1.5	1929	1904	2	3	2
1043	11	Aluminum / Vinyl	1	1959	1615	1	3	2
1044	11	Aluminum / Vinyl	1	1964	1334	1	3	1
1045	11	Brick	1	1957	1284	1	3	1
1046	11	Aluminum / Vinyl	1	1959	1257	1	3	1
1047	11	Block	1	1949	1244	1	2	1
1048	11	Brick	1	1958	1184	1	3	1
1049	11	Aluminum / Vinyl	1	1966	1174	1	3	1
1050	11	Brick	1	1956	1170	1	2	1
1051	11	Aluminum / Vinyl	1	1953	1158	1	3	1
1052	11	Brick	1	1955	1153	1	3	1
1053	11	Stone	1	1954	1138	1	2	1
1054	11	Aluminum / Vinyl	1	1957	1128	1	3	1
1055	11	Brick	1	1959	1120	1	3	1
1056	11	Brick	1	1954	1084	1	3	1
1057	11	Stone	1	1951	1059	1	2	1
1058	11	Brick	1	1958	1033	1	3	1
1059	11	Brick	1	1959	1031	1	3	1

1060	11	Brick	1	1959	1022	1	3	1
1061	11	Brick	1	1959	1022	1	3	1
1062	11	Aluminum / Vinyl	1	1956	1019	1	3	1
1063	11	Aluminum / Vinyl	1	1953	887	1	3	1
1064	11	Aluminum / Vinyl	1	1953	879	1	3	1
1065	11	Aluminum / Vinyl	1	1956	876	1	3	1
1066	11	Aluminum / Vinyl	1	1953	874	1	3	1
1067	11	Brick	1	1953	831	1	2	1
1068	11	Block	1	1945	742	1	2	1
1069	11	Brick	1	1969	1206	1	2	1
1070	11	Aluminum / Vinyl	2	1975	2478	2	6	2
1071	12	Aluminum / Vinyl	1	1900	1086	1	3	1
1072	12	Aluminum / Vinyl	1	1965	1104	1	3	1
1073	12	Brick	2	1922	1792	1	3	1
1074	12	Aluminum / Vinyl	1	1892	1597	1	4	1
1075	12	Aluminum / Vinyl	1	1905	1201	1	4	2
1077	13	Brick	1.5	1950	1504	1	3	2
1078	13	Stone	1	1947	1162	1	3	1
1079	13	Stucco	1	1939	1094	1	4	1
1080	13	Aluminum / Vinyl	1.5	1940	1002	1	3	1
1081	13	Brick	1	1954	883	1	2	1
1082	13	Aluminum / Vinyl	1.5	1949	1941	2	3	2
1083	13	Aluminum / Vinyl	2	1950	1502	2	4	2
1084	13	Aluminum / Vinyl	1	1926	1542	1	3	1
1085	13	Aluminum / Vinyl	1	1915	1338	1	3	1
1086	13	Aluminum / Vinyl	1	1925	1134	1	3	1
1087	13	Brick	1	1969	1837	1	3	1
1088	13	Brick	1	1960	1493	1	3	2
1089	13	Aluminum / Vinyl	1	1967	1433	1	3	1
1090	13	Brick	1	1959	1140	1	3	1
1091	13	Brick	1	1964	1116	1	3	2
1092	13	Aluminum / Vinyl	1	1981	1078	1	3	1
1093	13	Aluminum / Vinyl	1	1981	1066	1	3	1
1094	13	Aluminum / Vinyl	1	1961	1062	1	3	1
1095	13	Brick	1	1956	1051	1	3	1
1096	13	Aluminum / Vinyl	1	1960	972	1	3	1
1097	13	Aluminum / Vinyl	1	1959	956	1	3	1
1098	13	Aluminum / Vinyl	1	1960	942	1	3	1
1099	13	Aluminum / Vinyl	1	1953	900	1	3	1
1100	13	Brick	1	1955	811	1	2	1
1101	13	Frame	1	1953	745	1	2	1
1102	13	Aluminum / Vinyl	1	1947	672	1	2	1
1103	13	Aluminum / Vinyl	1	1932	1294	1	3	1

1104	14	Stone	1	1949	1407	1	2	2
1105	14	Aluminum / Vinyl	1	1947	1235	1	3	1
1106	14	Aluminum / Vinyl	1	1947	1107	1	3	1
1107	14	Aluminum / Vinyl	1	1953	1102	1	3	1
1108	14	Frame	1	1953	978	1	3	1
1109	14	Aluminum / Vinyl	1	1944	959	1	3	1
1110	14	Aluminum / Vinyl	1	1944	942	1	3	1
1111	14	Aluminum / Vinyl	1	1910	2015	1	3	1
1112	14	Aluminum / Vinyl	1	1898	810	1	2	1
1113	14	Aluminum / Vinyl	1	1898	810	1	2	1
1114	14	Aluminum / Vinyl	1	1895	796	1	2	1
1115	14	Aluminum / Vinyl	2	1926	2134	2	4	2
1116	14	Frame	1.5	1920	2062	2	4	2
1117	14	Aluminum / Vinyl	1.5	1922	1990	2	5	2
1118	14	Aluminum / Vinyl	1.5	1926	1943	2	5	2
1119	14	Stone	2	1939	2627	2	3	2
1120	14	Aluminum / Vinyl	2	1899	2525	2	6	2
1121	14	Aluminum / Vinyl	2	1892	1560	2	4	2
1122	14	Aluminum / Vinyl	2	1890	2548	2	5	2
1123	14	Brick	1	1930	2024	1	5	1
1124	14	Brick	1	1926	1711	1	4	1
1125	14	Brick	1	1929	1528	1	3	2
1126	14	Aluminum / Vinyl	1	1925	1340	1	3	1
1127	14	Brick	1	1968	1203	1	3	1
1128	14	Aluminum / Vinyl	1	1953	1056	1	2	1
1129	14	Aluminum / Vinyl	1	1931	866	1	2	1
1130	14	Aluminum / Vinyl	1	1947	791	1	2	1
1131	14	Masonry / Frame	2	1903	3896	1	5	0
1132	14	Stucco	2	1910	2248	1	5	2
1133	14	Aluminum / Vinyl	1	1914	1326	1	4	1
1134	14	Aluminum / Vinyl	1.5	1900	1057	1	3	1
1135	14	Frame	1.5	1925	765	1	1	1
1136	15	Aluminum / Vinyl	2	1996	1667	1	3	1
1137	15	Stucco	2	1914	2464	2	6	3
1138	15	Aluminum / Vinyl	1	1921	1397	1	3	1
1139	15	Frame	1	1890	949	1	3	1
1140	1	Aluminum / Vinyl	1.5	1938	1603	1	3	2
1141	1	Stucco	1	1950	1120	1	4	1
1142	1	Brick	1	1929	1420	1	3	1
1143	1	Aluminum / Vinyl	1	1929	1394	1	4	1
1144	1	Aluminum / Vinyl	1	1928	1205	1	4	1
1145	1	Aluminum / Vinyl	1	1929	798	1	2	1
1146	1	Aluminum / Vinyl	1	1958	1234	1	3	1

1147	1 Aluminum / Vinyl	1	1960	1151	1	3	1
1148	1 Aluminum / Vinyl	1	1951	720	1	2	1
1149	1 Aluminum / Vinyl	1	1951	713	1	2	1
1150	1 Stucco	1	1951	698	1	2	1
1151	1 Brick	1.5	1927	1105	1	2	1
1152	2 Aluminum / Vinyl	2	2003	2797	1	5	3
1153	2 Aluminum / Vinyl	2	2002	2706	1	4	2
1154	2 Stone	1	1952	1356	1	3	1
1155	2 Aluminum / Vinyl	1	1965	1223	1	3	1
1156	2 Aluminum / Vinyl	1	1966	1216	1	3	1
1157	2 Aluminum / Vinyl	1	1965	1149	1	3	1
1158	2 Aluminum / Vinyl	1	1960	1027	1	3	1
1159	2 Aluminum / Vinyl	1	1956	1019	1	3	1
1160	2 Brick	1	1957	947	1	2	1
1161	2 Aluminum / Vinyl	1	1958	936	1	3	1
1162	2 Aluminum / Vinyl	1	1957	909	1	3	1
1163	2 Aluminum / Vinyl	1	1957	903	1	3	1
1164	2 Aluminum / Vinyl	1	1957	873	1	2	1
1165	2 Frame	1	1955	864	1	3	1
1166	3 Brick	2	1935	2865	1	5	3
1167	3 Aluminum / Vinyl	2	1895	1806	2	4	2
1168	3 Frame	1	1916	1993	1	5	2
1169	3 Frame	2	1903	1804	1	5	1
1170	3 Aluminum / Vinyl	2	1889	2513	2	6	2
1171	5 Brick	1	1951	1642	1	3	2
1172	5 Stone	1	1951	1518	1	2	1
1173	5 Brick	1	1950	1432	1	3	1
1174	5 Brick	1.5	1937	1364	1	4	1
1175	5 Brick	1	1949	1359	1	3	1
1176	5 Aluminum / Vinyl	1	1953	1346	1	3	1
1177	5 Aluminum / Vinyl	1	1948	1341	1	4	1
1178	5 Brick	1	1951	1278	1	3	1
1179	5 Brick	1	1951	1278	1	3	1
1180	5 Frame	1	1952	1264	1	3	2
1181	5 Aluminum / Vinyl	1.5	1949	1238	1	4	1
1182	5 Aluminum / Vinyl	1	1952	1190	1	3	1
1183	5 Aluminum / Vinyl	1	1942	1165	1	2	1
1184	5 Brick	1	1951	1164	1	3	1
1185	5 Aluminum / Vinyl	1	1949	1140	1	3	1
1186	5 Brick	1	1950	1123	1	3	1
1187	5 Aluminum / Vinyl	1	1950	1070	1	3	1
1188	5 Aluminum / Vinyl	1	1948	1051	1	3	1
1189	5 Aluminum / Vinyl	1	1951	1050	1	3	1

1190	5 Aluminum / Vinyl	1	1953	1030	1	4	1
1191	5 Aluminum / Vinyl	1	1952	1014	1	3	1
1192	5 Aluminum / Vinyl	1	1954	964	1	3	1
1193	5 Aluminum / Vinyl	1	1950	906	1	3	2
1194	5 Aluminum / Vinyl	1	1955	840	1	2	1
1195	5 Fiber-Cement	2	2000	2573	1	4	3
1196	5 Aluminum / Vinyl	2	1953	1768	1	3	1
1197	5 Stone	1	1928	1889	2	3	2
1198	5 Masonry / Frame	2	1959	2783	2	6	2
1199	5 Brick	2	1952	2410	2	5	2
1200	5 Brick	2	1955	2278	2	4	2
1201	5 Brick	1	1953	1915	1	2	2
1202	5 Brick	1	1960	1281	1	3	1
1203	5 Aluminum / Vinyl	1	1958	1264	1	3	1
1204	5 Aluminum / Vinyl	1	1959	1217	1	3	1
1205	5 Aluminum / Vinyl	1	1980	1199	1	3	1
1206	5 Brick	1	1957	1188	1	3	1
1207	5 Aluminum / Vinyl	1	1955	1132	1	3	1
1208	5 Brick	1	1961	1075	1	3	1
1209	5 Aluminum / Vinyl	1	1952	1064	1	2	1
1210	5 Brick	1	1950	1032	1	3	1
1211	5 Aluminum / Vinyl	1	1956	1027	1	3	1
1212	5 Brick	1	1959	986	1	3	1
1213	5 Aluminum / Vinyl	1	1954	984	1	3	1
1214	5 Aluminum / Vinyl	1	1954	981	1	2	1
1215	5 Aluminum / Vinyl	1	1955	970	1	3	1
1216	6 Aluminum / Vinyl	1.5	1923	1896	2	3	2
1217	6 Aluminum / Vinyl	1	1925	1384	1	2	1
1218	6 Aluminum / Vinyl	1	1895	1088	1	3	1
1219	7 Stone	1	1937	1762	1	5	2
1220	7 Stone	1	1935	1397	1	3	1
1221	7 Aluminum / Vinyl	1	1938	1296	1	2	1
1222	7 Stucco	1.5	1937	1127	1	2	1
1223	7 Aluminum / Vinyl	1	1953	1008	1	2	1
1224	7 Aluminum / Vinyl	1	1927	856	1	3	1
1225	7 Masonry / Frame	2	1930	2782	2	4	2
1226	7 Stone	2	1939	2560	2	4	2
1227	7 Aluminum / Vinyl	1.5	1957	2002	2	5	2
1228	7 Stone	1	1939	951	1	2	1
1229	7 Brick	1	1950	752	1	2	1
1230	8 Aluminum / Vinyl	1	1940	896	1	2	1
1231	8 Aluminum / Vinyl	2	1908	3356	2	8	2
1232	8 Frame	2	1912	2138	2	5	2

1233	8 Aluminum / Vinyl	1.5	1916	1760	2	5	2
1234	8 Frame	1.5	1906	1365	2	3	2
1235	8 Aluminum / Vinyl	1	1928	1612	1	4	1
1236	8 Aluminum / Vinyl	1.5	1899	1767	1	3	2
1237	8 Aluminum / Vinyl	1	1902	961	1	4	1
1238	9 Aluminum / Vinyl	2	2009	2220	1	4	2
1239	9 Aluminum / Vinyl	2	1967	1602	1	4	1
1240	9 Aluminum / Vinyl	1	2005	1920	1	3	3
1241	9 Stone	1	1958	1750	1	3	1
1242	9 Aluminum / Vinyl	1	1978	1327	1	3	1
1243	9 Aluminum / Vinyl	1	1966	1227	1	3	1
1244	9 Aluminum / Vinyl	1	1981	1209	1	3	2
1245	9 Frame	1	1962	1177	1	3	1
1246	9 Aluminum / Vinyl	1	1967	1063	1	3	1
1247	9 Brick	1	1959	992	1	3	1
1248	9 Aluminum / Vinyl	2	1980	2464	2	6	2
1249	10 Brick	1.5	1939	1619	1	3	2
1250	10 Aluminum / Vinyl	1.5	1939	1573	1	3	1
1251	10 Brick	1	1953	1389	1	3	1
1252	10 Brick	1	1947	1127	1	3	1
1253	10 Stone	1	1941	1120	1	2	1
1254	10 Frame	1.5	1939	1116	1	2	1
1255	10 Brick	1	1946	1038	1	3	1
1256	10 Brick	1	1951	1033	1	3	1
1257	10 Aluminum / Vinyl	1	1952	728	1	2	1
1258	10 Masonry / Frame	2	1952	1486	1	3	1
1259	10 Aluminum / Vinyl	2	1938	1134	1	2	1
1260	10 Aluminum / Vinyl	1.5	1927	1947	2	3	2
1261	10 Brick	1.5	1929	1945	2	3	2
1262	10 Masonry / Frame	2	1952	2688	2	6	2
1263	10 Aluminum / Vinyl	1.5	1926	1708	1	4	3
1264	10 Aluminum / Vinyl	1	1924	1701	1	4	1
1265	10 Aluminum / Vinyl	1	1919	1632	1	5	2
1266	10 Brick	1	1923	1557	1	4	1
1267	10 Aluminum / Vinyl	1	1926	1424	1	3	1
1268	10 Aluminum / Vinyl	1	1926	1404	1	3	1
1269	10 Aluminum / Vinyl	1	1919	1314	1	4	1
1270	10 Aluminum / Vinyl	1	1927	1062	1	2	1
1271	10 Brick	1	1931	1053	1	2	1
1272	10 Aluminum / Vinyl	1	1919	1027	1	4	1
1273	10 Aluminum / Vinyl	1	1926	982	1	2	1
1274	10 Aluminum / Vinyl	1	1926	923	1	2	1
1275	10 Brick	1	1955	1488	1	4	1

1276	10	Brick	1	1954	1278	1	3	1
1277	10	Aluminum / Vinyl	1	1950	743	1	2	1
1278	10	Aluminum / Vinyl	1	1955	692	1	2	1
1279	10	Aluminum / Vinyl	1	1920	1304	1	3	1
1280	10	Frame	1	1924	1175	1	3	2
1281	10	Aluminum / Vinyl	1	1923	1008	1	3	1
1282	10	Brick	1	1923	880	1	2	1
1283	10	Aluminum / Vinyl	1	1921	768	1	2	1
1284	10	Stone	1.5	1931	1837	1	3	1
1285	10	Stone	1.5	1931	1837	1	3	1
1286	11	Aluminum / Vinyl	1	1952	1833	1	4	2
1287	11	Stone	1	1951	1710	1	2	1
1288	11	Aluminum / Vinyl	1	1956	1611	1	4	1
1289	11	Stone	1.5	1950	1598	1	3	1
1290	11	Aluminum / Vinyl	1	1950	1588	1	3	2
1291	11	Aluminum / Vinyl	1	1953	1325	1	3	3
1292	11	Brick	1	1949	1294	1	3	2
1293	11	Aluminum / Vinyl	1	1959	1159	1	4	1
1294	11	Aluminum / Vinyl	1	1954	1142	1	4	2
1295	11	Aluminum / Vinyl	1	1949	1032	1	3	1
1296	11	Aluminum / Vinyl	1	1942	1023	1	3	1
1297	11	Brick	1	1950	975	1	2	1
1298	11	Stone	2	1945	1858	1	3	1
1299	11	Aluminum / Vinyl	2	1956	1540	1	3	1
1300	11	Brick	2	1936	1448	1	3	1
1301	11	Aluminum / Vinyl	1.5	1968	1985	2	5	2
1302	11	Brick	1	1966	1443	1	3	1
1303	11	Aluminum / Vinyl	1	1942	1411	1	3	2
1304	11	Brick	1	1967	1383	1	3	1
1305	11	Brick	1	1958	1350	1	3	1
1306	11	Brick	1	1966	1264	1	3	1
1307	11	Aluminum / Vinyl	1	1959	1250	1	3	1
1308	11	Brick	1	1959	1225	1	2	1
1309	11	Aluminum / Vinyl	1	1962	1169	1	3	1
1310	11	Brick	1	1960	1144	1	3	1
1311	11	Brick	1	1959	1135	1	3	1
1312	11	Brick	1	1959	1131	1	3	2
1313	11	Brick	1	1959	1126	1	3	1
1314	11	Aluminum / Vinyl	1	1965	1107	1	3	1
1315	11	Aluminum / Vinyl	1	1959	1080	1	3	1
1316	11	Brick	1	1972	1078	1	1	2
1317	11	Aluminum / Vinyl	1	1962	1058	1	3	1
1318	11	Frame	1	1957	1053	1	3	1

1319	11	Brick	1	1959	1023	1	3	1
1320	11	Stone	1	1955	1015	1	3	1
1321	11	Brick	1	1953	1013	1	3	1
1322	11	Aluminum / Vinyl	1	1942	1008	1	3	1
1323	11	Aluminum / Vinyl	1	1956	973	1	2	1
1324	11	Frame	1	1953	962	1	2	1
1325	11	Aluminum / Vinyl	1	1953	956	1	3	1
1326	11	Aluminum / Vinyl	1	1960	931	1	3	1
1327	11	Brick	1	1956	923	1	3	1
1328	11	Frame	1	1951	886	1	2	1
1329	11	Aluminum / Vinyl	1	1953	864	1	3	1
1330	11	Aluminum / Vinyl	1	1956	864	1	3	1
1331	11	Aluminum / Vinyl	1	1942	794	1	2	1
1332	11	Block	1	1945	781	1	2	2
1333	11	Aluminum / Vinyl	1	1951	644	1	2	1
1334	11	Brick	1.5	1918	1616	1	2	1
1335	12	Aluminum / Vinyl	2	2006	1684	1	4	2
1336	12	Aluminum / Vinyl	1	1899	1191	1	3	2
1337	12	Aluminum / Vinyl	1	1900	1178	1	3	1
1338	12	Aluminum / Vinyl	1	1900	978	1	3	1
1339	12	Aluminum / Vinyl	1	1905	1496	2	4	2
1340	12	Aluminum / Vinyl	1.5	1873	1692	1	4	2
1341	12	Stucco	1	1903	1024	1	3	1
1343	12	Frame	2	1900	2766	3	7	3
1344	13	Brick	1	1955	1583	1	4	2
1345	13	Brick	1	1952	1400	1	4	1
1346	13	Brick	1	1950	1377	1	3	2
1347	13	Brick	1	1950	1172	1	2	1
1348	13	Aluminum / Vinyl	1	1961	1160	1	4	1
1349	13	Brick	1	1951	1142	1	3	1
1350	13	Stone	1	1950	1109	1	3	1
1351	13	Brick	1.5	1936	1078	1	2	1
1352	13	Aluminum / Vinyl	1	1947	1046	1	3	1
1353	13	Brick	1	1953	1042	1	3	1
1354	13	Aluminum / Vinyl	1	1947	834	1	2	1
1355	13	Aluminum / Vinyl	1	1906	1320	1	4	2
1356	13	Aluminum / Vinyl	1.5	1885	1143	1	2	1
1357	13	Brick	1.5	1925	2224	2	5	2
1358	13	Masonry / Frame	2	1949	1800	2	4	2
1359	13	Aluminum / Vinyl	2	1950	1417	2	3	2
1360	13	Frame	1	1927	1324	1	3	2
1361	13	Brick	1	1968	1539	1	2	2
1362	13	Aluminum / Vinyl	1	1974	1324	1	3	1

1363	13	Brick	1	1961	1196	1	3	1
1364	13	Aluminum / Vinyl	1	1963	1148	1	3	1
1365	13	Aluminum / Vinyl	1	1950	1102	1	2	1
1366	13	Brick	1	1960	1064	1	3	1
1367	13	Brick	1	1961	1036	1	3	2
1368	13	Aluminum / Vinyl	1	1959	970	1	3	1
1369	13	Aluminum / Vinyl	1	1953	744	1	2	1
1370	13	Aluminum / Vinyl	1	1950	699	1	2	1
1371	13	Aluminum / Vinyl	1	1955	672	1	2	1
1372	13	Frame	1	1929	1130	1	2	1
1373	14	Aluminum / Vinyl	1	1951	1098	1	4	1
1374	14	Brick	2	1940	1838	1	3	1
1375	14	Aluminum / Vinyl	2	2006	1682	1	3	2
1376	14	Aluminum / Vinyl	2	1941	1213	1	2	1
1377	14	Aluminum / Vinyl	2	1950	986	1	2	1
1378	14	Aluminum / Vinyl	1	1896	1127	1	3	1
1379	14	Aluminum / Vinyl	1	1898	864	1	2	1
1380	14	Aluminum / Vinyl	1.5	1930	2152	2	5	2
1381	14	Aluminum / Vinyl	1.5	1925	1873	2	4	2
1382	14	Aluminum / Vinyl	1.5	1927	1626	2	3	2
1383	14	Aluminum / Vinyl	1.5	1925	1410	2	3	2
1384	14	Block	1.5	1900	1761	2	4	2
1385	14	Aluminum / Vinyl	1.5	1921	1627	1	3	2
1386	14	Brick	1.5	1930	2062	1	4	2
1387	14	Aluminum / Vinyl	1	1924	1931	1	5	2
1388	14	Brick	1	1925	1774	1	3	1
1389	14	Aluminum / Vinyl	1.5	1920	1155	1	3	1
1390	14	Aluminum / Vinyl	1	1927	1060	1	2	1
1391	14	Aluminum / Vinyl	1	1964	1792	1	3	1
1392	14	Aluminum / Vinyl	1	1951	1056	1	3	1
1393	14	Aluminum / Vinyl	1	1969	973	1	2	1
1394	14	Aluminum / Vinyl	1	1941	934	1	2	1
1395	14	Aluminum / Vinyl	1	1941	853	1	2	1
1396	14	Aluminum / Vinyl	1	1950	725	1	2	1
1397	14	Aluminum / Vinyl	1	1948	679	1	2	1
1398	14	Stucco	1	1952	672	1	1	1
1399	14	Prem Wood	1	1905	1479	1	2	1
1400	14	Aluminum / Vinyl	1	1899	1419	1	3	2
1401	14	Aluminum / Vinyl	1.5	1922	1386	1	2	3
1402	14	Frame	1	1904	1315	1	2	1
1403	14	Aluminum / Vinyl	1	1916	1191	1	3	1
1404	14	Aluminum / Vinyl	1	1922	1060	1	3	1
1405	14	Frame	1.5	1921	1002	1	2	1

1406	14	Brick	1	1932	888	1	2	1
1407	14	Aluminum / Vinyl	1	1925	829	1	2	1
1408	14	Brick	2	1954	1769	2	4	2
1409	15	Aluminum / Vinyl	1.5	1900	1771	1	4	2
1410	15	Aluminum / Vinyl	1	1890	1425	1	4	1
1411	15	Frame	1	1891	1124	1	4	1
1412	15	Masonry / Frame	2	1928	2922	1	5	2
1413	1	Stone	1	1946	1670	1	4	1
1414	1	Aluminum / Vinyl	1	1964	1213	1	3	1
1415	1	Frame	1	1952	1144	1	3	1
1416	1	Aluminum / Vinyl	2	1924	1171	1	2	2
1417	1	Aluminum / Vinyl	1	1927	957	1	4	1
1418	2	Brick	1	1956	1090	1	3	1
1419	2	Masonry / Frame	2	1959	1635	1	3	1
1420	2	Frame	1	1925	640	1	2	1
1421	2	Brick	1.5	1958	2013	2	5	2
1422	2	Brick	1	1958	1287	1	3	1
1423	2	Aluminum / Vinyl	1	1955	1284	1	2	1
1424	2	Brick	1	1958	1215	1	3	1
1425	2	Aluminum / Vinyl	1	1960	1183	1	3	1
1426	2	Brick	1	1959	1153	1	3	1
1427	2	Frame	1	1971	948	1	3	1
1428	2	Aluminum / Vinyl	1	1958	938	1	3	1
1429	2	Aluminum / Vinyl	1	1955	936	1	3	1
1430	2	Frame	1	1955	864	1	3	1
1431	3	Fiber-Cement	2	1890	1852	1	5	3
1432	3	Frame	2	1922	2196	2	4	2
1433	3	Aluminum / Vinyl	1.5	1889	1680	2	5	2
1434	3	Frame	1.5	1901	1643	2	4	2
1435	3	Frame	1.5	1895	1557	2	4	1
1436	3	Aluminum / Vinyl	1	1926	1384	1	4	1
1437	3	Frame	2	1897	4077	1	5	3
1438	3	Stucco	2	1920	3037	1	5	3
1439	3	Brick	2	1922	2242	1	4	2
1440	3	Aluminum / Vinyl	1.5	1890	1408	1	3	2
1441	3	Aluminum / Vinyl	1.5	1891	1291	1	3	2
1442	3	Stucco	2	1911	3486	1	5	2
1443	4	Brick	2	1885	4140	2	6	2
1444	5	Brick	1	1948	1473	1	4	2
1445	5	Brick	1	1948	1274	1	3	1
1446	5	Brick	1	1953	1261	1	3	1
1447	5	Aluminum / Vinyl	1	1949	1255	1	3	1
1448	5	Aluminum / Vinyl	1	1951	1255	1	3	1

1449	5 Aluminum / Vinyl	1	1948	1142	1	3	1
1450	5 Brick	1	1949	1125	1	2	1
1451	5 Brick	1	1949	1086	1	3	1
1452	5 Aluminum / Vinyl	1	1946	1048	1	3	1
1453	5 Aluminum / Vinyl	1	1952	1005	1	3	1
1454	5 Aluminum / Vinyl	1	1941	921	1	3	1
1455	5 Masonry / Frame	2	1951	1473	1	3	1
1456	5 Masonry / Frame	2	1939	1188	1	3	1
1457	5 Brick	1	1950	2411	2	4	2
1458	5 Masonry / Frame	2	1959	2386	2	6	2
1459	5 Brick	1.5	1952	2156	2	5	2
1460	5 Stone	1	1950	1922	1	2	2
1461	5 Masonry / Frame	1	1961	1749	1	3	1
1462	5 Aluminum / Vinyl	1	2004	1672	1	3	2
1463	5 Frame	1	1956	1498	1	3	1
1464	5 Brick	1	1948	1426	1	3	1
1465	5 Brick	1	1956	1388	1	3	1
1466	5 Aluminum / Vinyl	1	1957	1384	1	4	1
1467	5 Aluminum / Vinyl	1	1963	1120	1	3	1
1468	5 Brick	1	1949	1053	1	2	1
1469	5 Aluminum / Vinyl	1	1956	1051	1	3	1
1470	5 Aluminum / Vinyl	1	1955	1050	1	3	1
1471	5 Brick	1	1951	1016	1	3	1
1472	5 Aluminum / Vinyl	1	1949	989	1	2	1
1473	5 Aluminum / Vinyl	1	1954	962	1	3	1
1474	5 Brick	1	1955	935	1	2	2
1475	5 Brick	1	1951	744	1	2	1
1476	5 Aluminum / Vinyl	1.5	1925	1019	1	3	1
1477	6 Aluminum / Vinyl	1.5	1924	1807	2	4	2
1478	6 Aluminum / Vinyl	1	1919	1313	1	2	1
1479	6 Frame	1	1925	1212	1	3	1
1480	6 Aluminum / Vinyl	2	1963	956	1	3	1
1481	7 Aluminum / Vinyl	1.5	1939	1315	1	3	1
1482	7 Brick	1	1937	941	1	3	1
1483	7 Aluminum / Vinyl	1	1949	678	1	2	1
1484	7 Stone	2	1944	2408	2	4	2
1485	7 Aluminum / Vinyl	1.5	1926	2045	2	4	2
1486	7 Aluminum / Vinyl	1.5	1913	1712	2	4	2
1487	7 Frame	1	1925	1593	1	3	1
1488	7 Brick	1	1927	1589	1	4	1
1489	7 Brick	1.5	1934	1604	1	3	1
1490	8 Aluminum / Vinyl	1	1900	1031	1	3	1
1491	8 Aluminum / Vinyl	1.5	1913	2019	2	4	2

1492	8	Frame	1.5	1918	1809	2	3	2
1493	8	Aluminum / Vinyl	1	1924	1556	1	4	2
1494	8	Stucco	1	1920	1458	1	5	1
1495	8	Frame	2	1924	1762	1	3	3
1496	8	Aluminum / Vinyl	1.5	1900	1637	1	5	2
1497	8	Aluminum / Vinyl	1	1909	1576	1	5	1
1498	8	Aluminum / Vinyl	1.5	1920	1024	1	3	1
1499	8	Stucco	1.5	1910	2816	3	6	3
1500	9	Aluminum / Vinyl	1	1957	1482	1	4	1
1501	9	Aluminum / Vinyl	1	1964	1390	1	4	1
1502	9	Aluminum / Vinyl	1	1969	1325	1	3	1
1503	9	Aluminum / Vinyl	1	1978	1320	1	3	1
1504	9	Brick	1	1957	1131	1	3	1
1505	9	Aluminum / Vinyl	1	1962	1074	1	3	1
1506	10	Frame	1	1952	1291	1	3	1
1507	10	Aluminum / Vinyl	1	1942	1247	1	3	2
1508	10	Stone	1	1945	1113	1	3	1
1509	10	Aluminum / Vinyl	1	1942	968	1	3	1
1510	10	Aluminum / Vinyl	1	1952	728	1	2	1
1511	10	Stone	2	1941	1894	1	3	1
1512	10	Brick	2	1938	1694	1	3	1
1513	10	Aluminum / Vinyl	2	1921	1657	1	3	1
1514	10	Aluminum / Vinyl	2	1926	1271	1	3	1
1515	10	Aluminum / Vinyl	1	1927	872	1	1	1
1516	10	Brick	1.5	1928	2108	2	5	2
1517	10	Brick	1	1925	1975	2	3	3
1518	10	Aluminum / Vinyl	2	1923	1918	2	4	2
1519	10	Brick	1.5	1929	1821	2	4	2
1520	10	Brick	2	1967	2104	2	4	2
1521	10	Stone	2	1945	2026	2	4	2
1522	10	Stone	2	1945	2026	2	4	2
1523	10	Aluminum / Vinyl	1	1928	1279	1	3	1
1524	10	Aluminum / Vinyl	1	1929	1253	1	3	1
1525	10	Brick	1	1922	1221	1	3	1
1526	10	Stone	1	1949	1370	1	2	1
1527	10	Stone	1	1949	1011	1	2	1
1528	10	Aluminum / Vinyl	1	1949	808	1	2	1
1529	10	Stucco	1	1916	1397	1	3	1
1530	10	Aluminum / Vinyl	1	1923	990	1	4	1
1531	10	Frame	1	1925	870	1	1	1
1532	10	Frame	2	1928	2990	3	5	3
1533	10	Brick	2	1928	3178	1	5	3
1534	10	Brick	1	1928	1413	1	2	1

1535	11 Aluminum / Vinyl	1	1963	1696	1	4	2
1536	11 Aluminum / Vinyl	1.5	1940	1467	1	3	1
1537	11 Brick	1	1952	1400	1	4	1
1538	11 Brick	1	1950	1320	1	4	1
1539	11 Stone	1	1953	1246	1	3	1
1540	11 Brick	1	1950	1225	1	3	1
1541	11 Brick	1	1938	1205	1	3	1
1542	11 Aluminum / Vinyl	1	1949	1183	1	3	1
1543	11 Aluminum / Vinyl	1	1952	1082	1	4	1
1544	11 Aluminum / Vinyl	1	1946	1036	1	3	1
1545	11 Aluminum / Vinyl	1	1953	1004	1	3	1
1546	11 Aluminum / Vinyl	1	1958	934	1	3	1
1547	11 Brick	1	1940	887	1	2	1
1548	11 Aluminum / Vinyl	1	1955	800	1	2	1
1549	11 Stone	2	1932	2942	1	4	1
1550	11 Aluminum / Vinyl	2	1985	1858	1	4	2
1551	11 Brick	2	1950	1604	1	3	1
1552	11 Stone	2	1937	1584	1	3	1
1553	11 Aluminum / Vinyl	2	1942	1288	1	3	1
1554	11 Aluminum / Vinyl	1.5	1929	1954	2	4	2
1555	11 Masonry / Frame	2	1959	2299	2	6	2
1556	11 Aluminum / Vinyl	1.5	1957	2237	2	5	2
1557	11 Brick	1.5	1956	2114	2	5	3
1558	11 Brick	1.5	1957	1616	2	4	2
1559	11 Aluminum / Vinyl	1	1920	1645	1	4	1
1560	11 Brick	1	1928	1102	1	3	1
1561	11 Brick	1	1964	1806	1	4	2
1562	11 Brick	1	1959	1468	1	3	1
1563	11 Brick	1	1958	1189	1	3	1
1564	11 Brick	1	1955	1153	1	3	1
1565	11 Aluminum / Vinyl	1	1954	1123	1	3	1
1566	11 Brick	1	1954	1112	1	3	1
1567	11 Brick	1	1955	1109	1	3	1
1568	11 Brick	1	1958	1094	1	3	1
1569	11 Brick	1	1959	1091	1	3	1
1570	11 Brick	1	1954	1085	1	3	1
1571	11 Aluminum / Vinyl	1	1950	1072	1	3	1
1572	11 Aluminum / Vinyl	1	1955	1020	1	2	1
1573	11 Brick	1	1952	1013	1	3	1
1574	11 Brick	1	1954	998	1	2	1
1575	11 Stone	1	1950	982	1	3	2
1576	11 Aluminum / Vinyl	1	1955	955	1	2	2
1577	11 Aluminum / Vinyl	1	1952	954	1	2	1

1578	11	Brick	1	1956	940	1	3	1
1579	11	Aluminum / Vinyl	1	1953	879	1	3	1
1580	11	Aluminum / Vinyl	1	1956	864	1	2	1
1581	11	Aluminum / Vinyl	1	1942	833	1	2	1
1582	11	Brick	1	1947	826	1	2	1
1583	11	Aluminum / Vinyl	1	1952	811	1	2	1
1584	11	Aluminum / Vinyl	2	1986	2524	2	4	2
1585	11	Brick	2	1944	1870	2	4	2
1586	12	Frame	2	1913	1692	2	4	2
1587	13	Aluminum / Vinyl	1	1971	1494	1	4	1
1588	13	Brick	1	1954	1619	1	4	1
1589	13	Aluminum / Vinyl	1	1966	1608	1	4	2
1590	13	Block	1	1936	1430	1	4	1
1591	13	Aluminum / Vinyl	1	1942	1242	1	3	1
1592	13	Aluminum / Vinyl	1	1935	1215	1	3	1
1593	13	Aluminum / Vinyl	1	1950	1183	1	3	1
1594	13	Brick	1	1939	1173	1	3	2
1595	13	Aluminum / Vinyl	1	1943	1148	1	3	1
1596	13	Stucco	1	1949	1057	1	3	2
1597	13	Aluminum / Vinyl	1	1958	991	1	3	1
1598	13	Aluminum / Vinyl	1.5	1950	2005	2	3	3
1599	13	Block	1	1912	1572	2	4	2
1600	13	Aluminum / Vinyl	1	1928	1446	1	3	2
1601	13	Aluminum / Vinyl	1	1977	1550	1	3	1
1602	13	Frame	1	1958	1424	1	3	2
1603	13	Aluminum / Vinyl	1	1963	1329	1	3	2
1604	13	Brick	1	1960	1201	1	2	2
1605	13	Brick	1	1956	1189	1	3	1
1606	13	Aluminum / Vinyl	1	1969	1092	1	3	1
1607	13	Frame	1	1960	965	1	3	1
1608	13	Aluminum / Vinyl	1	1950	911	1	3	1
1609	13	Aluminum / Vinyl	1	1954	870	1	2	1
1610	13	Aluminum / Vinyl	1	1947	861	1	2	1
1611	13	Aluminum / Vinyl	1	1940	852	1	2	1
1612	13	Aluminum / Vinyl	1	1947	732	1	2	1
1613	13	Aluminum / Vinyl	1.5	1926	1172	1	4	1
1614	14	Aluminum / Vinyl	1	1939	1238	1	3	2
1615	14	Aluminum / Vinyl	1	1953	1226	1	4	1
1616	14	Aluminum / Vinyl	1	1944	1168	1	3	1
1617	14	Brick	1	1944	1100	1	4	1
1618	14	Aluminum / Vinyl	1	1953	1090	1	4	1
1619	14	Aluminum / Vinyl	1	1950	1040	1	4	1
1620	14	Prem Wood	2	2007	1826	1	4	2

1621	14	Aluminum / Vinyl	2	1938	1320	1	3	1
1622	14	Aluminum / Vinyl	1.5	1900	1356	1	3	2
1623	14	Aluminum / Vinyl	2	1924	2472	2	5	2
1624	14	Brick	2	1932	2208	2	4	2
1625	14	Aluminum / Vinyl	1.5	1923	1875	2	4	2
1626	14	Aluminum / Vinyl	2	1890	2424	2	4	2
1627	14	Brick	1.5	1930	2381	2	3	2
1628	14	Aluminum / Vinyl	2	1925	1848	2	4	2
1629	14	Aluminum / Vinyl	1.5	1910	1680	2	3	2
1630	14	Aluminum / Vinyl	1	1913	1922	2	5	2
1631	14	Aluminum / Vinyl	2	1892	1814	2	4	2
1632	14	Brick	1	1925	2261	1	3	2
1633	14	Stone	1	1933	1650	1	3	1
1634	14	Aluminum / Vinyl	1	1930	1542	1	4	1
1635	14	Aluminum / Vinyl	1	1926	1434	1	3	1
1636	14	Aluminum / Vinyl	1	1910	1372	1	3	1
1637	14	Aluminum / Vinyl	1	1927	1248	1	3	1
1638	14	Brick	1	1928	1145	1	3	1
1639	14	Aluminum / Vinyl	1	1956	1003	1	3	1
1640	14	Aluminum / Vinyl	1	1943	710	1	2	1
1641	14	Frame	1	1908	1519	1	5	2
1642	14	Aluminum / Vinyl	1	1906	1470	1	4	2
1643	14	Aluminum / Vinyl	1.5	1908	1290	1	3	1
1644	14	Aluminum / Vinyl	1.5	1911	1283	1	4	1
1645	14	Aluminum / Vinyl	1	1921	1120	1	3	1
1646	14	Aluminum / Vinyl	1	1890	959	1	2	1
1647	15	Aluminum / Vinyl	1	1922	1962	1	5	2
1648	15	Aluminum / Vinyl	1	1899	1238	1	4	1
1649	1	Brick	1	1937	1466	1	3	2
1650	1	Brick	1	1941	1456	1	4	1
1651	1	Aluminum / Vinyl	1	1946	1384	1	5	1
1652	1	Aluminum / Vinyl	1	1953	1298	1	4	2
1653	1	Aluminum / Vinyl	1.5	1937	1120	1	2	1
1654	1	Aluminum / Vinyl	1.5	1936	1054	1	2	1
1655	1	Aluminum / Vinyl	2	1936	1144	1	3	1
1656	1	Aluminum / Vinyl	2	1914	1835	2	4	2
1657	1	Aluminum / Vinyl	1	1924	1340	1	4	1
1658	1	Aluminum / Vinyl	1	1926	1214	1	3	1
1659	1	Aluminum / Vinyl	1	1955	1082	1	3	1
1660	1	Aluminum / Vinyl	1	1954	963	1	3	1
1661	1	Aluminum / Vinyl	1	1953	870	1	3	1
1662	1	Aluminum / Vinyl	1	1939	795	1	2	1
1663	1	Brick	1	1929	1548	1	4	2

1664	2 Aluminum / Vinyl	1.5	1951	1428	1	4	1
1665	2 Aluminum / Vinyl	1.5	1935	1309	1	5	1
1666	2 Aluminum / Vinyl	1	1952	1073	1	4	1
1667	2 Brick	1	1947	920	1	2	1
1668	2 Aluminum / Vinyl	1	1929	1153	1	3	1
1669	2 Frame	1	1963	1408	1	3	2
1670	2 Frame	1	1966	1308	1	4	1
1671	2 Aluminum / Vinyl	1	1967	1215	1	3	1
1672	2 Aluminum / Vinyl	1	1959	1135	1	3	1
1673	2 Brick	1	1959	1116	1	3	2
1674	2 Aluminum / Vinyl	1	1946	1040	1	2	1
1675	2 Aluminum / Vinyl	1	1956	925	1	3	1
1676	2 Frame	1	1959	910	1	3	1
1677	2 Aluminum / Vinyl	1	1957	886	1	3	1
1678	2 Aluminum / Vinyl	1	1955	864	1	3	1
1679	2 Aluminum / Vinyl	1	1954	864	1	3	1
1680	3 Aluminum / Vinyl	1	1898	1296	1	3	1
1681	3 Aluminum / Vinyl	1	1895	870	1	4	2
1682	3 Aluminum / Vinyl	1.5	1925	2225	2	4	2
1683	3 Frame	2	1920	2016	2	6	2
1684	3 Aluminum / Vinyl	1.5	1917	1761	2	4	2
1685	3 Brick	1	1926	1420	1	3	1
1686	3 Brick	2	1912	3066	1	6	2
1687	3 Stucco	2	1922	1947	1	4	1
1688	3 Stucco	2	1910	1886	1	3	1
1689	3 Stucco	2	1910	1886	1	3	1
1690	3 Stucco	2	1912	1805	1	4	1
1691	3 Aluminum / Vinyl	1	1892	1080	1	3	1
1692	4 Frame	2	1908	2362	1	5	1
1693	5 Stone	1	1951	1417	1	3	1
1694	5 Brick	1	1947	1374	1	3	1
1695	5 Stone	1	1946	1272	1	3	1
1696	5 Aluminum / Vinyl	1	1946	1264	1	3	1
1697	5 Brick	1	1952	1230	1	2	1
1698	5 Brick	1	1952	1166	1	3	2
1699	5 Aluminum / Vinyl	1	1952	981	1	3	1
1700	5 Aluminum / Vinyl	1	1951	980	1	2	1
1701	5 Aluminum / Vinyl	1	1951	980	1	2	1
1702	5 Aluminum / Vinyl	1	1942	812	1	2	1
1703	5 Masonry / Frame	2	1965	2252	1	5	3
1704	5 Aluminum / Vinyl	1.5	1922	1817	2	5	2
1705	5 Brick	1	1956	2458	2	5	2
1706	5 Aluminum / Vinyl	1	1968	1552	1	3	1

1707	5	Stone	1	1956	1535	1	3	1
1708	5	Stone	1	1950	1507	1	4	2
1709	5	Brick	1	1997	1456	1	3	1
1710	5	Aluminum / Vinyl	1	1949	1328	1	2	2
1711	5	Brick	1	1961	1324	1	3	2
1712	5	Brick	1	1958	1180	1	3	1
1713	5	Brick	1	1952	1153	1	2	1
1714	5	Brick	1	1953	1142	1	3	1
1715	5	Aluminum / Vinyl	1	1957	1136	1	3	1
1716	5	Brick	1	1957	1124	1	2	1
1717	5	Brick	1	1959	1107	1	3	1
1718	5	Aluminum / Vinyl	1	1955	1064	1	3	1
1719	5	Aluminum / Vinyl	1	1955	1043	1	3	1
1720	5	Brick	1	1952	1029	1	2	1
1721	5	Brick	1	1961	1011	1	3	1
1722	5	Aluminum / Vinyl	1	1955	1008	1	3	1
1723	5	Aluminum / Vinyl	1	1955	1008	1	3	1
1724	5	Stone	1	1950	960	1	2	1
1725	5	Aluminum / Vinyl	1	1950	927	1	3	1
1726	5	Stone	1	1939	924	1	2	1
1727	5	Stone	1	1956	920	1	3	1
1728	5	Aluminum / Vinyl	1	1948	800	1	2	1
1729	5	Aluminum / Vinyl	1	1950	728	1	2	2
1730	5	Aluminum / Vinyl	2	1977	2896	2	6	2
1731	6	Aluminum / Vinyl	1	1895	934	1	2	1
1732	6	Aluminum / Vinyl	2	1922	2612	2	4	2
1733	6	Frame	2	1911	2202	2	4	2
1734	6	Aluminum / Vinyl	1.5	1916	1965	2	4	2
1735	6	Frame	1.5	1914	1693	2	4	2
1736	6	Aluminum / Vinyl	1.5	1873	1664	2	4	2
1737	6	Aluminum / Vinyl	1.5	1893	2037	1	4	2
1738	6	Aluminum / Vinyl	2	1910	1736	1	4	1
1739	7	Brick	1	1945	1731	1	4	1
1740	7	Brick	1	1951	1372	1	4	2
1741	7	Aluminum / Vinyl	1	1954	1176	1	4	1
1742	7	Aluminum / Vinyl	1	1950	1113	1	3	1
1743	7	Masonry / Frame	2	1952	2020	1	4	3
1744	7	Aluminum / Vinyl	1	1928	774	1	2	1
1745	7	Aluminum / Vinyl	1	1930	563	1	2	1
1746	7	Aluminum / Vinyl	2	1950	1932	2	4	2
1747	7	Frame	2	1913	2152	2	4	2
1748	7	Stone	1	1954	1448	1	3	1
1749	7	Aluminum / Vinyl	1	1953	912	1	3	1

1750	7	Aluminum / Vinyl	1	1920	1244	1	3	1
1751	7	Stone	2	1935	1980	1	3	1
1752	8	Aluminum / Vinyl	1	1951	1375	1	3	2
1753	8	Aluminum / Vinyl	1	1952	779	1	2	1
1754	8	Stucco	1.5	1915	2003	2	5	2
1755	8	Frame	2	1912	2528	2	6	2
1756	8	Frame	2	1907	1936	2	5	2
1757	8	Aluminum / Vinyl	1	1880	1875	2	4	2
1758	8	Stucco	1	1921	1870	1	3	2
1759	8	Aluminum / Vinyl	1.5	1920	1510	1	3	1
1760	8	Aluminum / Vinyl	1	1923	1454	1	4	2
1761	8	Aluminum / Vinyl	1	1925	1440	1	3	2
1762	8	Stucco	1	1923	1255	1	3	1
1763	8	Frame	1	1925	1237	1	3	1
1764	8	Aluminum / Vinyl	1	1926	1106	1	2	1
1765	8	Aluminum / Vinyl	1	1900	1431	1	4	1
1767	9	Aluminum / Vinyl	1	1956	1872	1	3	1
1768	9	Aluminum / Vinyl	1.5	1976	1437	1	4	2
1769	9	Aluminum / Vinyl	1	1953	1050	1	4	1
1770	9	Aluminum / Vinyl	2	2008	2208	1	4	2
1771	9	Brick	1	1964	1669	1	3	1
1772	9	Aluminum / Vinyl	1	1979	1581	1	4	2
1773	9	Aluminum / Vinyl	1	1974	1324	1	3	1
1774	9	Aluminum / Vinyl	1	1953	1309	1	3	2
1775	9	Aluminum / Vinyl	1	1956	1246	1	3	1
1776	9	Aluminum / Vinyl	1	1973	1200	1	4	1
1777	9	Frame	1	1966	1184	1	3	1
1778	9	Masonry / Frame	1	1957	1165	1	3	1
1779	9	Aluminum / Vinyl	1	1957	1155	1	3	1
1780	9	Aluminum / Vinyl	1	1992	1143	1	3	1
1781	9	Aluminum / Vinyl	1	1972	1140	1	3	1
1782	9	Frame	1	1968	1063	1	2	1
1783	9	Aluminum / Vinyl	1	1965	1033	1	3	1
1784	9	Aluminum / Vinyl	1	1965	1033	1	3	1
1785	9	Brick	1	1956	962	1	3	1
1786	9	Aluminum / Vinyl	1	1976	906	1	3	1
1787	9	Aluminum / Vinyl	1	1937	826	1	2	1
1788	10	Stone	1.5	1948	1920	1	4	2
1789	10	Brick	1.5	1932	1424	1	3	1
1790	10	Aluminum / Vinyl	1	1945	1307	1	3	2
1791	10	Aluminum / Vinyl	1	1955	1046	1	3	1
1792	10	Aluminum / Vinyl	1	1948	1012	1	4	1
1793	10	Masonry / Frame	2	1921	3268	2	6	2

1794	10	Aluminum / Vinyl	2	1927	2756	2	4	2
1795	10	Stucco	2	1927	2564	2	6	2
1796	10	Aluminum / Vinyl	2	1926	2300	2	4	2
1797	10	Aluminum / Vinyl	1.5	1920	2234	2	4	2
1798	10	Frame	1.5	1928	2076	2	5	2
1799	10	Aluminum / Vinyl	1.5	1928	1973	2	4	2
1800	10	Aluminum / Vinyl	2	1903	1834	2	4	2
1801	10	Brick	1	1923	2010	1	4	2
1802	10	Aluminum / Vinyl	1	1912	1672	1	3	2
1803	10	Aluminum / Vinyl	1	1925	1225	1	3	1
1804	10	Aluminum / Vinyl	1	1925	1188	1	4	2
1805	10	Aluminum / Vinyl	1	1926	1141	1	3	1
1806	10	Aluminum / Vinyl	1	1925	964	1	3	1
1807	10	Frame	1	1924	951	1	3	1
1808	10	Brick	1	1953	1264	1	2	1
1809	10	Aluminum / Vinyl	1	1952	1173	1	3	2
1810	10	Aluminum / Vinyl	1	1953	1036	1	3	1
1811	10	Aluminum / Vinyl	1	1951	700	1	2	1
1812	10	Aluminum / Vinyl	2	1925	1430	1	3	1
1813	10	Aluminum / Vinyl	1	1927	1415	1	3	2
1814	10	Aluminum / Vinyl	2	1918	1407	1	2	2
1815	10	Frame	1	1914	1302	1	3	1
1816	10	Aluminum / Vinyl	1	1917	1266	1	3	1
1817	10	Aluminum / Vinyl	2	1927	1197	1	3	1
1818	10	Stone	1.5	1923	2519	1	4	3
1819	11	Aluminum / Vinyl	1	1954	1105	1	3	2
1820	11	Aluminum / Vinyl	1	1943	1093	1	3	1
1821	11	Aluminum / Vinyl	1	1957	1069	1	3	2
1822	11	Stone	1	1951	1024	1	2	1
1823	11	Brick	1	1950	967	1	2	1
1824	11	Aluminum / Vinyl	1	1941	907	1	3	1
1825	11	Aluminum / Vinyl	1	1938	902	1	3	1
1826	11	Aluminum / Vinyl	1	1942	763	1	2	1
1827	11	Aluminum / Vinyl	1	1954	745	1	2	1
1828	11	Aluminum / Vinyl	2	1938	1496	1	3	1
1829	11	Masonry / Frame	2	1930	1478	1	3	2
1830	11	Block	2	1949	1056	1	2	1
1831	11	Aluminum / Vinyl	1.5	1980	1897	2	4	2
1832	11	Aluminum / Vinyl	2	1954	1728	2	6	2
1833	11	Aluminum / Vinyl	2	1954	1728	2	6	2
1834	11	Aluminum / Vinyl	2	1954	1728	2	6	2
1835	11	Brick	1	1963	1632	1	4	1
1836	11	Stone	1	1954	1497	1	2	1

1837	11	Aluminum / Vinyl	1	1965	1317	1	4	1
1838	11	Stone	1	1952	1312	1	2	1
1839	11	Aluminum / Vinyl	1	1963	1251	1	3	1
1840	11	Aluminum / Vinyl	1	1953	1207	1	4	2
1841	11	Brick	1	1958	1206	1	3	1
1842	11	Brick	1	1954	1176	1	3	1
1843	11	Brick	1	1956	1150	1	3	1
1844	11	Aluminum / Vinyl	1	1957	1147	1	3	1
1845	11	Brick	1	1959	1130	1	3	1
1846	11	Brick	1	1957	1129	1	3	1
1847	11	Brick	1	1959	1114	1	3	1
1848	11	Aluminum / Vinyl	1	1953	1069	1	3	1
1849	11	Brick	1	1956	989	1	3	1
1850	11	Aluminum / Vinyl	1	1960	988	1	3	1
1851	11	Aluminum / Vinyl	1	1955	988	1	3	1
1852	11	Aluminum / Vinyl	1	1953	987	1	3	1
1853	11	Frame	1	1953	980	1	3	1
1854	11	Aluminum / Vinyl	1	1953	960	1	3	1
1855	11	Brick	1	1953	921	1	3	1
1856	11	Aluminum / Vinyl	1	1957	914	1	2	1
1857	11	Aluminum / Vinyl	1	1953	894	1	2	1
1858	11	Frame	1	1952	879	1	3	1
1859	11	Aluminum / Vinyl	1	1953	870	1	2	1
1860	11	Aluminum / Vinyl	1	1947	850	1	2	1
1861	11	Aluminum / Vinyl	1	1951	770	1	2	1
1862	11	Aluminum / Vinyl	1	1950	734	1	2	1
1863	11	Aluminum / Vinyl	1	1953	672	1	2	1
1864	11	Aluminum / Vinyl	1	1937	788	1	2	1
1865	11	Aluminum / Vinyl	2	1972	2385	2	6	2
1866	11	Brick	1.5	1930	2016	1	4	1
1867	12	Aluminum / Vinyl	1	1924	1221	1	4	1
1868	13	Aluminum / Vinyl	1	1947	1608	1	3	1
1869	13	Brick	1	1948	1217	1	3	1
1870	13	Brick	1	1951	1120	1	3	1
1871	13	Aluminum / Vinyl	1	1952	1075	1	3	1
1872	13	Brick	1	1951	1002	1	3	1
1873	13	Brick	1	1955	986	1	2	1
1874	13	Aluminum / Vinyl	2	1965	1747	1	3	2
1875	13	Aluminum / Vinyl	2	1959	2052	2	6	2
1876	13	Brick	1.5	1961	1875	2	5	2
1877	13	Aluminum / Vinyl	1.5	1908	1643	2	3	2
1878	13	Frame	1.5	1920	1493	2	3	2
1879	13	Frame	1	1928	1083	1	2	1

1880	13	Frame	1	1938	1530	1	3	1
1881	13	Aluminum / Vinyl	1	1970	1352	1	3	1
1882	13	Brick	1	1966	1160	1	3	1
1883	13	Brick	1	1965	1157	1	3	1
1884	13	Aluminum / Vinyl	1	1958	1154	1	3	1
1885	13	Brick	1	1973	1100	1	2	1
1886	13	Frame	1	1958	1081	1	3	1
1887	13	Aluminum / Vinyl	1	1983	1064	1	3	1
1888	13	Aluminum / Vinyl	1	1958	1045	1	3	1
1889	13	Brick	1	1962	1036	1	3	1
1890	13	Frame	1	1949	843	1	2	1
1891	13	Aluminum / Vinyl	1	1953	705	1	2	1
1892	13	Frame	1.5	1910	1690	1	3	2
1893	13	Aluminum / Vinyl	1	1927	1325	1	4	1
1894	13	Aluminum / Vinyl	1	1928	1225	1	3	2
1895	13	Aluminum / Vinyl	1	1908	1093	1	3	1
1896	14	Aluminum / Vinyl	1	1947	1387	1	4	3
1897	14	Brick	1	1944	1353	1	4	2
1898	14	Block	1	1948	1163	1	3	1
1899	14	Aluminum / Vinyl	1	1951	1035	1	3	1
1900	14	Stucco	1	1951	1014	1	3	2
1901	14	Aluminum / Vinyl	1	1944	1004	1	3	1
1902	14	Frame	1	1950	885	1	3	1
1903	14	Aluminum / Vinyl	1	1947	828	1	2	1
1904	14	Stone	2	1921	2352	1	3	1
1905	14	Aluminum / Vinyl	2	1940	1426	1	4	2
1906	14	Aluminum / Vinyl	2	2004	1380	1	3	2
1907	14	Aluminum / Vinyl	2	1949	1374	1	3	1
1908	14	Aluminum / Vinyl	1.5	1927	1721	2	4	2
1909	14	Aluminum / Vinyl	1.5	1949	1533	2	3	2
1910	14	Frame	2	1906	2612	2	6	2
1911	14	Aluminum / Vinyl	1	1944	1950	2	6	2
1912	14	Aluminum / Vinyl	1.5	1928	1946	1	4	2
1913	14	Brick	1	1928	1541	1	4	1
1914	14	Aluminum / Vinyl	1	1923	1218	1	3	2
1915	14	Aluminum / Vinyl	1	1925	1149	1	3	1
1916	14	Aluminum / Vinyl	1	1953	976	1	3	1
1917	14	Aluminum / Vinyl	1	1943	803	1	2	1
1918	14	Aluminum / Vinyl	1	1947	784	1	2	1
1919	14	Frame	1	1943	689	1	2	1
1920	14	Aluminum / Vinyl	1.5	1915	1612	1	3	1
1921	14	Frame	1	1908	1428	1	5	1
1922	14	Frame	1	1901	1406	1	3	1

1923	14	Aluminum / Vinyl	1	1920	1199	1	4	1
1924	14	Aluminum / Vinyl	1	1900	1169	1	3	1
1925	14	Aluminum / Vinyl	1	1901	1107	1	4	1
1926	14	Aluminum / Vinyl	1	1915	1064	1	3	1
1927	14	Aluminum / Vinyl	1	1924	1040	1	3	2
1928	14	Aluminum / Vinyl	1	1897	1032	1	3	1
1929	14	Aluminum / Vinyl	2	1910	1980	3	4	3
1930	15	Brick	2	1916	3354	2	4	2
1931	1	Aluminum / Vinyl	1.5	1950	1324	1	4	2
1932	1	Frame	1.5	1935	1308	1	3	1
1933	1	Frame	1.5	1940	1228	1	3	1
1934	1	Aluminum / Vinyl	1.5	1940	1191	1	4	2
1935	1	Aluminum / Vinyl	1	1947	821	1	3	1
1936	1	Aluminum / Vinyl	2	1954	1536	2	4	2
1937	1	Aluminum / Vinyl	1	1960	1104	1	3	1
1938	1	Aluminum / Vinyl	1	1955	1082	1	3	1
1939	1	Aluminum / Vinyl	1	1949	868	1	2	1
1940	1	Aluminum / Vinyl	1	1949	868	1	2	1
1941	1	Aluminum / Vinyl	1	1942	796	1	2	1
1942	1	Aluminum / Vinyl	1	1941	720	1	2	2
1943	2	Brick	1	1957	1638	1	4	1
1944	2	Aluminum / Vinyl	1	1940	1385	1	4	1
1945	2	Brick	1	1955	1317	1	3	1
1946	2	Aluminum / Vinyl	1	1955	1056	1	3	1
1947	2	Aluminum / Vinyl	1	1947	975	1	4	1
1948	2	Aluminum / Vinyl	1.5	1957	1764	2	5	2
1949	2	Brick	1	1957	1242	1	3	1
1950	2	Brick	1	1960	1204	1	3	1
1951	2	Frame	1	1960	1188	1	3	1
1952	2	Frame	1	1956	1188	1	3	1
1953	2	Brick	1	1958	1177	1	3	1
1954	2	Frame	1	1971	1156	1	4	1
1955	2	Brick	1	1955	1115	1	2	1
1956	2	Brick	1	1958	1090	1	3	1
1957	2	Aluminum / Vinyl	1	1966	1083	1	3	1
1958	2	Frame	1	1955	1046	1	3	1
1959	2	Frame	1	1975	1023	1	3	1
1960	2	Brick	1	1955	1020	1	2	1
1961	2	Aluminum / Vinyl	1	1953	970	1	3	1
1962	2	Aluminum / Vinyl	1	1953	970	1	3	1
1963	2	Brick	1	1957	942	1	3	1
1964	2	Aluminum / Vinyl	1	1956	936	1	2	1
1965	2	Frame	1	1957	925	1	3	1

1966	2 Aluminum / Vinyl	1	1958	918	1	2	1
1967	2 Aluminum / Vinyl	1	1956	905	1	3	1
1968	2 Aluminum / Vinyl	1	1957	900	1	3	1
1969	2 Aluminum / Vinyl	1	1957	900	1	3	1
1970	2 Aluminum / Vinyl	1	1955	864	1	3	1
1971	2 Aluminum / Vinyl	1	1955	756	1	2	1
1972	2 Aluminum / Vinyl	1	1955	1414	1	3	1
1973	2 Aluminum / Vinyl	1	1955	1414	1	3	2
1974	2 Masonry / Frame	2	1963	2281	2	6	2
1975	3 Brick	2	1924	3595	1	7	3
1976	3 Frame	2	1924	2944	2	6	2
1977	3 Aluminum / Vinyl	1	1949	1413	2	3	2
1978	3 Stucco	2	1910	3886	2	6	3
1979	3 Frame	2	1908	1710	2	4	2
1980	3 Stone	2	1915	6917	3	6	4
1981	3 Frame	2	1898	3033	1	5	2
1982	3 Aluminum / Vinyl	2	1900	1800	1	3	2
1983	3 Frame	1	1917	1559	1	3	1
1984	3 Brick	1	1905	948	1	3	1
1985	4 Aluminum / Vinyl	1	1924	1282	1	4	1
1986	4 Aluminum / Vinyl	2	1890	2133	1	5	2
1987	4 Frame	2	1904	1772	1	4	1
1988	5 Brick	1	1954	1622	1	4	2
1989	5 Brick	1.5	1956	1589	1	3	1
1990	5 Brick	1	1953	1584	1	4	1
1991	5 Stone	1.5	1948	1558	1	3	1
1992	5 Brick	1	1953	1512	1	4	1
1993	5 Brick	1	1955	1501	1	3	1
1994	5 Stone	1.5	1948	1432	1	3	1
1995	5 Stone	1	1950	1415	1	3	1
1996	5 Masonry / Frame	1	1952	1352	1	3	2
1997	5 Aluminum / Vinyl	1	1949	1293	1	3	2
1998	5 Frame	1	1952	1292	1	3	1
1999	5 Brick	1	1955	1242	1	3	1
2000	5 Aluminum / Vinyl	1	1954	1219	1	3	1
2001	5 Aluminum / Vinyl	1	1955	1200	1	4	1
2002	5 Aluminum / Vinyl	1	1952	1120	1	3	1
2003	5 Brick	1	1946	1111	1	3	1
2004	5 Brick	1.5	1947	1109	1	3	1
2005	5 Aluminum / Vinyl	1	1950	1092	1	3	1
2006	5 Aluminum / Vinyl	1	1953	1035	1	4	1
2007	5 Aluminum / Vinyl	1	1952	1034	1	3	1
2008	5 Aluminum / Vinyl	1	1951	933	1	3	1

2009	5	Aluminum / Vinyl	1	1957	784	1	2	1
2010	5	Aluminum / Vinyl	2	2008	2473	1	4	2
2011	5	Brick	2	1957	2422	2	6	2
2012	5	Brick	1	1964	2065	2	4	2
2013	5	Aluminum / Vinyl	2	1953	2016	2	4	2
2014	5	Aluminum / Vinyl	1	2009	2482	1	3	2
2015	5	Aluminum / Vinyl	1	1960	1595	1	3	2
2016	5	Brick	1	1957	1509	1	3	1
2017	5	Brick	1	1969	1360	1	3	1
2018	5	Stone	1	1956	1342	1	2	2
2019	5	Aluminum / Vinyl	1	1959	1287	1	3	1
2020	5	Aluminum / Vinyl	1	1955	1256	1	3	2
2021	5	Aluminum / Vinyl	1	1969	1228	1	3	1
2022	5	Aluminum / Vinyl	1	1954	1176	1	3	1
2023	5	Brick	1	1956	1144	1	3	1
2024	5	Brick	1	1958	1120	1	3	1
2025	5	Frame	1	1952	1106	1	2	1
2026	5	Aluminum / Vinyl	1	1955	1077	1	3	2
2027	5	Brick	1	1958	1058	1	3	1
2028	5	Aluminum / Vinyl	1	1956	1044	1	3	1
2029	5	Brick	1	1956	1040	1	2	1
2030	5	Frame	1	1950	1032	1	3	1
2031	5	Brick	1	1956	1025	1	3	1
2032	5	Brick	1	1955	1019	1	3	1
2033	5	Aluminum / Vinyl	1	1956	999	1	3	1
2034	5	Brick	1	1947	936	1	2	1
2035	5	Brick	1	1947	863	1	2	1
2036	5	Aluminum / Vinyl	1	1949	772	1	2	1
2037	5	Aluminum / Vinyl	1	1949	707	1	2	1
2038	5	Aluminum / Vinyl	1.5	1926	1083	1	2	1
2039	5	Masonry / Frame	2	1965	2222	2	6	2
2040	6	Aluminum / Vinyl	2	2008	1536	1	3	1
2041	6	Frame	1	1880	1134	1	3	2
2042	6	Frame	2	1922	2626	2	6	2
2043	6	Aluminum / Vinyl	1.5	1926	1919	2	4	2
2044	6	Frame	1.5	1926	1737	2	4	2
2045	6	Brick	2	1914	2628	2	5	2
2046	6	Aluminum / Vinyl	2	1906	2488	2	4	2
2047	6	Frame	1	1927	1547	1	3	2
2048	6	Aluminum / Vinyl	1	1925	1718	1	4	1
2049	6	Frame	1.5	1902	1589	1	4	1
2050	6	Aluminum / Vinyl	1	1911	1392	1	5	1
2051	6	Frame	1	1904	944	1	2	1

2052	6	Frame	2	1904	3482	3	7	3
2053	7	Brick	1.5	1940	1612	1	3	1
2054	7	Aluminum / Vinyl	1.5	1943	1499	1	3	1
2055	7	Brick	1.5	1939	1488	1	4	1
2056	7	Aluminum / Vinyl	1	1941	1446	1	4	1
2057	7	Brick	1	1946	1349	1	4	2
2058	7	Stone	1	1941	1311	1	3	1
2059	7	Masonry / Frame	2	1950	1970	1	4	1
2060	7	Stone	2	1940	2692	2	4	2
2061	7	Aluminum / Vinyl	1.5	1922	1613	1	4	1
2062	7	Aluminum / Vinyl	1	1928	1475	1	3	1
2063	7	Aluminum / Vinyl	1	1927	1344	1	3	1
2064	7	Aluminum / Vinyl	1	1927	1344	1	3	1
2065	7	Aluminum / Vinyl	1	1927	1264	1	3	1
2066	7	Aluminum / Vinyl	1	1924	1191	1	3	1
2067	7	Aluminum / Vinyl	1	1928	1170	1	2	1
2068	7	Aluminum / Vinyl	1	1950	1101	1	2	2
2069	7	Brick	1	1955	1074	1	2	1
2070	8	Aluminum / Vinyl	1	1891	1080	1	2	2
2071	8	Aluminum / Vinyl	2	1913	2772	2	6	2
2072	8	Aluminum / Vinyl	2	1905	2684	2	8	2
2073	8	Frame	2	1923	2388	2	4	2
2074	8	Frame	1.5	1904	2063	2	4	2
2075	8	Aluminum / Vinyl	2	1884	1632	2	4	2
2076	8	Brick	1	1923	1589	1	3	1
2077	8	Aluminum / Vinyl	1	1924	843	1	2	1
2078	8	Aluminum / Vinyl	2	1912	1675	1	3	2
2079	8	Aluminum / Vinyl	1.5	1916	1549	1	2	1
2080	8	Aluminum / Vinyl	1	1900	1188	1	4	1
2081	8	Aluminum / Vinyl	1	1898	1008	1	3	1
2082	9	Aluminum / Vinyl	1	1954	1084	1	3	1
2083	9	Aluminum / Vinyl	1	1953	1020	1	4	1
2084	9	Aluminum / Vinyl	2	2001	2868	1	4	2
2085	9	Aluminum / Vinyl	2	2009	2350	1	4	2
2086	9	Aluminum / Vinyl	2	1954	1728	2	6	2
2087	9	Aluminum / Vinyl	1	1930	1223	1	3	1
2088	9	Frame	1	1966	1420	1	3	1
2089	9	Aluminum / Vinyl	1	1975	1227	1	3	1
2090	9	Brick	1	1963	1191	1	3	1
2091	9	Aluminum / Vinyl	1	1958	1175	1	3	1
2092	9	Aluminum / Vinyl	1	1980	1077	1	3	1
2093	9	Aluminum / Vinyl	1	1963	1074	1	3	1
2094	9	Aluminum / Vinyl	1	1957	1059	1	3	1

2095	9	Brick	1	1957	1050	1	3	2
2096	9	Aluminum / Vinyl	1	1964	1038	1	3	1
2097	9	Brick	1	1963	1032	1	3	1
2098	9	Aluminum / Vinyl	1	1976	906	1	3	1
2099	9	Masonry / Frame	1	1959	1598	1	4	1
2100	10	Aluminum / Vinyl	1	1942	1055	1	3	1
2101	10	Aluminum / Vinyl	1	1946	1663	1	3	1
2102	10	Aluminum / Vinyl	1	1952	1389	1	3	1
2103	10	Aluminum / Vinyl	1.5	1950	1323	1	5	2
2104	10	Aluminum / Vinyl	1	1953	1185	1	4	1
2105	10	Aluminum / Vinyl	1	1953	1110	1	4	1
2106	10	Brick	2	1929	3219	2	6	2
2107	10	Frame	2	1914	2752	2	6	3
2108	10	Aluminum / Vinyl	2	1920	2556	2	4	2
2109	10	Masonry / Frame	2	1927	2528	2	4	2
2110	10	Frame	2	1914	2294	2	4	2
2111	10	Aluminum / Vinyl	1.5	1959	1812	2	3	2
2112	10	Brick	1	1923	2589	1	4	2
2113	10	Brick	1	1930	2368	1	4	1
2114	10	Frame	1	1919	1768	1	4	2
2115	10	Aluminum / Vinyl	1	1928	1470	1	4	2
2116	10	Aluminum / Vinyl	1	1926	1417	1	3	1
2117	10	Aluminum / Vinyl	1	1925	1416	1	3	2
2118	10	Aluminum / Vinyl	1	1924	1395	1	3	1
2119	10	Aluminum / Vinyl	1	1930	1345	1	4	1
2120	10	Aluminum / Vinyl	1	1923	1274	1	2	1
2121	10	Aluminum / Vinyl	1	1923	921	1	2	1
2122	10	Aluminum / Vinyl	1	1953	1384	1	3	2
2123	10	Frame	1	1956	936	1	2	1
2124	10	Aluminum / Vinyl	1	1942	924	1	2	1
2125	10	Aluminum / Vinyl	1	1946	667	1	2	1
2126	10	Aluminum / Vinyl	1	1914	1593	1	3	2
2127	10	Frame	1.5	1896	1492	1	3	2
2128	10	Aluminum / Vinyl	1	1921	1080	1	2	1
2129	10	Frame	1	1926	990	1	3	1
2130	11	Fiber-Cement	1	2008	4405	1	6	4
2131	11	Stone	1	1948	1767	1	4	1
2132	11	Aluminum / Vinyl	1	1970	1548	1	4	2
2133	11	Aluminum / Vinyl	1	1951	1424	1	3	1
2134	11	Brick	1	1942	1316	1	3	1
2135	11	Aluminum / Vinyl	1	1959	1159	1	4	1
2136	11	Aluminum / Vinyl	1	1949	1107	1	3	1
2137	11	Brick	1	1942	980	1	2	1

2138	11	Aluminum / Vinyl	2	1958	2233	2	6	2
2139	11	Aluminum / Vinyl	2	1954	1728	2	6	2
2140	11	Aluminum / Vinyl	1	1928	1188	1	3	2
2141	11	Frame	1	1954	1364	1	3	1
2142	11	Brick	1	1953	1313	1	3	1
2143	11	Aluminum / Vinyl	1	1948	1270	1	2	1
2144	11	Brick	1	1967	1235	1	3	1
2145	11	Brick	1	1960	1201	1	3	1
2146	11	Frame	1	1953	1173	1	3	1
2147	11	Brick	1	1956	1161	1	3	1
2148	11	Brick	1	1966	1158	1	3	1
2149	11	Brick	1	1953	1140	1	2	1
2150	11	Brick	1	1959	1118	1	3	1
2151	11	Aluminum / Vinyl	1	1965	1107	1	3	1
2152	11	Aluminum / Vinyl	1	1964	1105	1	3	1
2153	11	Brick	1	1956	1093	1	2	1
2154	11	Aluminum / Vinyl	1	1958	1080	1	3	2
2155	11	Aluminum / Vinyl	1	1949	1072	1	2	1
2156	11	Aluminum / Vinyl	1	1958	1048	1	3	1
2157	11	Brick	1	1955	1013	1	3	1
2158	11	Brick	1	1959	1011	1	3	1
2159	11	Brick	1	1954	999	1	2	1
2160	11	Brick	1	1952	980	1	2	1
2161	11	Aluminum / Vinyl	1	1953	966	1	3	1
2162	11	Brick	1	1959	965	1	3	1
2163	11	Brick	1	1956	947	1	3	1
2164	11	Frame	1	1955	944	1	3	1
2165	11	Brick	1	1955	925	1	3	1
2166	11	Aluminum / Vinyl	1	1960	925	1	3	1
2167	11	Aluminum / Vinyl	1	1960	896	1	3	2
2168	11	Aluminum / Vinyl	1	1953	882	1	3	1
2169	11	Aluminum / Vinyl	1	1953	876	1	3	1
2170	11	Aluminum / Vinyl	1	1953	874	1	3	1
2171	11	Frame	1	1953	864	1	3	1
2172	11	Aluminum / Vinyl	1	1938	756	1	2	1
2173	12	Frame	2	1966	1821	1	4	1
2174	12	Frame	2	1910	1980	2	4	2
2175	12	Aluminum / Vinyl	2	1885	1968	2	4	2
2176	12	Aluminum / Vinyl	1	1893	1699	1	4	2
2177	12	Aluminum / Vinyl	1.5	1906	1600	2	4	2
2178	12	Frame	1.5	1910	1402	1	4	1
2180	13	Aluminum / Vinyl	1	1974	1789	1	4	2
2181	13	Brick	1	1948	1528	1	4	1

2182	13	Brick	1	1953	1252	1	3	1
2183	13	Brick	1	1948	1249	1	4	1
2184	13	Aluminum / Vinyl	1	1950	1143	1	3	2
2185	13	Aluminum / Vinyl	1	1951	1093	1	4	1
2186	13	Brick	1	1951	1090	1	2	1
2187	13	Brick	1	1946	1076	1	3	1
2188	13	Aluminum / Vinyl	1	1942	1074	1	4	1
2189	13	Aluminum / Vinyl	1	1949	830	1	2	1
2190	13	Aluminum / Vinyl	2	1998	2259	1	3	2
2191	13	Frame	2	1979	1943	1	3	2
2192	13	Stone	2	1936	1386	1	2	1
2193	13	Aluminum / Vinyl	1.5	1936	821	1	3	1
2194	13	Aluminum / Vinyl	2	1957	2209	2	6	2
2195	13	Brick	1.5	1951	2082	2	4	2
2196	13	Aluminum / Vinyl	1	1955	1209	1	3	1
2197	13	Stone	1	1939	1177	1	2	1
2198	13	Aluminum / Vinyl	1	1981	1156	1	3	1
2199	13	Brick	1	1960	1148	1	3	1
2200	13	Brick	1	1961	1090	1	3	1
2201	13	Brick	1	1962	1037	1	3	1
2202	13	Stone	1	1950	1026	1	2	1
2203	13	Aluminum / Vinyl	1	1960	998	1	3	1
2204	13	Aluminum / Vinyl	1	1949	912	1	3	1
2205	13	Aluminum / Vinyl	1	1951	840	1	2	1
2206	13	Aluminum / Vinyl	1	1950	812	1	2	1
2207	13	Frame	1	1942	745	1	2	1
2208	13	Aluminum / Vinyl	1	1953	743	1	2	1
2209	13	Aluminum / Vinyl	1	1943	707	1	2	1
2210	13	Brick	2	1929	2236	1	3	1
2211	13	Aluminum / Vinyl	2	1966	2132	2	6	2
2212	14	Aluminum / Vinyl	1	1953	1182	1	4	1
2213	14	Brick	1	1956	945	1	3	1
2214	14	Aluminum / Vinyl	2	1939	1144	1	2	1
2215	14	Aluminum / Vinyl	1	1890	1256	1	4	1
2216	14	Aluminum / Vinyl	1	1906	1225	1	3	1
2217	14	Frame	1	1900	1027	1	4	1
2218	14	Aluminum / Vinyl	1.5	1926	1688	2	4	2
2219	14	Aluminum / Vinyl	2	1978	2054	2	6	2
2220	14	Aluminum / Vinyl	2	1920	2670	2	5	2
2221	14	Aluminum / Vinyl	2	1915	2268	2	4	2
2222	14	Frame	2	1915	1832	2	4	2
2223	14	Brick	1.5	1926	1644	1	4	1
2224	14	Brick	1	1930	1618	1	4	2

2225	14	Aluminum / Vinyl	1	1921	1185	1	3	1
2226	14	Brick	1	1902	1048	1	3	1
2227	14	Brick	1	1953	1115	1	3	1
2228	14	Aluminum / Vinyl	1	1955	936	1	3	1
2229	14	Aluminum / Vinyl	1	1943	689	1	2	1
2230	14	Aluminum / Vinyl	1.5	1890	1759	1	5	1
2231	14	Aluminum / Vinyl	2	1924	1663	1	4	1
2232	14	Frame	1	1918	1025	1	2	1
2233	14	Aluminum / Vinyl	1	1920	880	1	2	1
2234	14	Aluminum / Vinyl	1	1900	810	1	2	1
2235	14	Aluminum / Vinyl	1	1921	775	1	2	1
2237	14	Aluminum / Vinyl	2	1953	1256	1	3	1
2238	15	Aluminum / Vinyl	2	2006	1458	1	3	1
2239	15	Frame	2	1921	2984	2	8	2
2240	15	Aluminum / Vinyl	2	1914	2536	2	6	2
2241	15	Aluminum / Vinyl	2	1914	2536	2	6	2
2242	15	Aluminum / Vinyl	2	1914	2532	2	6	2
2243	15	Aluminum / Vinyl	2	1910	2182	2	4	2
2244	15	Aluminum / Vinyl	1.5	1899	1749	2	4	3
2245	15	Aluminum / Vinyl	2	1922	2008	1	3	2
2246	15	Frame	1.5	1920	1548	1	4	1
2247	1	Aluminum / Vinyl	1.5	1940	1367	1	3	1
2248	1	Brick	1	1937	1288	1	4	1
2249	1	Aluminum / Vinyl	1	1954	1194	1	4	1
2250	1	Frame	1	1953	1096	1	4	1
2251	1	Frame	1	1940	944	1	4	1
2252	1	Aluminum / Vinyl	1	1943	884	1	3	1
2253	1	Aluminum / Vinyl	1	1925	894	1	2	1
2254	1	Aluminum / Vinyl	2	1918	2440	2	6	2
2255	1	Aluminum / Vinyl	1	1966	1578	1	3	1
2256	1	Aluminum / Vinyl	1	2007	1439	1	3	2
2257	1	Aluminum / Vinyl	1	1951	938	1	3	1
2258	1	Frame	1	1952	831	1	3	1
2259	2	Aluminum / Vinyl	1	1955	1253	1	4	2
2260	2	Aluminum / Vinyl	1	1953	1118	1	4	1
2261	2	Frame	1	1954	1053	1	3	1
2262	2	Aluminum / Vinyl	2	1968	1465	1	4	1
2263	2	Frame	2	1960	1387	1	3	1
2264	2	Frame	2	1956	2200	2	6	2
2265	2	Aluminum / Vinyl	2	1960	2070	2	6	2
2266	2	Aluminum / Vinyl	2	1958	1879	2	4	2
2267	2	Aluminum / Vinyl	2	1939	1650	2	4	2
2268	2	Aluminum / Vinyl	1	1930	1545	2	3	2

2269	2 Aluminum / Vinyl	1	1955	1465	1	4	1
2270	2 Brick	1	1956	1243	1	3	1
2271	2 Brick	1	1954	1046	1	3	1
2272	2 Aluminum / Vinyl	1	1958	1039	1	3	1
2273	2 Aluminum / Vinyl	1	1948	985	1	2	1
2274	2 Frame	1	1958	973	1	3	1
2275	2 Aluminum / Vinyl	1	1955	963	1	3	1
2276	2 Aluminum / Vinyl	1	1958	936	1	3	1
2277	2 Aluminum / Vinyl	1	1958	936	1	3	1
2278	2 Aluminum / Vinyl	1	1958	918	1	3	2
2279	2 Aluminum / Vinyl	1	1955	864	1	3	1
2280	2 Aluminum / Vinyl	1	1951	723	1	2	1
2281	2 Frame	1	1955	672	1	2	1
2282	3 Frame	2	1906	1352	1	4	1
2283	3 Masonry / Frame	2	1916	3476	2	6	2
2284	3 Aluminum / Vinyl	2	1923	2546	2	6	2
2285	3 Brick	1.5	1931	2234	2	4	2
2286	3 Frame	1.5	1926	1880	2	3	2
2287	3 Aluminum / Vinyl	1	1900	1525	2	2	2
2288	3 Frame	2	1904	2899	1	4	2
2289	3 Frame	2	1899	2350	1	4	1
2290	3 Aluminum / Vinyl	1.5	1900	1549	1	4	1
2292	4 Aluminum / Vinyl	2	2007	1879	1	4	2
2293	4 Frame	2	1900	3046	2	6	2
2294	4 Brick	2	1921	2806	2	4	2
2295	5 Brick	1	1952	1502	1	3	1
2296	5 Aluminum / Vinyl	1	1949	1279	1	4	1
2297	5 Aluminum / Vinyl	1	1952	1098	1	4	2
2298	5 Aluminum / Vinyl	2	1997	1976	1	3	2
2299	5 Aluminum / Vinyl	2	1940	1396	1	3	1
2300	5 Brick	1	1955	3025	2	5	2
2301	5 Brick	2	1959	2598	2	6	3
2302	5 Aluminum / Vinyl	1.5	1965	2479	2	6	2
2303	5 Frame	1	1968	1500	1	3	1
2304	5 Brick	1	1957	1335	1	3	1
2305	5 Brick	1	1957	1335	1	3	1
2306	5 Aluminum / Vinyl	1	1993	1226	1	3	2
2307	5 Brick	1	1964	1191	1	3	2
2308	5 Brick	1	1952	1064	1	2	1
2309	5 Aluminum / Vinyl	1	1955	948	1	3	1
2310	5 Aluminum / Vinyl	1	1952	901	1	2	1
2311	6 Aluminum / Vinyl	2	1907	2028	2	4	2
2312	6 Aluminum / Vinyl	1.5	1890	1622	1	4	1

2313	7	Brick	1	1951	1709	1	4	2
2314	7	Aluminum / Vinyl	1	1936	1628	1	5	1
2315	7	Stone	1	1947	1416	1	3	1
2316	7	Aluminum / Vinyl	1.5	1925	2064	2	4	2
2317	7	Frame	2	1927	2068	2	4	2
2318	7	Aluminum / Vinyl	1.5	1906	1816	2	4	2
2319	7	Frame	1.5	1894	1678	2	4	2
2320	7	Aluminum / Vinyl	1	1926	1392	1	4	1
2321	7	Aluminum / Vinyl	1	1920	1218	1	3	1
2322	7	Brick	1.5	1931	1717	1	4	1
2323	7	Frame	1	1910	1386	1	4	1
2324	7	Aluminum / Vinyl	1.5	1928	1164	1	4	1
2325	7	Stone	1	1933	1816	1	3	1
2326	8	Frame	2	1922	1824	1	4	1
2327	8	Frame	2	1922	1824	1	4	1
2328	8	Aluminum / Vinyl	2	1971	1169	1	4	1
2329	8	Frame	1.5	1924	1963	2	5	3
2330	8	Aluminum / Vinyl	2	1908	2300	2	6	2
2331	8	Frame	2	1894	1904	2	4	2
2332	8	Aluminum / Vinyl	1.5	1926	1819	2	4	2
2333	8	Aluminum / Vinyl	1.5	1903	1603	2	4	2
2334	8	Aluminum / Vinyl	1	1890	1999	1	5	2
2335	8	Aluminum / Vinyl	1.5	1910	1843	1	3	1
2336	8	Aluminum / Vinyl	2	1911	1649	1	5	1
2337	8	Aluminum / Vinyl	1	1880	1260	1	4	2
2338	8	Frame	1	1898	1200	1	3	1
2341	8	Stucco	2	1880	2779	3	6	2
2342	9	Aluminum / Vinyl	1	1948	637	1	2	1
2343	9	Masonry / Frame	1	1959	1610	1	4	3
2344	9	Aluminum / Vinyl	1	1973	1596	1	4	1
2345	9	Aluminum / Vinyl	1	1978	1467	1	3	1
2346	9	Aluminum / Vinyl	1	1965	1227	1	3	1
2347	9	Stone	1	1949	1086	1	2	2
2348	9	Aluminum / Vinyl	1	1951	960	1	3	1
2349	9	Aluminum / Vinyl	1	1951	792	1	2	1
2350	9	Aluminum / Vinyl	1	1951	792	1	2	1
2351	9	Masonry / Frame	2	1971	3500	3	>8	3
2352	10	Masonry / Frame	2	1932	1772	1	3	1
2353	10	Aluminum / Vinyl	1	1910	944	1	3	1
2354	10	Aluminum / Vinyl	2	1922	2903	2	6	2
2355	10	Frame	2	1928	2236	2	4	2
2356	10	Aluminum / Vinyl	2	1924	1924	2	4	2
2357	10	Brick	2	1912	3048	2	6	2

2358	10	Brick	1.5	1938	2150	2	4	2
2359	10	Frame	1.5	1924	1413	2	3	2
2360	10	Aluminum / Vinyl	1	1924	1865	1	4	1
2361	10	Aluminum / Vinyl	1	1926	982	1	3	1
2362	10	Aluminum / Vinyl	1	1926	982	1	3	1
2363	10	Aluminum / Vinyl	1	1926	916	1	3	2
2364	10	Aluminum / Vinyl	1	1951	936	1	3	1
2365	10	Aluminum / Vinyl	1	1955	864	1	3	1
2366	10	Aluminum / Vinyl	1	1940	772	1	2	1
2367	10	Stucco	2	1916	2266	1	4	2
2368	10	Aluminum / Vinyl	1	1925	616	1	2	1
2369	11	Brick	1.5	1959	1850	1	4	1
2370	11	Frame	1	1952	1077	1	4	1
2371	11	Stucco	1	1939	980	1	3	1
2372	11	Brick	2	1962	3044	2	6	2
2373	11	Aluminum / Vinyl	2	1953	1554	2	4	2
2374	11	Frame	1	1953	1176	1	3	1
2375	11	Aluminum / Vinyl	1	1955	1012	1	3	2
2376	11	Brick	1	1959	1010	1	3	1
2377	11	Brick	1	1957	967	1	2	1
2378	11	Brick	1	1956	967	1	3	1
2379	11	Aluminum / Vinyl	1	1954	867	1	2	1
2380	11	Aluminum / Vinyl	1	1949	846	1	2	1
2381	11	Aluminum / Vinyl	1	1954	735	1	2	1
2382	12	Aluminum / Vinyl	1	1906	1870	2	5	2
2383	12	Aluminum / Vinyl	1	1923	1001	1	2	1
2384	13	Aluminum / Vinyl	1	1948	1516	1	4	2
2385	13	Aluminum / Vinyl	1	1947	1144	1	4	1
2386	13	Brick	1	1946	994	1	3	1
2387	13	Brick	1	1949	942	1	2	1
2388	13	Aluminum / Vinyl	2	1985	2084	1	3	2
2389	13	Aluminum / Vinyl	1	1918	759	1	3	1
2390	13	Frame	2	1956	2098	2	5	2
2391	14	Aluminum / Vinyl	1	1953	1153	1	3	1
2392	14	Brick	1	1953	1125	1	4	1
2393	14	Aluminum / Vinyl	2	1940	1590	1	3	1
2394	14	Stucco	2	1945	1006	1	2	1
2395	14	Frame	2	1918	1964	2	4	2
2396	14	Frame	2	1924	1848	2	4	2
2397	14	Aluminum / Vinyl	1	1926	1758	1	4	1
2398	14	Frame	1.5	1925	1658	1	4	2
2399	14	Aluminum / Vinyl	1	1926	1567	1	4	1
2400	14	Aluminum / Vinyl	1	1926	1350	1	3	1

2401	14	Aluminum / Vinyl	1	1953	704	1	2	1
2402	14	Stucco	1	1913	1594	1	4	2
2403	14	Aluminum / Vinyl	1.5	1911	1526	1	4	2
2404	14	Aluminum / Vinyl	1.5	1907	1298	1	3	1
2405	14	Aluminum / Vinyl	1	1915	951	1	3	1
2406	15	Frame	1	1895	1032	1	2	1
2407	15	Aluminum / Vinyl	2	1917	2590	2	6	2
2408	15	Frame	2	1908	2491	2	6	2
2409	15	Frame	2	1908	2491	2	6	2
2410	15	Aluminum / Vinyl	2	1922	2378	2	4	2
2411	15	Aluminum / Vinyl	2	1901	2320	2	6	2
2412	15	Aluminum / Vinyl	2	1911	2068	2	4	2
2413	15	Aluminum / Vinyl	1	1921	1107	1	4	1
2414	1	Stone	1	1935	1779	1	5	2
2415	1	Brick	1	1963	1529	1	3	1
2416	3	Brick	2	1902	4050	1	7	4
2417	3	Aluminum / Vinyl	2	1896	2644	2	5	2
2418	3	Masonry / Frame	2	1901	4899	1	5	>4
2419	3	Brick	2	1910	2694	1	5	2
2420	3	Stucco	2	1908	2582	1	3	2
2421	5	Brick	1	1957	2735	1	5	2
2422	5	Stucco	1	1946	1134	1	3	1
2423	5	Aluminum / Vinyl	1	1948	1048	1	2	1
2424	5	Aluminum / Vinyl	1	1952	1008	1	3	1
2425	5	Stone	2	1947	2430	2	4	2
2426	5	Brick	1	1958	1404	1	3	1
2427	5	Aluminum / Vinyl	1	1952	1096	1	3	1
2428	6	Aluminum / Vinyl	2	2004	2204	1	3	2
2429	6	Aluminum / Vinyl	2	1897	2025	2	6	2
2430	6	Frame	1.5	1913	1528	2	4	2
2431	7	Stone	1	1936	1364	1	3	1
2432	7	Aluminum / Vinyl	2	1946	1456	1	3	1
2433	7	Brick	1	1929	1333	1	3	1
2434	8	Aluminum / Vinyl	1.5	1915	1688	1	3	1
2435	8	Aluminum / Vinyl	2	1900	2727	3	8	3
2436	10	Brick	1	1953	1222	1	4	1
2437	10	Aluminum / Vinyl	1	1920	608	1	1	1
2438	10	Aluminum / Vinyl	1.5	1926	1594	2	3	2
2439	11	Aluminum / Vinyl	1	1953	1318	1	3	1
2440	11	Aluminum / Vinyl	1	1937	917	1	2	1
2441	11	Masonry / Frame	2	1974	2071	1	4	2
2442	11	Aluminum / Vinyl	2	1959	1912	2	6	2
2443	11	Frame	1	1937	1282	1	3	1

2444	11	Stone	1	1954	1278	1	2	1
2445	11	Aluminum / Vinyl	1	1972	1152	1	3	1
2446	11	Brick	1	1959	1137	1	3	1
2447	11	Aluminum / Vinyl	1	1960	1042	1	3	2
2448	11	Aluminum / Vinyl	1	1963	1000	1	3	1
2449	11	Brick	1	1956	982	1	2	2
2450	11	Aluminum / Vinyl	1	1942	826	1	2	1
2451	12	Aluminum / Vinyl	1	1883	611	1	1	1
2452	12	Frame	2	1905	2032	2	6	2
2453	13	Aluminum / Vinyl	1	1958	1447	1	4	2
2454	13	Aluminum / Vinyl	1	1953	1286	1	4	2
2455	13	Aluminum / Vinyl	1	1940	1152	1	3	1
2456	13	Brick	1	1948	818	1	2	1
2457	13	Aluminum / Vinyl	1.5	1928	1860	2	3	2
2458	13	Brick	1	1960	1150	1	3	1
2459	14	Aluminum / Vinyl	1	1949	771	1	2	1
2460	14	Brick	1.5	1927	2362	2	3	2
2461	14	Brick	1.5	1926	2204	2	4	2
2462	14	Frame	1.5	1921	2708	1	4	1
2463	14	Brick	1	1956	1082	1	3	1
2464	14	Aluminum / Vinyl	2	1905	1458	1	3	1
2465	14	Aluminum / Vinyl	2	1903	1402	1	4	1
2466	1	Frame	1	1925	909	1	2	1
2467	1	Brick	1	1952	1620	1	3	1
2468	1	Stucco	1	1951	1242	1	3	1
2469	2	Aluminum / Vinyl	1	1951	1164	1	3	1
2470	3	Frame	1	1900	912	1	3	1
2471	3	Aluminum / Vinyl	2	1913	1632	1	4	2
2472	3	Stucco	2	1924	2163	1	4	2
2473	3	Aluminum / Vinyl	1	1900	1963	1	4	2
2474	5	Fiber-Cement	1.5	2003	3229	1	4	3
2475	5	Brick	1	1948	1369	1	3	1
2476	5	Aluminum / Vinyl	1	1952	1221	1	3	1
2477	5	Brick	1.5	1947	1109	1	3	1
2478	5	Aluminum / Vinyl	1	1956	976	1	2	1
2479	5	Masonry / Frame	2	1948	2058	2	4	2
2480	5	Brick	1.5	1956	2003	2	5	2
2481	5	Stone	1	1953	1749	1	3	1
2482	5	Frame	1	1953	1489	1	3	1
2483	5	Brick	1	1956	1223	1	3	2
2484	5	Aluminum / Vinyl	1	1960	1183	1	4	1
2485	5	Aluminum / Vinyl	1	1959	1171	1	3	1
2486	5	Aluminum / Vinyl	1	1956	1148	1	3	1

2487	5 Aluminum / Vinyl	1	1955	1084	1	3	1
2488	5 Aluminum / Vinyl	1	1955	948	1	3	1
2489	5 Brick	1	1955	937	1	3	1
2490	6 Aluminum / Vinyl	2	1893	1884	2	4	2
2491	6 Aluminum / Vinyl	1	1925	1509	1	3	1
2492	6 Aluminum / Vinyl	1	1916	1474	1	3	1
2493	6 Aluminum / Vinyl	1	1895	1485	1	3	2
2494	6 Aluminum / Vinyl	1	1895	1433	1	5	1
2495	7 Brick	1	1938	1554	1	3	2
2496	7 Aluminum / Vinyl	1.5	1941	1424	1	3	1
2497	7 Aluminum / Vinyl	1	1952	1116	1	2	1
2498	8 Frame	2	1924	2500	2	6	2
2499	8 Frame	1.5	1915	2229	2	5	2
2500	8 Aluminum / Vinyl	2	1910	2032	2	4	2
2501	8 Aluminum / Vinyl	1	1928	1612	1	3	1
2502	8 Aluminum / Vinyl	2	1900	1685	1	4	1
2503	8 Frame	1.5	1908	1431	1	3	1
2504	8 Aluminum / Vinyl	1	1918	984	1	2	1
2505	9 Aluminum / Vinyl	2	2005	2236	1	4	2
2506	9 Aluminum / Vinyl	1	1957	1211	1	3	1
2507	10 Aluminum / Vinyl	1	1953	1185	1	4	1
2508	10 Frame	1	1905	1323	1	2	2
2509	10 Aluminum / Vinyl	2	1929	2617	2	5	2
2510	10 Aluminum / Vinyl	2	1924	2498	2	4	2
2511	10 Frame	2	1927	2087	2	4	2
2512	10 Aluminum / Vinyl	1.5	1968	2066	2	5	2
2513	10 Aluminum / Vinyl	1	1919	1743	1	4	1
2514	10 Aluminum / Vinyl	1	1926	1431	1	4	2
2515	10 Aluminum / Vinyl	1.5	1927	1265	1	3	1
2516	10 Brick	1	1958	1218	1	2	1
2517	10 Aluminum / Vinyl	1	1949	1056	1	3	1
2518	10 Aluminum / Vinyl	1	1954	1008	1	2	1
2519	10 Frame	1.5	1926	1208	1	3	1
2520	11 Brick	1	1953	1210	1	3	2
2521	11 Aluminum / Vinyl	1	1937	1432	1	3	2
2522	11 Aluminum / Vinyl	2	1954	1728	2	6	2
2523	11 Frame	2	1955	1586	2	4	2
2524	11 Brick	1	1957	1175	1	3	1
2525	11 Brick	1	1961	1102	1	2	2
2526	11 Aluminum / Vinyl	1	1956	995	1	3	1
2527	11 Aluminum / Vinyl	1	1955	890	1	3	1
2528	11 Aluminum / Vinyl	1	1939	775	1	2	1
2529	12 Frame	1	1892	1452	1	3	1

2530	13	Stone	1	1948	1378	1	4	2
2531	13	Aluminum / Vinyl	1	1936	1141	1	2	1
2532	13	Aluminum / Vinyl	1	1925	865	1	2	1
2533	13	Aluminum / Vinyl	1	1977	1493	1	3	1
2534	13	Aluminum / Vinyl	1	1960	985	1	3	1
2535	13	Aluminum / Vinyl	1	1948	804	1	2	1
2536	14	Aluminum / Vinyl	1	1938	1354	1	4	1
2537	14	Aluminum / Vinyl	2	1968	2112	2	6	2
2538	14	Aluminum / Vinyl	1	1926	1587	1	4	2
2539	14	Aluminum / Vinyl	1	1930	1431	1	3	3
2540	14	Aluminum / Vinyl	1	1923	974	1	3	1
2541	14	Aluminum / Vinyl	2	1880	1712	1	4	1
2542	14	Aluminum / Vinyl	1	1896	1320	1	3	2
2543	14	Aluminum / Vinyl	1	1900	1160	1	3	1
2544	15	Aluminum / Vinyl	2	2009	1860	1	4	3
2545	15	Aluminum / Vinyl	2	2001	1456	1	3	2
2546	1	Masonry / Frame	2	1946	1564	1	3	1
2547	1	Aluminum / Vinyl	1.5	1929	2184	2	4	2
2548	1	Aluminum / Vinyl	1	1928	1145	1	3	1
2549	1	Brick	1	1931	1028	1	3	2
2550	1	Frame	1	1925	908	1	3	1
2551	2	Brick	1	1946	1037	1	3	1
2552	2	Aluminum / Vinyl	1.5	1967	2628	2	6	4
2553	2	Frame	1	1964	1416	1	3	2
2554	2	Aluminum / Vinyl	1	1970	1148	1	4	1
2555	2	Aluminum / Vinyl	1	1957	1040	1	3	1
2556	2	Aluminum / Vinyl	1	1952	969	1	2	1
2557	2	Aluminum / Vinyl	1	1955	963	1	3	1
2558	2	Brick	1	1958	888	1	2	1
2559	2	Frame	1	1957	742	1	2	1
2560	2	Aluminum / Vinyl	1	1955	1514	1	4	1
2561	2	Masonry / Frame	1	1961	1485	1	4	1
2562	3	Aluminum / Vinyl	1.5	1925	2020	2	4	2
2563	3	Aluminum / Vinyl	2	1906	1870	2	4	3
2564	3	Brick	1	1923	1557	1	3	1
2565	3	Brick	2	1903	3874	1	5	3
2566	3	Aluminum / Vinyl	2	1897	2932	1	4	2
2567	3	Brick	2	1925	2329	1	4	2
2568	3	Aluminum / Vinyl	2	1899	2219	1	4	1
2569	3	Stucco	2	1912	2104	1	5	2
2570	3	Stucco	2	1920	1992	1	4	1
2571	5	Aluminum / Vinyl	1	1949	1515	1	3	1
2572	5	Aluminum / Vinyl	1	1951	1512	1	4	2

2573	5	Brick	1	1950	1512	1	4	1
2574	5	Brick	1.5	1937	1413	1	2	1
2575	5	Frame	1	1952	1292	1	3	1
2576	5	Brick	1	1955	1231	1	3	1
2577	5	Stone	1	1948	1213	1	3	1
2578	5	Aluminum / Vinyl	1	1951	1211	1	3	1
2579	5	Aluminum / Vinyl	1	1951	1170	1	3	2
2580	5	Brick	1	1955	1026	1	2	1
2581	5	Brick	2	1939	1472	1	3	1
2582	5	Aluminum / Vinyl	1	1989	1833	1	3	2
2583	5	Brick	1	1962	1265	1	3	1
2584	5	Brick	1	1954	1237	1	3	1
2585	5	Aluminum / Vinyl	1	1971	1230	1	3	1
2586	5	Brick	1	1957	1134	1	3	1
2587	5	Aluminum / Vinyl	1	1957	1120	1	3	1
2588	5	Brick	1	1955	1120	1	3	1
2589	5	Aluminum / Vinyl	1	1956	1019	1	3	1
2590	5	Aluminum / Vinyl	1	1962	946	1	3	1
2591	5	Aluminum / Vinyl	1	1954	872	1	3	1
2592	6	Aluminum / Vinyl	1	1941	1577	1	4	1
2593	6	Aluminum / Vinyl	1.5	1904	1737	2	4	2
2594	6	Aluminum / Vinyl	1.5	1904	1737	2	4	2
2595	7	Brick	1	1952	1324	1	3	1
2596	7	Aluminum / Vinyl	1	1947	1133	1	3	1
2597	7	Brick	1	1946	1088	1	3	1
2598	7	Aluminum / Vinyl	1	1946	996	1	3	2
2599	8	Aluminum / Vinyl	1	1883	994	1	2	1
2600	8	Aluminum / Vinyl	1.5	1928	1868	2	4	2
2601	8	Frame	2	1915	2947	2	>8	2
2602	8	Masonry / Frame	1.5	1935	1644	1	3	1
2603	9	Aluminum / Vinyl	1	1969	1453	1	3	1
2604	9	Aluminum / Vinyl	1	1966	1385	1	3	1
2605	9	Brick	1	1957	1222	1	3	1
2606	9	Aluminum / Vinyl	1	1978	1219	1	3	1
2607	9	Brick	1	1957	1050	1	3	1
2608	9	Aluminum / Vinyl	1	1956	946	1	3	1
2609	9	Brick	1	1958	924	1	3	1
2610	10	Brick	1.5	1937	1496	1	4	1
2611	10	Aluminum / Vinyl	1.5	1947	1481	1	5	2
2612	10	Block	1.5	1941	1415	1	3	1
2613	10	Aluminum / Vinyl	1	1947	1012	1	3	2
2614	10	Aluminum / Vinyl	1.5	1900	1342	1	2	1
2615	10	Brick	2	1954	3018	2	6	2

2616	10	Aluminum / Vinyl	1.5	1914	1822	2	4	2
2617	10	Aluminum / Vinyl	1	1920	1727	1	4	1
2618	10	Brick	1	1923	1659	1	3	2
2619	10	Aluminum / Vinyl	1	1923	1604	1	4	2
2620	10	Frame	1	1920	1569	1	4	2
2621	10	Frame	1	1924	1529	1	3	2
2622	10	Aluminum / Vinyl	1	1928	1470	1	4	2
2623	10	Aluminum / Vinyl	1	1924	1081	1	3	1
2624	10	Stucco	1.5	1916	1422	1	3	1
2625	11	Aluminum / Vinyl	1	1953	1411	1	4	1
2626	11	Aluminum / Vinyl	1	1943	1399	1	3	1
2627	11	Brick	1	1955	1151	1	3	2
2628	11	Aluminum / Vinyl	1	1944	1004	1	3	1
2629	11	Masonry / Frame	2	1955	1846	1	4	2
2630	11	Aluminum / Vinyl	1.5	1955	2083	2	5	2
2631	11	Aluminum / Vinyl	1	1952	1588	1	3	1
2632	11	Brick	1	1955	1208	1	3	2
2633	11	Aluminum / Vinyl	1	1960	1171	1	2	1
2634	11	Brick	1	1955	1150	1	3	1
2635	11	Aluminum / Vinyl	1	1959	1113	1	3	1
2636	11	Aluminum / Vinyl	1	1959	1093	1	3	1
2637	11	Aluminum / Vinyl	1	1955	999	1	2	1
2638	11	Aluminum / Vinyl	1	1953	971	1	3	1
2639	11	Aluminum / Vinyl	1	1954	943	1	3	1
2640	11	Brick	1	1956	938	1	2	1
2641	11	Aluminum / Vinyl	1	1950	833	1	2	1
2642	11	Aluminum / Vinyl	1	1945	717	1	2	1
2643	12	Aluminum / Vinyl	2	1891	2371	2	6	2
2644	12	Frame	1.5	1900	1804	2	4	2
2645	13	Prem Wood	1.5	1979	2074	1	4	3
2646	13	Aluminum / Vinyl	1.5	1940	1215	1	2	1
2647	13	Aluminum / Vinyl	2	1969	1973	1	3	1
2648	13	Brick	2	1960	2642	2	6	3
2649	13	Brick	1.5	1948	2081	2	4	2
2650	13	Brick	1.5	1958	2056	2	5	2
2651	13	Stone	1	1951	1541	1	3	2
2652	13	Brick	1	1963	1175	1	3	1
2653	13	Aluminum / Vinyl	1	1968	1092	1	3	1
2654	13	Aluminum / Vinyl	1	1960	981	1	3	1
2655	13	Aluminum / Vinyl	1	1950	922	1	3	1
2656	13	Aluminum / Vinyl	1	1954	720	1	2	1
2657	14	Aluminum / Vinyl	1	1954	1128	1	3	1
2658	14	Brick	1	1940	1109	1	4	1

2659	14	Aluminum / Vinyl	1	1951	1092	1	4	1
2660	14	Aluminum / Vinyl	2	1954	1403	1	3	1
2661	14	Aluminum / Vinyl	1	1923	1556	2	3	2
2662	14	Brick	1.5	1954	2416	2	6	2
2663	14	Aluminum / Vinyl	1	1922	1452	1	3	2
2664	14	Frame	1	1918	1394	1	3	1
2665	14	Masonry / Frame	1	1959	1539	1	3	1
2666	15	Frame	2	1895	1642	2	4	2
2667	15	Frame	1	1920	1725	1	4	2
2668	15	Aluminum / Vinyl	1	2005	1344	1	3	1
2669	1	Aluminum / Vinyl	1	1951	1274	1	4	1
2670	1	Aluminum / Vinyl	1	1948	1248	1	3	1
2671	1	Aluminum / Vinyl	1	1951	802	1	2	1
2672	1	Frame	1	1926	1347	1	3	1
2673	1	Aluminum / Vinyl	1	1960	1130	1	3	1
2674	1	Aluminum / Vinyl	1	1960	1104	1	3	1
2675	1	Masonry / Frame	1	1956	1045	1	3	2
2676	1	Aluminum / Vinyl	1	1954	1024	1	1	1
2677	1	Brick	1	1929	1422	1	4	2
2678	2	Brick	1	1950	1630	1	3	2
2679	2	Aluminum / Vinyl	1	1954	1299	1	3	1
2680	2	Brick	2	1959	2469	2	6	2
2681	2	Frame	1	1962	1538	1	3	2
2682	2	Aluminum / Vinyl	1	1965	1312	1	3	1
2683	2	Aluminum / Vinyl	1	1967	1205	1	3	1
2684	2	Stone	1	1961	1196	1	3	1
2685	2	Aluminum / Vinyl	1	1955	1175	1	3	1
2686	2	Aluminum / Vinyl	1	1974	1122	1	3	1
2687	2	Masonry / Frame	1	1948	1032	1	3	1
2688	2	Brick	1	1955	1024	1	3	1
2689	2	Aluminum / Vinyl	1	1955	950	1	3	1
2690	2	Aluminum / Vinyl	1	1959	936	1	3	1
2691	2	Brick	1	1956	936	1	3	1
2692	2	Aluminum / Vinyl	1	1951	912	1	3	1
2694	2	Aluminum / Vinyl	1	1966	2092	1	3	1
2695	2	Aluminum / Vinyl	1	1961	1510	1	4	1
2696	3	Aluminum / Vinyl	2	1922	2755	2	6	2
2697	3	Aluminum / Vinyl	2	1896	3128	2	8	2
2698	3	Aluminum / Vinyl	1	1891	2111	2	4	2
2699	3	Frame	2	1906	2105	1	3	3
2700	3	Frame	2	1901	1915	1	4	1
2701	3	Masonry / Frame	2	1926	1757	1	3	1
2702	3	Frame	2	1921	1694	1	3	1

2703	3	Frame	1	1900	1036	1	1	1
2704	4	Block	2	1893	1810	1	4	1
2705	5	Brick	1	1950	1729	1	4	2
2706	5	Brick	1	1951	1507	1	3	2
2707	5	Brick	1	1949	1477	1	4	1
2708	5	Frame	1	1950	1315	1	3	1
2709	5	Aluminum / Vinyl	1.5	1940	1312	1	3	1
2710	5	Aluminum / Vinyl	1	1949	1288	1	5	2
2711	5	Brick	1	1949	1263	1	3	1
2712	5	Aluminum / Vinyl	1	1956	1257	1	4	2
2713	5	Aluminum / Vinyl	1	1957	1225	1	3	1
2714	5	Stone	1	1949	1224	1	3	1
2715	5	Brick	1	1950	1156	1	2	1
2716	5	Aluminum / Vinyl	1	1952	1142	1	4	1
2717	5	Aluminum / Vinyl	1.5	1930	1919	2	3	2
2718	5	Stone	1	1953	1863	1	3	2
2719	5	Stone	1	1954	1760	1	2	1
2720	5	Brick	1	1967	1632	1	3	1
2721	5	Aluminum / Vinyl	1	1985	1465	1	3	2
2722	5	Frame	1	1959	1220	1	3	1
2723	5	Brick	1	1959	1219	1	3	1
2724	5	Aluminum / Vinyl	1	1971	1212	1	4	1
2725	5	Frame	1	1956	1130	1	3	1
2726	5	Aluminum / Vinyl	1	1962	1102	1	3	1
2727	5	Aluminum / Vinyl	1	1957	963	1	3	1
2728	5	Aluminum / Vinyl	1	1957	963	1	3	1
2729	5	Aluminum / Vinyl	1	1954	962	1	3	1
2730	5	Brick	1	1947	952	1	2	2
2731	5	Brick	1	1947	952	1	2	2
2732	5	Aluminum / Vinyl	1	1950	874	1	2	1
2733	5	Aluminum / Vinyl	1	1951	772	1	2	1
2734	5	Aluminum / Vinyl	1	1952	698	1	2	1
2735	5	Aluminum / Vinyl	1	1924	1086	1	3	1
2736	6	Brick	1.5	1927	2027	2	4	2
2737	6	Frame	1.5	1900	1635	2	4	2
2738	6	Aluminum / Vinyl	1	1925	1267	1	3	2
2739	6	Aluminum / Vinyl	1	1926	1243	1	3	1
2740	6	Aluminum / Vinyl	2	1888	1996	1	4	2
2741	7	Aluminum / Vinyl	1	1942	1307	1	3	1
2742	7	Brick	1.5	1937	1231	1	2	1
2743	7	Brick	1	1950	1227	1	3	1
2744	7	Stone	1	1947	1192	1	3	1
2745	7	Masonry / Frame	2	1951	2173	1	3	1

2746	7 Aluminum / Vinyl	2	1928	2410	2	6	2
2747	7 Aluminum / Vinyl	1.5	1926	2372	2	4	2
2748	7 Aluminum / Vinyl	2	1920	2354	2	5	2
2749	7 Frame	1	1927	1642	2	3	2
2750	7 Block	1	1926	797	1	3	1
2751	7 Aluminum / Vinyl	2	1900	1208	1	3	1
2752	8 Block	1	1946	1047	1	2	1
2753	8 Aluminum / Vinyl	1	1897	1003	1	3	1
2754	8 Aluminum / Vinyl	1.5	1929	2013	2	5	2
2755	8 Aluminum / Vinyl	2	1912	1848	2	4	2
2756	8 Brick	1	1921	1849	1	5	1
2757	8 Brick	1.5	1925	2004	1	4	1
2758	8 Aluminum / Vinyl	1.5	1906	1431	1	3	1
2759	8 Aluminum / Vinyl	1	1890	1429	1	3	1
2760	8 Aluminum / Vinyl	1	1910	1398	1	4	1
2761	8 Aluminum / Vinyl	1	1905	1088	1	3	1
2762	8 Aluminum / Vinyl	1	1925	1052	1	2	1
2763	9 Brick	1	1949	1147	1	3	1
2764	9 Aluminum / Vinyl	1	1969	1318	1	4	1
2765	9 Aluminum / Vinyl	1	1957	1188	1	3	1
2766	9 Aluminum / Vinyl	1	1958	1071	1	3	1
2767	9 Aluminum / Vinyl	1	1957	1018	1	3	1
2768	9 Aluminum / Vinyl	1	1981	912	1	3	2
2769	10 Stone	1	1948	1516	1	3	2
2770	10 Brick	1	1953	1368	1	3	1
2771	10 Brick	1	1952	1222	1	3	1
2772	10 Aluminum / Vinyl	1	1947	1211	1	3	1
2773	10 Aluminum / Vinyl	1	1947	1046	1	3	1
2774	10 Aluminum / Vinyl	1	1955	964	1	3	1
2775	10 Frame	2	1913	2091	1	4	1
2776	10 Frame	2	1923	1655	1	4	1
2777	10 Masonry / Frame	2	1948	1597	1	3	1
2778	10 Aluminum / Vinyl	2	1922	1390	1	3	2
2779	10 Aluminum / Vinyl	2	1926	1291	1	3	1
2780	10 Aluminum / Vinyl	2	1951	1260	1	3	1
2781	10 Masonry / Frame	2	1951	1151	1	3	1
2782	10 Aluminum / Vinyl	2	1926	2618	2	4	2
2783	10 Aluminum / Vinyl	2	1922	2460	2	6	2
2784	10 Aluminum / Vinyl	2	1959	1962	2	6	2
2785	10 Brick	2	1944	1722	2	4	2
2786	10 Aluminum / Vinyl	1	1924	1514	1	3	1
2787	10 Aluminum / Vinyl	1	1926	1270	1	3	1
2788	10 Aluminum / Vinyl	1	1925	1268	1	4	2

2789	10	Aluminum / Vinyl	1	1929	1219	1	3	1
2790	10	Aluminum / Vinyl	1	1926	948	1	2	1
2791	10	Brick	1	1953	1189	1	3	1
2792	10	Aluminum / Vinyl	1	1955	864	1	3	1
2793	10	Aluminum / Vinyl	1	1947	728	1	2	1
2794	10	Aluminum / Vinyl	1	1926	1142	1	3	1
2795	10	Stucco	1	1925	932	1	2	1
2796	11	Brick	1.5	1937	1751	1	3	1
2797	11	Brick	1	1953	1363	1	4	1
2798	11	Aluminum / Vinyl	1	1952	1012	1	3	1
2799	11	Aluminum / Vinyl	1	1942	984	1	3	1
2800	11	Fiber-Cement	2	2006	3027	1	4	2
2801	11	Masonry / Frame	2	1963	2328	1	4	2
2802	11	Aluminum / Vinyl	2	2009	1320	1	3	0
2803	11	Aluminum / Vinyl	1	1922	1364	1	3	1
2804	11	Brick	1	1955	1359	1	2	1
2805	11	Stone	1	1952	1193	1	2	1
2806	11	Brick	1	1954	1168	1	3	1
2807	11	Brick	1	1956	1148	1	3	2
2808	11	Brick	1	1959	1131	1	3	1
2809	11	Brick	1	1961	1127	1	2	1
2810	11	Aluminum / Vinyl	1	1957	1106	1	2	1
2811	11	Aluminum / Vinyl	1	1953	1104	1	3	1
2812	11	Aluminum / Vinyl	1	1964	1074	1	3	1
2813	11	Aluminum / Vinyl	1	1966	1033	1	3	1
2814	11	Aluminum / Vinyl	1	1963	1026	1	3	1
2815	11	Aluminum / Vinyl	1	1956	1019	1	3	1
2816	11	Aluminum / Vinyl	1	1954	1000	1	3	1
2817	11	Aluminum / Vinyl	1	1957	958	1	3	1
2818	11	Aluminum / Vinyl	1	1953	943	1	3	1
2819	11	Aluminum / Vinyl	1	1952	914	1	3	1
2820	11	Aluminum / Vinyl	1	1954	904	1	3	1
2821	11	Brick	1	1950	895	1	2	1
2822	11	Aluminum / Vinyl	1	1952	880	1	3	1
2823	11	Aluminum / Vinyl	1	1953	879	1	3	1
2824	11	Aluminum / Vinyl	1	1953	879	1	3	1
2825	11	Aluminum / Vinyl	1	1953	879	1	3	1
2826	11	Aluminum / Vinyl	1	1953	876	1	3	1
2827	11	Aluminum / Vinyl	1	1956	876	1	3	1
2828	11	Aluminum / Vinyl	1	1953	864	1	3	1
2829	11	Aluminum / Vinyl	1	1952	811	1	2	1
2830	11	Aluminum / Vinyl	1	1949	706	1	2	1
2831	11	Aluminum / Vinyl	1	1953	672	1	2	1

2832	11	Frame	1	1899	1426	1	3	1
2833	11	Aluminum / Vinyl	1	1925	1301	1	3	2
2834	11	Aluminum / Vinyl	1	1927	1028	1	2	1
2835	11	Brick	2	1956	2806	2	6	2
2836	11	Stone	1.5	1939	1235	1	3	1
2837	12	Frame	2	1914	1768	2	4	2
2838	12	Frame	1	1901	1248	1	3	1
2839	12	Aluminum / Vinyl	1	1912	1180	1	3	1
2840	12	Aluminum / Vinyl	1	1896	1037	1	3	0
2841	12	Aluminum / Vinyl	1	1885	996	1	3	1
2842	12	Aluminum / Vinyl	2	1912	1628	3	4	3
2843	13	Brick	1	1947	1238	1	3	2
2844	13	Brick	1	1951	1200	1	3	1
2845	13	Brick	1	1950	1134	1	3	1
2846	13	Aluminum / Vinyl	1	1940	1078	1	2	2
2847	13	Aluminum / Vinyl	1	1952	1053	1	3	1
2848	13	Aluminum / Vinyl	1	1948	981	1	3	1
2849	13	Aluminum / Vinyl	2	1939	1198	1	2	1
2850	13	Aluminum / Vinyl	2	1940	1193	1	2	1
2851	13	Aluminum / Vinyl	1	1928	1588	2	3	2
2852	13	Brick	2	1960	2076	2	6	2
2853	13	Aluminum / Vinyl	1	1927	1229	1	3	2
2854	13	Aluminum / Vinyl	1	1974	1473	1	3	1
2855	13	Brick	1	1964	1140	1	3	1
2856	13	Brick	1	1967	1129	1	3	1
2857	13	Brick	1	1948	993	1	2	1
2858	13	Aluminum / Vinyl	1	1950	796	1	2	1
2859	13	Aluminum / Vinyl	1	1947	672	1	2	1
2860	14	Aluminum / Vinyl	1	1940	1173	1	3	1
2861	14	Aluminum / Vinyl	1	1953	652	1	2	1
2862	14	Masonry / Frame	2	1925	1580	1	3	1
2863	14	Aluminum / Vinyl	2	1939	1372	1	3	1
2864	14	Aluminum / Vinyl	1	1901	1122	1	4	1
2865	14	Aluminum / Vinyl	2	1924	2148	2	4	2
2866	14	Aluminum / Vinyl	1.5	1927	1890	2	3	2
2867	14	Aluminum / Vinyl	1.5	1916	1648	2	3	2
2868	14	Frame	1.5	1925	1632	2	4	2
2869	14	Aluminum / Vinyl	1	1900	1623	2	5	2
2870	14	Aluminum / Vinyl	1.5	1913	1764	1	5	1
2871	14	Frame	1.5	1929	1173	1	3	1
2872	14	Aluminum / Vinyl	1	1923	1150	1	4	2
2873	14	Aluminum / Vinyl	1	1929	1021	1	2	1
2874	14	Aluminum / Vinyl	1	1944	768	1	2	1

2875	14 Aluminum / Vinyl	1.5	1886	1728	1	4	1
2876	14 Aluminum / Vinyl	1	1900	1431	1	4	2
2877	14 Frame	1	1922	1178	1	3	1
2878	14 Aluminum / Vinyl	1	1928	1065	1	3	1
2879	14 Aluminum / Vinyl	1	1884	1050	1	4	2
2880	14 Frame	1	1928	864	1	1	1
2881	15 Brick	2	1924	2224	1	4	1
2882	15 Aluminum / Vinyl	2	1907	2138	2	4	2
2883	15 Aluminum / Vinyl	2	1875	1656	2	4	2
2884	15 Aluminum / Vinyl	1	1924	748	1	1	1
2886	1 Stone	1	1940	1488	1	4	1
2887	1 Brick	1	1952	1256	1	4	1
2888	1 Aluminum / Vinyl	1	1951	1193	1	4	2
2889	1 Aluminum / Vinyl	1	1941	879	1	3	1
2890	1 Frame	1	1952	1247	1	3	1
2891	1 Aluminum / Vinyl	1	1926	1142	1	3	1
2892	1 Brick	2	1927	1822	1	3	1
2893	2 Stone	2	1934	1806	1	5	1
2894	2 Masonry / Frame	2	1957	2323	2	6	2
2895	2 Aluminum / Vinyl	2	1956	2200	2	6	2
2896	2 Brick	1.5	1956	2077	2	4	2
2897	2 Brick	1	1955	1177	1	3	1
2898	2 Aluminum / Vinyl	1	1967	1072	1	3	1
2899	2 Brick	1	1959	1016	1	3	1
2900	2 Aluminum / Vinyl	1	1955	950	1	3	2
2901	2 Aluminum / Vinyl	1	1955	950	1	3	1
2902	2 Frame	1	1957	925	1	3	1
2903	3 Frame	1	1890	1184	1	3	1
2904	3 Aluminum / Vinyl	1	1880	917	1	2	1
2905	3 Aluminum / Vinyl	2	1912	3350	2	7	3
2906	3 Aluminum / Vinyl	2	1912	1548	1	3	1
2907	4 Stucco	2	1908	2584	1	5	1
2908	5 Brick	1.5	1941	2003	1	4	2
2909	5 Stone	1.5	1949	1758	1	4	2
2910	5 Stone	1	1946	1397	1	3	1
2911	5 Stone	1	1947	1389	1	4	1
2912	5 Brick	1	1956	1258	1	4	2
2913	5 Aluminum / Vinyl	1.5	1954	1192	1	4	2
2914	5 Brick	1	1950	1158	1	3	1
2915	5 Aluminum / Vinyl	1	1953	1102	1	3	2
2916	5 Aluminum / Vinyl	1	1950	980	1	3	1
2917	5 Aluminum / Vinyl	1	1948	858	1	2	1
2918	5 Aluminum / Vinyl	2	1953	1422	1	3	1

2919	5	Aluminum / Vinyl	2	1950	3191	2	6	2
2920	5	Brick	2	1959	2478	2	6	2
2921	5	Brick	2	1959	2478	2	6	2
2922	5	Brick	2	1952	2455	2	4	2
2923	5	Prem Wood	1	2001	2073	1	3	2
2924	5	Brick	1	1955	1475	1	3	2
2925	5	Brick	1	1954	1465	1	2	1
2926	5	Brick	1	1958	1415	1	2	1
2927	5	Brick	1	1956	1382	1	3	1
2928	5	Aluminum / Vinyl	1	1969	1331	1	3	1
2929	5	Brick	1	1960	1235	1	2	2
2930	5	Aluminum / Vinyl	1	1971	1204	1	4	1
2931	5	Brick	1	1956	1150	1	3	1
2932	5	Aluminum / Vinyl	1	1949	1136	1	3	1
2933	5	Aluminum / Vinyl	1	1956	1132	1	3	1
2934	5	Brick	1	1960	1127	1	3	1
2935	5	Aluminum / Vinyl	1	1957	1107	1	3	1
2936	5	Aluminum / Vinyl	1	1955	1099	1	3	1
2937	5	Brick	1	1958	1084	1	3	1
2938	5	Aluminum / Vinyl	1	1948	1027	1	2	1
2939	5	Aluminum / Vinyl	1	1955	1008	1	3	1
2940	5	Aluminum / Vinyl	1	1959	994	1	3	1
2941	5	Aluminum / Vinyl	1	1955	993	1	3	1
2942	5	Brick	1	1956	978	1	3	1
2943	5	Brick	1	1956	936	1	3	1
2944	5	Aluminum / Vinyl	1	1950	871	1	3	1
2945	5	Aluminum / Vinyl	1	1951	789	1	2	1
2946	5	Aluminum / Vinyl	1	1959	1557	1	3	1
2947	6	Fiber-Cement	2	2004	2146	1	3	2
2948	6	Frame	1	1880	1120	1	1	2
2949	6	Frame	2	1890	2428	1	4	2
2950	6	Aluminum / Vinyl	1.5	1910	1645	1	5	1
2951	6	Frame	1	1890	1488	1	3	1
2952	6	Aluminum / Vinyl	1.5	1913	1391	1	3	1
2953	6	Frame	1.5	1880	1350	1	2	1
2954	6	Aluminum / Vinyl	1	1923	1276	1	4	1
2955	6	Aluminum / Vinyl	1	1901	1228	1	4	1
2956	7	Stone	1.5	1934	1755	1	3	1
2957	7	Stone	1	1947	1441	1	3	2
2958	7	Frame	1	1936	1001	1	2	1
2959	7	Aluminum / Vinyl	1	1922	589	1	1	1
2960	7	Brick	2	1958	2284	2	6	2
2961	7	Aluminum / Vinyl	1	1922	1743	1	4	2

2962	7 Aluminum / Vinyl	1	1900	990	1	3	1
2963	8 Aluminum / Vinyl	2	1900	2278	2	6	2
2964	8 Frame	1.5	1918	1636	2	3	2
2965	8 Aluminum / Vinyl	1	1923	1088	1	4	1
2966	8 Brick	1	1955	1188	1	3	1
2967	8 Frame	2	1916	2076	1	3	1
2968	8 Aluminum / Vinyl	1	1892	1523	1	4	2
2969	8 Aluminum / Vinyl	1	1892	1523	1	4	2
2970	8 Aluminum / Vinyl	1.5	1904	1386	1	3	1
2971	8 Aluminum / Vinyl	1.5	1904	1386	1	3	1
2972	9 Fiber-Cement	1	2010	2153	1	3	2
2973	9 Aluminum / Vinyl	1	1968	2127	1	4	2
2974	9 Aluminum / Vinyl	1	1974	1584	1	3	1
2975	9 Aluminum / Vinyl	1	1969	1142	1	2	1
2976	9 Frame	1	1959	1092	1	3	2
2977	9 Aluminum / Vinyl	1	1956	946	1	3	1
2978	9 Aluminum / Vinyl	2	1980	2464	2	6	2
2979	10 Stone	1	1940	1524	1	3	1
2980	10 Aluminum / Vinyl	1	1952	1221	1	4	1
2981	10 Brick	1	1950	1220	1	3	1
2982	10 Aluminum / Vinyl	1	1946	1093	1	3	2
2983	10 Brick	2	1940	1709	1	3	2
2984	10 Block	2	1948	1639	1	3	2
2985	10 Aluminum / Vinyl	2	1951	1514	1	2	1
2986	10 Aluminum / Vinyl	1	1928	1014	1	2	1
2987	10 Aluminum / Vinyl	1	1914	787	1	2	1
2988	10 Brick	2	1922	3609	2	6	2
2989	10 Aluminum / Vinyl	1.5	1925	1891	1	3	2
2990	10 Aluminum / Vinyl	1	1924	1209	1	2	1
2991	10 Aluminum / Vinyl	1	1924	1132	1	3	1
2992	10 Frame	1	1926	1073	1	3	1
2993	10 Aluminum / Vinyl	1	1922	1013	1	2	1
2994	10 Aluminum / Vinyl	1	1918	972	1	4	1
2995	10 Aluminum / Vinyl	1	1955	969	1	3	1
2996	10 Aluminum / Vinyl	1	1954	965	1	3	1
2997	10 Brick	1	1953	784	1	2	1
2998	10 Frame	1	1950	728	1	2	1
2999	10 Masonry / Frame	2	1917	2713	1	5	2
3000	10 Aluminum / Vinyl	2	1893	1741	1	3	1
3001	10 Aluminum / Vinyl	1.5	1900	1685	1	5	1
3002	10 Aluminum / Vinyl	1.5	1922	1392	1	3	2
3003	10 Frame	1	1900	1327	1	3	2
3004	10 Aluminum / Vinyl	1	1919	1063	1	3	1

3005	10	Frame	1	1927	970	1	3	1
3006	10	Stone	2	1956	3630	3	7	4
3007	10	Brick	2	1930	2681	1	3	1
3008	10	Brick	1.5	1931	1560	1	3	1
3009	11	Brick	1.5	1951	2384	1	5	2
3010	11	Aluminum / Vinyl	1	1956	1942	1	3	1
3011	11	Aluminum / Vinyl	1.5	1942	1254	1	2	1
3012	11	Aluminum / Vinyl	1	1952	1129	1	3	1
3013	11	Aluminum / Vinyl	1	1953	1073	1	3	1
3014	11	Aluminum / Vinyl	1	1953	996	1	3	1
3015	11	Aluminum / Vinyl	2	1984	1902	1	3	2
3016	11	Aluminum / Vinyl	2	1957	1378	1	3	1
3017	11	Brick	2	1955	2924	2	5	2
3018	11	Brick	2	1957	2268	2	6	2
3019	11	Aluminum / Vinyl	2	1956	1948	2	6	2
3020	11	Aluminum / Vinyl	1	1984	1597	1	3	3
3021	11	Brick	1	1967	1173	1	3	1
3022	11	Brick	1	1955	1153	1	3	2
3023	11	Brick	1	1959	1130	1	3	1
3024	11	Stone	1	1954	1120	1	3	1
3025	11	Brick	1	1954	1058	1	3	1
3026	11	Aluminum / Vinyl	1	1956	1019	1	3	1
3027	11	Brick	1	1953	1013	1	3	1
3028	11	Aluminum / Vinyl	1	1961	985	1	3	1
3029	11	Aluminum / Vinyl	1	1956	958	1	2	1
3030	11	Aluminum / Vinyl	1	1955	955	1	3	1
3031	11	Brick	1	1956	934	1	3	1
3032	11	Brick	1.5	1918	1479	1	4	1
3033	12	Frame	1	1885	1528	1	5	1
3034	12	Frame	1	1900	1232	1	3	2
3035	12	Aluminum / Vinyl	1	1895	948	1	3	1
3036	12	Aluminum / Vinyl	1	1905	2530	2	7	2
3037	12	Aluminum / Vinyl	2	1900	1814	2	4	1
3039	13	Aluminum / Vinyl	1	1950	1132	1	4	1
3040	13	Stone	1.5	1940	1098	1	2	1
3041	13	Stone	1	1946	968	1	3	1
3042	13	Aluminum / Vinyl	1	1953	840	1	2	1
3043	13	Aluminum / Vinyl	1	1940	816	1	3	1
3044	13	Aluminum / Vinyl	2	1946	1378	1	3	1
3045	13	Aluminum / Vinyl	1	1926	1348	1	4	1
3046	13	Frame	1	1964	1726	1	3	1
3047	13	Aluminum / Vinyl	1	1938	1395	1	3	2
3048	13	Aluminum / Vinyl	1	1965	1144	1	3	1

3049	13	Frame	1	1961	1098	1	3	1
3050	13	Aluminum / Vinyl	1	1966	1036	1	3	1
3051	13	Aluminum / Vinyl	1	1961	981	1	3	2
3052	13	Aluminum / Vinyl	1	1959	927	1	3	1
3053	13	Aluminum / Vinyl	1	1959	921	1	3	2
3054	13	Aluminum / Vinyl	1	1958	905	1	3	1
3055	13	Aluminum / Vinyl	1	1954	872	1	3	1
3056	13	Stone	1	1953	825	1	2	1
3057	13	Aluminum / Vinyl	1	1946	679	1	2	1
3058	13	Aluminum / Vinyl	1	1950	651	1	2	1
3059	14	Aluminum / Vinyl	1.5	1949	1765	1	3	1
3060	14	Aluminum / Vinyl	1	1956	1203	1	2	1
3061	14	Stucco	1	1944	1188	1	2	2
3062	14	Brick	1	1950	1095	1	3	1
3063	14	Brick	1	1948	828	1	2	1
3064	14	Aluminum / Vinyl	2	1948	1378	1	3	1
3065	14	Aluminum / Vinyl	1	1901	1130	1	3	1
3066	14	Aluminum / Vinyl	1	1895	640	1	3	1
3067	14	Brick	1.5	1926	2358	2	5	2
3068	14	Masonry / Frame	2	1928	1942	2	3	3
3069	14	Brick	2	1939	1906	2	4	2
3070	14	Frame	2	1910	2172	2	5	2
3071	14	Aluminum / Vinyl	1.5	1918	1786	2	5	2
3072	14	Aluminum / Vinyl	1.5	1912	1294	2	2	2
3073	14	Aluminum / Vinyl	1	1890	1516	2	3	2
3074	14	Aluminum / Vinyl	1	1905	1360	2	4	1
3075	14	Aluminum / Vinyl	1	1926	1894	1	4	2
3076	14	Aluminum / Vinyl	1.5	1925	1691	1	4	2
3077	14	Frame	1	1926	1622	1	3	2
3078	14	Frame	1	1923	1414	1	4	2
3079	14	Frame	1	1926	1410	1	4	1
3080	14	Frame	1	1927	1331	1	3	1
3081	14	Aluminum / Vinyl	1	1926	1325	1	2	1
3082	14	Stucco	1	1944	1399	1	3	2
3083	14	Aluminum / Vinyl	1	1953	1100	1	3	1
3084	14	Aluminum / Vinyl	1	1953	1100	1	3	1
3085	14	Aluminum / Vinyl	1	1911	1823	1	3	2
3086	14	Aluminum / Vinyl	1.5	1900	1556	1	4	2
3087	14	Aluminum / Vinyl	1	1908	1549	1	4	1
3088	14	Frame	1.5	1885	1336	1	3	2
3089	14	Aluminum / Vinyl	1.5	1888	1179	1	3	1
3090	15	Aluminum / Vinyl	2	2004	2197	1	3	2
3091	15	Aluminum / Vinyl	>2	2006	1884	1	2	2

3092	15	Frame	1	1922	1419	1	3	1
3093	15	Aluminum / Vinyl	1	1970	1023	1	3	1
3094	1	Brick	2	1953	1388	1	4	1
3095	1	Stone	1	1941	1276	1	3	1
3096	1	Brick	1	1946	1173	1	3	1
3097	1	Brick	1	1953	1058	1	3	1
3098	1	Brick	1	1953	1058	1	3	1
3099	1	Brick	1	1949	744	1	2	1
3100	1	Aluminum / Vinyl	1	1905	820	1	2	1
3101	1	Aluminum / Vinyl	1.5	1928	2012	2	4	2
3102	1	Masonry / Frame	2	1951	1692	2	4	2
3103	1	Aluminum / Vinyl	1.5	1920	1188	2	3	2
3104	1	Frame	1	1928	1624	1	4	1
3105	1	Aluminum / Vinyl	1	2007	1439	1	3	2
3106	1	Frame	1	1952	1144	1	3	1
3107	1	Brick	1	1952	998	1	2	1
3108	1	Brick	1	1949	816	1	1	1
3109	2	Brick	1	1959	1416	1	4	2
3110	2	Brick	1	1951	1350	1	2	1
3111	2	Aluminum / Vinyl	1	1955	1211	1	3	1
3112	2	Brick	1.5	1940	1104	1	2	1
3113	2	Aluminum / Vinyl	1	1955	1068	1	4	1
3114	2	Brick	2	1959	2662	2	6	2
3115	2	Brick	1	1959	1206	1	3	1
3116	2	Brick	1	1955	1177	1	3	1
3117	2	Frame	1	1972	1144	1	4	1
3118	2	Aluminum / Vinyl	1	1955	1120	1	3	1
3119	2	Aluminum / Vinyl	1	1956	1041	1	3	1
3120	2	Aluminum / Vinyl	1	1976	1022	1	3	1
3121	2	Brick	1	1955	1020	1	3	1
3122	2	Aluminum / Vinyl	1	1955	950	1	3	1
3123	2	Aluminum / Vinyl	1	1956	936	1	3	1
3124	2	Aluminum / Vinyl	1	1950	930	1	2	1
3125	2	Aluminum / Vinyl	1	1957	925	1	3	1
3126	2	Aluminum / Vinyl	1	1956	905	1	3	1
3127	3	Frame	2	1923	2210	1	4	2
3128	3	Masonry / Frame	2	1925	1994	1	3	1
3129	3	Aluminum / Vinyl	2	1890	1813	1	4	2
3130	3	Aluminum / Vinyl	2	1890	2973	2	6	2
3131	3	Frame	1.5	1890	2507	2	4	2
3132	3	Aluminum / Vinyl	2	1900	1642	2	4	2
3133	3	Brick	1	1929	1999	1	4	2
3134	3	Frame	1.5	1920	1980	1	4	1

3135	3	Aluminum / Vinyl	1.5	1922	1970	1	3	1
3136	3	Frame	1	1914	1692	1	4	1
3137	3	Frame	1.5	1889	1494	1	3	1
3138	3	Frame	1	1900	1049	1	3	1
3139	4	Stucco	1	1909	1040	1	4	2
3140	5	Aluminum / Vinyl	1	1976	1784	1	4	3
3141	5	Brick	1.5	1948	1748	1	4	2
3142	5	Stone	1.5	1947	1646	1	4	2
3143	5	Brick	1	1950	1600	1	4	2
3144	5	Aluminum / Vinyl	1.5	1939	1553	1	3	2
3145	5	Aluminum / Vinyl	1	1954	1510	1	3	1
3146	5	Brick	1	1947	1322	1	3	1
3147	5	Aluminum / Vinyl	1	1952	1215	1	3	1
3148	5	Aluminum / Vinyl	1	1952	1168	1	4	2
3149	5	Aluminum / Vinyl	1	1952	1080	1	4	2
3150	5	Brick	1	1940	1071	1	3	1
3151	5	Fiber-Cement	2	2008	3535	1	5	3
3152	5	Aluminum / Vinyl	2	2009	2195	1	4	2
3153	5	Brick	2	1946	1498	1	3	1
3154	5	Masonry / Frame	2	1955	2079	2	4	2
3155	5	Brick	1	1954	2129	1	2	1
3156	5	Brick	1	1977	1358	1	3	2
3157	5	Brick	1	1960	1254	1	3	1
3158	5	Brick	1	1955	1237	1	3	2
3159	5	Aluminum / Vinyl	1	1952	1188	1	4	1
3160	5	Brick	1	1954	1177	1	3	1
3161	5	Brick	1	1957	1115	1	3	1
3162	5	Masonry / Frame	1	1956	1060	1	3	1
3163	5	Aluminum / Vinyl	1	1953	1052	1	3	1
3164	5	Aluminum / Vinyl	1	1956	1019	1	3	1
3165	5	Aluminum / Vinyl	1	1956	1019	1	3	1
3166	5	Aluminum / Vinyl	1	1955	1008	1	3	1
3167	5	Aluminum / Vinyl	1	1962	999	1	3	1
3168	5	Aluminum / Vinyl	1	1953	888	1	3	2
3169	5	Aluminum / Vinyl	1	1953	864	1	3	1
3170	5	Aluminum / Vinyl	1	1924	1235	1	3	1
3171	5	Aluminum / Vinyl	1	1981	1970	1	3	2
3172	6	Frame	1	1924	1368	1	4	1
3174	6	Aluminum / Vinyl	2	1992	2788	2	6	2
3175	7	Stone	1	1936	1716	1	4	2
3176	7	Brick	1.5	1938	1492	1	2	1
3177	7	Brick	1.5	1939	1488	1	4	1
3178	7	Brick	1.5	1938	1408	1	2	1

3179	7	Frame	1	1962	1162	1	4	1
3180	7	Aluminum / Vinyl	1	1952	1075	1	3	1
3181	7	Aluminum / Vinyl	2	1924	2882	2	7	2
3182	7	Aluminum / Vinyl	1.5	1927	1725	2	3	2
3183	7	Brick	1	1928	1721	1	4	1
3184	7	Aluminum / Vinyl	1	1915	840	1	3	1
3185	7	Brick	1	1950	1270	1	4	2
3186	7	Stone	1	1947	1206	1	2	1
3187	7	Brick	2	1931	1772	1	3	1
3188	8	Prem Wood	1.5	1913	1245	1	3	2
3189	8	Aluminum / Vinyl	1	1924	1905	1	5	1
3190	8	Aluminum / Vinyl	1	1928	1614	1	4	2
3191	8	Brick	1	1928	1551	1	4	1
3192	8	Frame	1	1957	1026	1	3	1
3193	8	Aluminum / Vinyl	1	1913	1239	1	3	2
3194	8	Aluminum / Vinyl	1	1912	934	1	3	1
3195	9	Masonry / Frame	1.5	1925	1377	1	3	1
3196	9	Aluminum / Vinyl	1	2005	1932	1	3	2
3197	9	Aluminum / Vinyl	1	2010	1709	1	3	2
3198	9	Aluminum / Vinyl	1	1958	1515	1	3	1
3199	9	Aluminum / Vinyl	1	1972	1219	1	3	1
3200	9	Aluminum / Vinyl	1	1956	996	1	3	1
3201	9	Aluminum / Vinyl	1	1957	991	1	4	2
3202	10	Stone	1	1936	1807	1	4	2
3203	10	Brick	1	1948	1108	1	3	1
3204	10	Aluminum / Vinyl	1	1957	1100	1	3	2
3205	10	Brick	2	1937	1727	1	3	1
3206	10	Masonry / Frame	2	1955	1675	1	3	2
3207	10	Aluminum / Vinyl	2	1926	1271	1	3	1
3208	10	Aluminum / Vinyl	1	1925	760	1	3	1
3209	10	Aluminum / Vinyl	2	1926	2139	2	5	2
3210	10	Aluminum / Vinyl	1.5	1925	2337	1	5	2
3211	10	Aluminum / Vinyl	1	1918	1873	1	3	2
3212	10	Aluminum / Vinyl	1	1924	1685	1	4	2
3213	10	Aluminum / Vinyl	1	1925	1273	1	3	1
3214	10	Brick	1	1941	1516	1	2	1
3215	10	Brick	1	1951	912	1	2	2
3216	10	Brick	1	1926	2036	1	3	2
3217	10	Aluminum / Vinyl	1	1911	2028	1	3	2
3218	10	Aluminum / Vinyl	1.5	1927	1451	1	4	2
3219	10	Brick	1.5	1923	1304	1	3	1
3220	11	Stone	1.5	1938	1434	1	3	1
3221	11	Aluminum / Vinyl	1	1954	1037	1	3	1

3222	11	Brick	1	1949	800	1	2	1
3223	11	Masonry / Frame	2	1941	1720	1	3	1
3224	11	Stone	2	1937	1652	1	3	1
3225	11	Aluminum / Vinyl	1.5	1955	1916	2	5	2
3226	11	Aluminum / Vinyl	2	1954	1728	2	6	2
3227	11	Brick	1	1931	1177	1	2	1
3228	11	Stone	1	1950	1392	1	2	2
3229	11	Aluminum / Vinyl	1	1968	1275	1	4	1
3230	11	Brick	1	1961	1192	1	3	1
3231	11	Stone	1	1949	1127	1	3	1
3232	11	Brick	1	1956	1112	1	3	1
3233	11	Brick	1	1958	1112	1	3	1
3234	11	Frame	1	1964	1094	1	3	1
3235	11	Aluminum / Vinyl	1	1961	1058	1	3	2
3236	11	Brick	1	1954	1013	1	3	2
3237	11	Aluminum / Vinyl	1	1953	971	1	2	2
3238	11	Aluminum / Vinyl	1	1951	884	1	3	1
3239	11	Aluminum / Vinyl	1	1955	876	1	3	1
3240	11	Brick	1	1950	839	1	2	1
3241	11	Brick	1	1924	1154	1	3	1
3242	11	Stone	1.5	1939	1565	1	4	2
3243	12	Frame	1.5	1909	1265	1	3	1
3244	12	Aluminum / Vinyl	1	1860	740	1	1	1
3245	12	Frame	1.5	1914	2408	2	5	3
3246	12	Aluminum / Vinyl	1	1905	1516	1	4	1
3247	13	Brick	1	1949	1312	1	3	1
3248	13	Frame	1	1951	1284	1	4	2
3249	13	Aluminum / Vinyl	1	1941	1213	1	3	1
3250	13	Aluminum / Vinyl	1	1948	1114	1	3	2
3251	13	Aluminum / Vinyl	1	1947	1046	1	2	1
3252	13	Aluminum / Vinyl	1	1956	780	1	2	1
3253	13	Aluminum / Vinyl	2	1967	1638	1	4	1
3254	13	Stucco	1.5	1920	1741	2	5	2
3255	13	Aluminum / Vinyl	1.5	1926	1474	1	4	2
3256	13	Brick	1	1967	1475	1	3	1
3257	13	Brick	1	1969	1409	1	3	1
3258	13	Aluminum / Vinyl	1	1970	1177	1	3	1
3259	13	Aluminum / Vinyl	1	1960	1030	1	3	1
3260	13	Aluminum / Vinyl	1	1956	943	1	3	1
3261	14	Brick	1	1953	1285	1	3	1
3262	14	Aluminum / Vinyl	1	1947	1226	1	3	1
3263	14	Aluminum / Vinyl	1	1938	996	1	3	1
3264	14	Brick	2	1951	2196	1	3	2

3265	14 Aluminum / Vinyl	2	1924	1356	1	3	1
3266	14 Aluminum / Vinyl	2	1949	968	1	2	1
3267	14 Aluminum / Vinyl	1.5	1921	1295	1	4	2
3268	14 Aluminum / Vinyl	2	1926	1785	2	4	2
3269	14 Aluminum / Vinyl	1.5	1926	1644	2	3	2
3270	14 Aluminum / Vinyl	2	1891	2482	2	6	2
3271	14 Brick	2	1876	2274	2	4	3
3272	14 Aluminum / Vinyl	2	1913	1634	2	4	2
3273	14 Frame	1.5	1926	1510	1	4	1
3274	14 Aluminum / Vinyl	1.5	1916	1327	1	3	2
3275	14 Aluminum / Vinyl	1	1921	1238	1	3	1
3276	14 Aluminum / Vinyl	1.5	1918	1160	1	3	1
3277	14 Aluminum / Vinyl	1	1926	1058	1	3	1
3278	14 Aluminum / Vinyl	1	1925	1029	1	1	1
3279	14 Aluminum / Vinyl	1	1941	840	1	2	1
3280	14 Aluminum / Vinyl	1	1948	826	1	2	1
3281	14 Aluminum / Vinyl	1	1942	826	1	2	1
3282	14 Aluminum / Vinyl	1	1951	795	1	2	1
3283	14 Aluminum / Vinyl	2	1891	2514	1	3	2
3284	14 Frame	2	1905	2017	1	3	2
3285	14 Frame	1.5	1889	1382	1	3	1
3286	14 Aluminum / Vinyl	1	1913	1062	1	2	3
3287	15 Frame	2	1890	2898	2	5	3
3288	15 Frame	2	1904	2662	2	6	2
3289	1 Stucco	1.5	1926	2251	2	4	2
3290	1 Aluminum / Vinyl	1.5	1914	1921	2	5	2
3291	1 Aluminum / Vinyl	1	1964	1213	1	3	2
3292	1 Aluminum / Vinyl	1	1954	963	1	3	2
3293	1 Frame	1	1949	768	1	2	1
3294	2 Brick	1	1954	1267	1	3	1
3295	2 Aluminum / Vinyl	1	1955	1240	1	4	1
3296	2 Stone	1	1963	1392	1	4	1
3297	2 Brick	1	1957	1274	1	3	2
3298	2 Brick	1	1957	1147	1	3	1
3299	2 Aluminum / Vinyl	1	1958	1040	1	3	1
3300	2 Aluminum / Vinyl	1	1961	960	1	3	1
3301	2 Aluminum / Vinyl	1	1956	936	1	2	1
3302	2 Aluminum / Vinyl	1	1952	925	1	2	1
3303	2 Aluminum / Vinyl	1	1955	838	1	2	1
3304	3 Aluminum / Vinyl	1.5	1894	1774	2	3	2
3305	3 Aluminum / Vinyl	1.5	1911	1559	2	4	3
3306	3 Aluminum / Vinyl	1	1890	2053	2	3	2
3307	3 Aluminum / Vinyl	1	1926	1126	1	3	1

3308	3 Masonry / Frame	2	1909	2156	1	4	1
3309	3 Aluminum / Vinyl	2	1893	1543	1	3	1
3310	4 Frame	2	1909	2014	1	4	1
3311	5 Aluminum / Vinyl	1	1950	1156	1	3	2
3312	5 Aluminum / Vinyl	1	1951	1139	1	3	1
3313	5 Aluminum / Vinyl	1	1952	1102	1	3	1
3314	5 Aluminum / Vinyl	2	1969	1709	1	4	2
3315	5 Aluminum / Vinyl	2	1954	1415	1	3	1
3316	5 Masonry / Frame	2	1951	2016	2	4	2
3317	5 Aluminum / Vinyl	1.5	1960	1841	2	5	2
3318	5 Aluminum / Vinyl	1	1966	1332	1	4	1
3319	5 Brick	1	1956	1101	1	2	1
3320	5 Aluminum / Vinyl	1	1952	768	1	2	1
3321	5 Aluminum / Vinyl	2	1970	2405	2	6	2
3322	6 Aluminum / Vinyl	1.5	1923	1452	2	3	2
3323	7 Aluminum / Vinyl	1	1953	1283	1	4	1
3324	7 Aluminum / Vinyl	1	1941	1188	1	4	1
3325	7 Masonry / Frame	2	1924	1888	1	4	1
3326	7 Stone	2	1944	1884	2	4	2
3327	7 Frame	2	1942	1722	2	4	2
3328	7 Aluminum / Vinyl	1	1932	1204	1	3	1
3329	8 Aluminum / Vinyl	2	1925	2088	2	4	2
3330	8 Aluminum / Vinyl	1.5	1915	1872	2	3	2
3331	8 Aluminum / Vinyl	2	1915	2484	2	6	2
3332	8 Aluminum / Vinyl	2	1915	2450	2	5	2
3333	8 Frame	2	1905	1652	2	5	2
3334	8 Frame	1	1919	1619	1	4	1
3335	8 Aluminum / Vinyl	1	1928	1250	1	4	1
3336	8 Brick	1.5	1924	2298	1	3	0
3337	8 Frame	1	1900	2085	1	5	2
3338	8 Aluminum / Vinyl	1.5	1889	1697	1	4	2
3339	8 Aluminum / Vinyl	2	1916	1532	1	3	1
3340	8 Frame	1	1900	1096	1	3	1
3341	8 Frame	1	1911	1022	1	3	1
3342	9 Brick	1	1957	1308	1	3	1
3343	9 Aluminum / Vinyl	1	1959	1117	1	3	1
3344	9 Aluminum / Vinyl	1	1959	1024	1	3	1
3345	9 Aluminum / Vinyl	1	1954	958	1	3	1
3346	10 Brick	2	1929	2122	1	3	2
3347	10 Masonry / Frame	2	1953	1657	1	3	1
3348	10 Masonry / Frame	2	1925	2600	2	4	2
3349	10 Aluminum / Vinyl	1	1921	1824	1	4	3
3350	10 Frame	1	1917	1636	1	4	1

3351	10	Aluminum / Vinyl	1	1927	1454	1	5	2
3352	10	Aluminum / Vinyl	1	1926	1398	1	3	1
3353	10	Aluminum / Vinyl	1	1927	1269	1	3	1
3354	10	Stone	1	1955	1519	1	2	1
3355	10	Aluminum / Vinyl	1	1956	1045	1	2	1
3356	10	Aluminum / Vinyl	1	1949	746	1	2	1
3357	10	Aluminum / Vinyl	1	1937	616	1	2	1
3358	10	Aluminum / Vinyl	1.5	1896	1492	1	3	2
3359	10	Aluminum / Vinyl	1	1925	1185	1	3	1
3360	10	Aluminum / Vinyl	1	1917	1113	1	3	1
3361	11	Frame	1.5	1955	1340	1	3	1
3362	11	Brick	1	1949	1210	1	3	1
3363	11	Aluminum / Vinyl	1.5	1997	2404	2	5	3
3364	11	Aluminum / Vinyl	2	1953	1904	2	6	2
3365	11	Brick	1	1956	1260	1	3	2
3366	11	Brick	1	1966	1170	1	3	1
3367	11	Brick	1	1956	1150	1	3	1
3368	11	Aluminum / Vinyl	1	1956	1073	1	3	2
3369	11	Aluminum / Vinyl	1	1954	986	1	3	1
3370	11	Aluminum / Vinyl	1	1954	972	1	3	1
3371	11	Brick	1	1956	947	1	3	1
3372	13	Brick	1	1980	1945	1	3	2
3373	13	Brick	1	1953	1224	1	4	1
3374	13	Brick	1	1959	1203	1	3	1
3375	13	Brick	1	1953	1200	1	3	1
3376	13	Aluminum / Vinyl	1	1939	1187	1	3	1
3377	13	Brick	1	1955	1091	1	4	1
3378	13	Aluminum / Vinyl	2	1998	2196	1	3	2
3379	13	Aluminum / Vinyl	1.5	1943	1240	2	4	2
3380	13	Aluminum / Vinyl	1	1926	1310	1	4	1
3381	13	Aluminum / Vinyl	1	1936	1101	1	3	2
3382	13	Aluminum / Vinyl	1	1958	1243	1	2	1
3383	13	Aluminum / Vinyl	1	1913	1524	1	4	1
3384	13	Brick	2	1954	2588	3	4	3
3385	13	Aluminum / Vinyl	1.5	1904	1722	3	3	3
3386	14	Brick	1	1952	1515	1	4	1
3387	14	Block	1	1944	995	1	3	1
3388	14	Brick	1	1951	977	1	3	1
3389	14	Aluminum / Vinyl	1	1950	776	1	2	1
3390	14	Aluminum / Vinyl	1	1890	733	1	2	1
3391	14	Masonry / Frame	2	1919	3721	2	4	3
3392	14	Aluminum / Vinyl	1	1922	1724	1	5	1
3393	14	Brick	1	1929	1618	1	4	1

3394	14	Frame	1	1916	1584	1	4	2
3395	14	Frame	1	1926	1417	1	3	1
3396	14	Aluminum / Vinyl	1	1927	1038	1	3	1
3397	14	Brick	1	1955	840	1	2	2
3398	14	Brick	1	1953	763	1	2	2
3399	14	Brick	2	1929	1629	1	3	1
3400	14	Aluminum / Vinyl	1	1910	1560	1	3	1
3401	14	Frame	1.5	1920	1339	1	3	1
3402	14	Aluminum / Vinyl	1	1921	1139	1	3	2
3403	15	Frame	2	1970	1350	1	4	1
3404	15	Frame	2	1923	2754	2	4	2
3405	15	Frame	2	1923	2232	2	4	2
3406	15	Aluminum / Vinyl	2	1923	2217	2	4	2
3407	15	Frame	2	1913	2189	2	4	2
3408	1	Stone	1	1939	1346	1	3	1
3409	1	Aluminum / Vinyl	1	1951	1158	1	3	1
3410	1	Brick	1	1936	1078	1	3	1
3411	1	Aluminum / Vinyl	1	1951	1002	1	3	2
3412	1	Aluminum / Vinyl	1	1979	1215	1	3	1
3413	1	Stone	1	1936	1047	1	2	1
3414	1	Stone	1	1936	1047	1	2	1
3415	1	Aluminum / Vinyl	1	1954	983	1	3	1
3416	1	Masonry / Frame	1	1959	1698	1	3	2
3417	2	Brick	1	1960	1220	1	3	1
3418	2	Aluminum / Vinyl	1	1958	1039	1	3	1
3419	2	Aluminum / Vinyl	1	1954	980	1	2	1
3420	2	Frame	1	1955	950	1	3	1
3421	2	Brick	1	1953	825	1	2	1
3422	3	Aluminum / Vinyl	1.5	1926	1877	2	4	2
3423	3	Aluminum / Vinyl	2	1911	2310	2	4	2
3424	3	Brick	2	1928	3768	1	5	3
3425	3	Frame	2	1901	2419	1	5	2
3426	3	Aluminum / Vinyl	2	1902	2383	1	4	1
3427	3	Aluminum / Vinyl	2	1906	2185	1	6	1
3428	3	Brick	2	1921	3140	1	3	2
3429	5	Aluminum / Vinyl	1.5	1953	1434	1	3	1
3430	5	Aluminum / Vinyl	1	1952	1381	1	3	2
3431	5	Aluminum / Vinyl	1	1949	1180	1	3	1
3432	5	Aluminum / Vinyl	1	1949	1170	1	3	2
3433	5	Brick	1	1946	1128	1	3	1
3434	5	Aluminum / Vinyl	1	1948	1049	1	3	1
3435	5	Aluminum / Vinyl	1	1951	728	1	2	1
3436	5	Aluminum / Vinyl	2	2010	2473	1	4	2

3437	5	Brick	1.5	1952	2092	2	3	2
3438	5	Aluminum / Vinyl	1.5	1958	1814	2	5	2
3439	5	Stone	1	1955	2290	1	3	2
3440	5	Aluminum / Vinyl	1	2010	2222	1	3	2
3441	5	Brick	1	1956	1157	1	3	1
3442	5	Brick	1	1959	1153	1	3	1
3443	6	Fiber-Cement	2	2003	1848	1	3	2
3444	6	Aluminum / Vinyl	2	1914	2422	2	4	3
3445	6	Frame	2	1906	1935	2	4	2
3446	6	Aluminum / Vinyl	1	1900	1107	1	3	1
3447	7	Stucco	1.5	1942	1827	1	3	1
3448	7	Brick	1	1940	1198	1	2	1
3449	7	Masonry / Frame	2	1938	1411	1	3	1
3450	7	Aluminum / Vinyl	2	1972	1134	1	4	1
3451	7	Frame	2	1925	2184	2	4	2
3452	7	Aluminum / Vinyl	1	1946	744	1	2	1
3453	8	Aluminum / Vinyl	1	1890	1415	1	2	2
3454	8	Aluminum / Vinyl	1.5	1920	1855	2	4	2
3455	8	Brick	2	1959	2624	2	4	2
3456	8	Aluminum / Vinyl	1.5	1926	1819	2	4	2
3457	8	Aluminum / Vinyl	2	1890	1408	2	4	2
3458	8	Aluminum / Vinyl	1	1896	1482	1	4	1
3459	8	Aluminum / Vinyl	1.5	1917	1357	1	2	1
3460	8	Aluminum / Vinyl	1	1920	1322	1	3	2
3461	9	Aluminum / Vinyl	2	1957	1940	2	6	2
3462	9	Masonry / Frame	1	1959	1610	1	4	3
3463	9	Aluminum / Vinyl	1	1971	1210	1	4	1
3464	9	Aluminum / Vinyl	1	1957	1149	1	3	1
3465	10	Stone	1.5	1941	1889	1	4	2
3466	10	Aluminum / Vinyl	1	1946	1030	1	3	2
3467	10	Brick	2	1935	1692	1	4	2
3468	10	Masonry / Frame	2	1953	1657	1	3	1
3469	10	Block	2	1916	2130	2	6	2
3470	10	Brick	1	1931	1874	1	4	1
3471	10	Brick	1	1921	1857	1	4	1
3472	10	Frame	1	1920	1654	1	4	1
3473	10	Aluminum / Vinyl	1	1922	1495	1	4	1
3474	10	Aluminum / Vinyl	1	1929	1324	1	3	1
3475	10	Aluminum / Vinyl	1	1925	1152	1	3	1
3476	10	Brick	1	1951	762	1	2	1
3477	10	Aluminum / Vinyl	1	1925	768	1	3	1
3478	11	Stone	1	1946	1691	1	4	1
3479	11	Stone	1	1939	1320	1	3	1

3480	11	Brick	1	1951	1309	1	3	1
3481	11	Brick	1	1949	1079	1	3	1
3482	11	Masonry / Frame	2	1936	1376	1	3	1
3483	11	Aluminum / Vinyl	2	1953	1554	2	4	2
3484	11	Brick	1.5	1939	1868	2	4	2
3485	11	Aluminum / Vinyl	1.5	1920	1844	1	5	2
3486	11	Frame	1	1956	1490	1	5	1
3487	11	Aluminum / Vinyl	1	1977	1334	1	3	2
3488	11	Masonry / Frame	1	1959	1319	1	3	1
3489	11	Aluminum / Vinyl	1	1959	1190	1	3	1
3490	11	Brick	1	1958	1114	1	3	1
3491	11	Frame	1	1955	1008	1	3	1
3492	11	Aluminum / Vinyl	1	1954	972	1	3	1
3493	12	Stucco	1.5	1900	1630	2	4	2
3494	12	Aluminum / Vinyl	1	1903	1030	1	3	1
3495	13	Brick	1.5	1969	1718	1	4	2
3496	13	Aluminum / Vinyl	1	1951	1304	1	4	1
3497	13	Aluminum / Vinyl	1	1939	1301	1	2	2
3498	13	Brick	1	1949	1158	1	3	1
3499	13	Brick	1.5	1938	1148	1	2	2
3500	13	Aluminum / Vinyl	2	1941	1252	1	3	1
3501	13	Aluminum / Vinyl	2	1953	1082	1	2	1
3502	13	Brick	2	1955	2160	2	4	2
3503	13	Brick	1.5	1947	2019	2	3	2
3504	13	Brick	1	1955	1032	1	3	1
3505	13	Aluminum / Vinyl	1	1960	891	1	3	1
3506	14	Brick	1	1953	1342	1	4	1
3507	14	Aluminum / Vinyl	1	1941	826	1	3	2
3508	14	Brick	1.5	1939	2042	2	4	2
3509	14	Brick	2	1942	2016	2	4	2
3510	14	Brick	1	1926	1902	1	4	2
3511	14	Aluminum / Vinyl	1	1931	1669	1	4	2
3512	14	Brick	1	1929	1407	1	3	2
3513	14	Aluminum / Vinyl	1	1927	1359	1	4	1
3514	14	Frame	1	1922	1324	1	3	1
3515	14	Aluminum / Vinyl	1	1927	1198	1	3	1
3516	14	Aluminum / Vinyl	1	1926	1029	1	2	1
3517	14	Aluminum / Vinyl	1	1942	791	1	2	1
3518	14	Aluminum / Vinyl	1.5	1925	1449	1	4	1
3519	15	Frame	2	1915	2316	2	4	2
3520	15	Aluminum / Vinyl	2	1893	2080	2	4	2
3521	15	Brick	1	1921	2287	1	3	2
3522	15	Aluminum / Vinyl	2	1913	1674	1	5	1

3523	15	Frame	1	1914	1624	1	3	1
3524	1	Brick	1	1949	1059	1	3	1
3525	1	Aluminum / Vinyl	2	1966	1649	1	4	1
3526	1	Brick	1	1925	1469	1	4	2
3527	1	Aluminum / Vinyl	1	1931	794	1	2	1
3528	2	Aluminum / Vinyl	1	1941	1109	1	4	1
3529	2	Stone	1	1962	1280	1	3	1
3530	2	Aluminum / Vinyl	1	1966	1077	1	3	1
3531	2	Aluminum / Vinyl	1	1961	1053	1	3	1
3532	2	Stone	1	1951	964	1	3	1
3533	2	Aluminum / Vinyl	1	1955	912	1	3	1
3534	3	Aluminum / Vinyl	1	1946	700	1	2	1
3535	3	Frame	1.5	1914	2072	2	3	2
3536	3	Frame	1	1926	1422	1	3	1
3537	3	Aluminum / Vinyl	1	1922	1392	1	4	1
3538	3	Aluminum / Vinyl	2	1908	2156	1	4	1
3539	3	Aluminum / Vinyl	2	1897	1530	1	3	1
3540	5	Frame	1	1953	1494	1	3	1
3541	5	Brick	1	1949	1260	1	3	1
3542	5	Brick	1	1947	801	1	2	1
3543	5	Aluminum / Vinyl	2	2007	1984	1	3	2
3544	5	Aluminum / Vinyl	2	1968	1631	1	4	1
3545	5	Frame	2	1959	1484	1	4	1
3546	5	Aluminum / Vinyl	2	1963	1200	1	3	1
3547	5	Brick	1	1963	2235	2	5	2
3548	5	Brick	1.5	1956	1818	2	4	2
3549	5	Aluminum / Vinyl	1	1971	1499	1	3	1
3550	5	Frame	1	1956	1276	1	3	2
3551	5	Brick	1	1960	1237	1	3	2
3552	5	Aluminum / Vinyl	1	1964	1212	1	3	1
3553	5	Block	1	1942	1170	1	2	2
3554	5	Aluminum / Vinyl	1	1949	1056	1	3	1
3555	5	Brick	1	1958	1036	1	2	1
3556	5	Aluminum / Vinyl	1	1950	1000	1	2	1
3557	5	Aluminum / Vinyl	1	1955	948	1	3	1
3558	5	Aluminum / Vinyl	1	1949	624	1	2	1
3559	5	Aluminum / Vinyl	1	1993	2240	1	4	3
3560	6	Frame	2	1923	2092	2	2	2
3561	6	Frame	1	1925	1212	1	3	1
3562	6	Aluminum / Vinyl	2	1904	1610	1	6	1
3563	7	Brick	1	1950	1271	1	3	1
3564	7	Brick	2	1958	2774	2	6	4
3565	7	Aluminum / Vinyl	1.5	1923	2024	1	5	2

3566	7	Aluminum / Vinyl	1.5	1923	2024	1	5	2
3567	8	Masonry / Frame	2	1928	2200	2	4	2
3568	8	Frame	1	1924	1248	1	4	1
3569	9	Aluminum / Vinyl	1	1952	1480	1	3	2
3570	9	Aluminum / Vinyl	1	1956	1192	1	4	1
3571	9	Aluminum / Vinyl	2	2004	2561	1	4	2
3572	9	Aluminum / Vinyl	2	1987	1737	1	3	1
3573	9	Brick	1	1957	1282	1	3	1
3574	9	Aluminum / Vinyl	1	1975	1227	1	3	2
3575	9	Brick	1	1958	1112	1	3	2
3576	9	Brick	1	1958	1100	1	3	1
3577	9	Frame	1	1962	1045	1	3	1
3578	9	Aluminum / Vinyl	1	1957	948	1	3	1
3579	10	Brick	1	1957	1892	1	5	2
3580	10	Aluminum / Vinyl	1	1950	1037	1	4	1
3581	10	Aluminum / Vinyl	2	1969	2094	2	6	2
3582	10	Brick	1.5	1949	1529	2	3	2
3583	10	Brick	1	1927	1874	1	4	2
3584	10	Aluminum / Vinyl	1	1926	1055	1	3	1
3585	10	Aluminum / Vinyl	1	1949	945	1	2	1
3586	10	Frame	1.5	1925	1406	1	3	2
3587	10	Aluminum / Vinyl	1	1920	1099	1	3	1
3588	11	Brick	1	1954	1645	1	4	1
3589	11	Brick	1	1945	1243	1	3	1
3590	11	Frame	1	1958	1211	1	4	1
3591	11	Brick	1.5	1938	1164	1	3	1
3592	11	Aluminum / Vinyl	1	1949	1086	1	3	1
3593	11	Aluminum / Vinyl	1	1954	952	1	3	1
3594	11	Masonry / Frame	2	1959	1682	1	3	1
3595	11	Aluminum / Vinyl	2	1958	2249	2	6	2
3596	11	Aluminum / Vinyl	1.5	1955	1587	2	4	2
3597	11	Aluminum / Vinyl	1	1966	1853	1	3	2
3598	11	Aluminum / Vinyl	1	1953	1285	1	3	1
3599	11	Frame	1	1947	1254	1	3	2
3600	11	Stone	1	1950	1251	1	2	2
3601	11	Frame	1	1957	1158	1	3	1
3602	11	Brick	1	1958	1114	1	3	1
3604	11	Brick	1	1956	1025	1	3	1
3605	11	Frame	1	1972	1944	1	3	2
3606	11	Aluminum / Vinyl	2	1968	3214	3	7	3
3607	12	Aluminum / Vinyl	1	1880	950	1	3	1
3608	12	Aluminum / Vinyl	2	1914	2328	2	5	2
3609	12	Frame	2	1890	2297	2	6	2

3610	13	Aluminum / Vinyl	1	1945	1184	1	3	1
3611	13	Aluminum / Vinyl	1	1943	1006	1	3	1
3612	13	Prem Wood	2	1974	1980	1	5	1
3613	13	Aluminum / Vinyl	1.5	1928	1734	2	4	2
3614	13	Aluminum / Vinyl	1	1950	956	1	3	1
3615	13	Brick	1	1955	811	1	2	1
3616	13	Aluminum / Vinyl	1	1954	768	1	2	1
3617	13	Aluminum / Vinyl	1	1952	705	1	2	1
3618	13	Aluminum / Vinyl	2	1928	1234	1	3	1
3619	13	Aluminum / Vinyl	1.5	1924	1073	1	3	1
3620	14	Aluminum / Vinyl	1	1953	1056	1	3	1
3621	14	Aluminum / Vinyl	1	1953	784	1	2	1
3622	14	Aluminum / Vinyl	2	1909	2746	2	6	2
3623	14	Aluminum / Vinyl	1.5	1900	1566	2	4	2
3624	14	Frame	1	1900	1233	1	2	1
3625	14	Frame	1	1928	1094	1	2	1
3626	14	Aluminum / Vinyl	1	1924	1028	1	2	1
3627	15	Aluminum / Vinyl	1	2000	1430	1	2	1
3628	15	Aluminum / Vinyl	2	1969	1042	1	3	1
3629	15	Aluminum / Vinyl	1	1922	760	1	1	1
3630	15	Stucco	2	1916	2964	2	6	2
3631	15	Aluminum / Vinyl	2	1909	2350	2	6	2
3632	15	Brick	1.5	1924	2435	1	5	2
3633	15	Brick	1	1920	1960	1	3	2
3634	15	Aluminum / Vinyl	1.5	1890	1358	1	4	1
3635	1	Brick	1	1950	1001	1	3	1
3636	1	Aluminum / Vinyl	2	1967	2010	2	6	2
3637	1	Frame	1	1963	1633	1	3	1
3638	1	Aluminum / Vinyl	1	1974	1503	1	3	1
3639	1	Aluminum / Vinyl	1	1955	1082	1	3	1
3640	1	Aluminum / Vinyl	1	1947	1041	1	3	1
3641	1	Aluminum / Vinyl	1	1951	713	1	2	1
3642	2	Frame	1	1953	1268	1	4	2
3643	2	Aluminum / Vinyl	1	1955	1176	1	4	1
3644	2	Frame	1	1935	740	1	2	1
3645	2	Brick	1	1959	1173	1	3	1
3646	2	Aluminum / Vinyl	1	1956	982	1	3	1
3647	2	Brick	1	1957	942	1	3	1
3648	3	Frame	2	2003	2793	1	3	2
3649	3	Brick	2	1906	4098	1	6	3
3650	3	Brick	1	1927	1686	1	3	2
3651	3	Frame	1	1904	968	1	3	1
3652	5	Frame	1.5	1958	1664	1	4	1

3653	5	Brick	1	1952	1642	1	4	1
3654	5	Brick	1	1948	1276	1	3	1
3655	5	Brick	1	1949	1245	1	3	1
3656	5	Aluminum / Vinyl	1	1953	1005	1	3	2
3657	5	Brick	1	1956	941	1	2	1
3658	5	Aluminum / Vinyl	2	1950	1344	1	3	2
3659	5	Masonry / Frame	2	1956	2282	2	5	2
3660	5	Aluminum / Vinyl	1	1960	1384	1	3	2
3661	5	Brick	1	1959	1287	1	3	1
3662	5	Aluminum / Vinyl	1	1956	1206	1	3	1
3663	5	Aluminum / Vinyl	1	1957	997	1	3	1
3664	6	Aluminum / Vinyl	2	2004	1564	1	4	2
3665	6	Aluminum / Vinyl	2	1911	2196	2	4	2
3666	6	Aluminum / Vinyl	2	1905	2332	2	4	2
3667	6	Aluminum / Vinyl	1	1885	983	1	3	1
3668	7	Aluminum / Vinyl	1	1929	1223	1	3	1
3669	7	Aluminum / Vinyl	1	1923	1222	1	3	1
3670	8	Aluminum / Vinyl	2	1910	2022	2	4	2
3671	8	Aluminum / Vinyl	1	1925	1547	1	4	2
3672	8	Stucco	1	1913	1262	1	4	1
3673	9	Aluminum / Vinyl	2	1957	1940	2	6	2
3674	9	Aluminum / Vinyl	1.5	1957	1749	2	4	3
3675	9	Aluminum / Vinyl	1	2009	2041	1	3	2
3676	9	Frame	1	1961	1727	1	3	1
3677	9	Aluminum / Vinyl	1	1968	1556	1	3	1
3678	9	Aluminum / Vinyl	1	1956	1132	1	3	1
3679	9	Frame	1	1971	1120	1	4	1
3680	9	Aluminum / Vinyl	1	1971	1087	1	4	1
3681	9	Block	1	1946	948	1	2	1
3682	10	Aluminum / Vinyl	1	1926	760	1	2	1
3683	10	Brick	2	1926	2953	2	4	2
3684	10	Aluminum / Vinyl	2	1924	2462	2	4	2
3685	10	Aluminum / Vinyl	1	1925	1627	1	4	2
3686	10	Brick	1	1927	1371	1	3	1
3687	10	Aluminum / Vinyl	1	1951	1188	1	3	2
3688	10	Brick	1	1953	961	1	3	1
3689	10	Aluminum / Vinyl	1	1951	824	1	2	1
3690	10	Stucco	1	1916	1617	1	5	3
3691	10	Aluminum / Vinyl	1	1930	821	1	2	1
3692	10	Stone	1	1933	1974	1	5	2
3693	11	Brick	1	1951	1213	1	3	1
3694	11	Brick	1	1952	1188	1	3	1
3695	11	Aluminum / Vinyl	1	1958	1125	1	4	1

3696	11	Aluminum / Vinyl	1	1957	1108	1	3	1
3697	11	Frame	1	1928	1188	1	3	1
3698	11	Brick	1	1966	1437	1	3	1
3699	11	Brick	1	1963	1290	1	3	1
3700	11	Aluminum / Vinyl	1	1959	1228	1	3	1
3701	11	Brick	1	1963	1216	1	3	1
3702	11	Brick	1	1957	1152	1	3	2
3703	11	Aluminum / Vinyl	1	1962	1092	1	3	1
3704	11	Aluminum / Vinyl	1	1959	1086	1	3	1
3705	11	Brick	1	1954	1023	1	2	1
3706	11	Brick	1	1960	1014	1	3	1
3707	11	Stucco	1	1954	972	1	3	1
3708	11	Brick	1	1955	934	1	3	1
3709	11	Aluminum / Vinyl	1	1953	879	1	3	1
3710	11	Brick	1	1939	858	1	2	1
3711	11	Aluminum / Vinyl	1	1953	672	1	2	1
3712	12	Aluminum / Vinyl	1	1923	1172	1	2	1
3713	13	Brick	1	1953	1080	1	2	1
3714	13	Masonry / Frame	2	1973	2216	1	4	2
3715	13	Masonry / Frame	2	1974	1957	1	3	1
3716	13	Aluminum / Vinyl	1.5	1895	1630	2	4	2
3717	13	Brick	1	1955	1155	1	3	2
3718	13	Brick	1	1959	1133	1	3	1
3719	14	Aluminum / Vinyl	1	1940	1307	1	4	1
3720	14	Aluminum / Vinyl	1	1953	1034	1	3	1
3721	14	Aluminum / Vinyl	1	1895	960	1	3	1
3722	14	Brick	1.5	1925	2343	2	5	3
3723	14	Aluminum / Vinyl	2	1973	2138	2	6	2
3724	14	Frame	2	1956	1529	2	4	2
3725	14	Frame	2	1904	2545	2	6	2
3726	14	Brick	2	1871	2502	2	6	2
3727	14	Frame	2	1910	2288	2	4	2
3728	14	Aluminum / Vinyl	2	1910	2274	2	5	2
3729	14	Frame	1.5	1914	1874	2	4	2
3730	14	Aluminum / Vinyl	1	1926	1317	1	3	1
3731	14	Aluminum / Vinyl	1	1922	990	1	3	1
3732	14	Aluminum / Vinyl	2	1907	2138	1	5	1
3733	14	Aluminum / Vinyl	1	1915	1526	1	4	1
3734	15	Aluminum / Vinyl	2	2010	1860	1	4	3
3735	15	Aluminum / Vinyl	2	1917	2945	2	6	2
3736	15	Frame	2	1893	2140	2	4	2
3737	15	Aluminum / Vinyl	2	1891	1958	2	4	2
3738	15	Frame	1	1920	1476	1	4	1

3739	15 Aluminum / Vinyl	1	1970	1101	1	3	1
3740	15 Aluminum / Vinyl	1	1895	847	1	2	1
3741	1 Aluminum / Vinyl	1	1960	964	1	3	1
3742	1 Frame	2	1926	1559	1	4	1
3743	2 Aluminum / Vinyl	1.5	1955	1402	1	4	1
3744	2 Brick	1	1953	1389	1	3	1
3745	2 Aluminum / Vinyl	1	1958	1266	1	3	2
3746	2 Aluminum / Vinyl	1	1955	1176	1	2	1
3747	2 Aluminum / Vinyl	1	1952	914	1	3	1
3748	2 Aluminum / Vinyl	1.5	1958	1535	2	3	2
3749	2 Aluminum / Vinyl	1	1963	2060	1	5	2
3750	2 Aluminum / Vinyl	1	1955	864	1	3	1
3751	3 Brick	2	1902	4277	1	6	3
3752	3 Brick	2	1915	3618	1	3	2
3753	3 Frame	2	1890	3025	1	5	2
3754	3 Stucco	2	1894	2348	1	4	1
3755	5 Brick	1	1954	1504	1	4	2
3756	5 Aluminum / Vinyl	1	1941	1434	1	4	2
3757	5 Frame	1	1957	1216	1	4	1
3758	5 Brick	1	1947	1168	1	3	1
3759	5 Masonry / Frame	2	1954	2523	1	3	2
3760	5 Masonry / Frame	2	1948	1629	1	3	1
3761	5 Masonry / Frame	2	1939	1393	1	3	1
3762	5 Brick	2	1959	2623	2	6	2
3763	5 Brick	1	1954	1686	1	2	1
3764	5 Brick	1	1963	1293	1	3	1
3765	5 Brick	1	1965	1288	1	3	2
3766	6 Aluminum / Vinyl	2	1923	2266	2	4	2
3767	6 Aluminum / Vinyl	2	1892	2948	1	5	1
3768	7 Brick	1	1939	1542	1	3	2
3769	7 Brick	2	1940	2431	1	4	2
3770	7 Masonry / Frame	2	1939	1511	1	3	1
3771	7 Masonry / Frame	2	1930	2323	2	4	2
3772	7 Frame	1.5	1929	1451	2	4	3
3773	7 Stone	1	1950	1262	1	2	1
3774	7 Brick	1	1950	1249	1	3	1
3775	8 Aluminum / Vinyl	2	1914	2304	2	6	2
3776	8 Stucco	1	1917	1695	1	4	2
3777	8 Aluminum / Vinyl	1	1906	1411	1	5	1
3778	9 Aluminum / Vinyl	2	2005	3722	1	4	3
3779	9 Aluminum / Vinyl	1	1968	1399	1	3	1
3780	9 Aluminum / Vinyl	1	1958	1089	1	3	1
3781	9 Aluminum / Vinyl	1	1971	1086	1	4	2

3782	9	Brick	1	1957	1044	1	3	1
3783	9	Aluminum / Vinyl	1	1976	906	1	3	1
3784	9	Aluminum / Vinyl	2	1920	2797	1	6	2
3785	10	Aluminum / Vinyl	1	1952	1277	1	4	1
3786	10	Aluminum / Vinyl	1	1937	883	1	3	1
3787	10	Aluminum / Vinyl	1.5	1928	2067	2	4	2
3788	10	Brick	2	1936	2316	2	4	2
3789	10	Aluminum / Vinyl	2	1930	1232	2	2	2
3790	10	Aluminum / Vinyl	2	1913	2792	2	5	2
3791	10	Stucco	2	1920	1276	2	3	2
3792	10	Brick	1	1927	1816	1	4	2
3793	10	Aluminum / Vinyl	1	1919	1728	1	4	2
3794	10	Frame	1	1928	1239	1	3	2
3795	10	Aluminum / Vinyl	1.5	1914	1913	1	3	1
3796	10	Frame	1	1907	1412	1	3	2
3797	11	Brick	2	1947	1349	1	3	1
3798	11	Brick	1	1964	1411	1	3	2
3799	11	Aluminum / Vinyl	1	1956	1108	1	3	1
3800	12	Aluminum / Vinyl	2	1907	1948	2	6	2
3801	12	Brick	2	1900	1786	1	3	1
3802	13	Aluminum / Vinyl	1.5	1946	1544	1	3	1
3803	13	Brick	1	1950	1517	1	4	1
3804	13	Brick	1	1953	1203	1	3	1
3805	13	Brick	1	1949	1081	1	3	1
3806	13	Aluminum / Vinyl	2	1948	1056	1	2	2
3807	13	Aluminum / Vinyl	1.5	1928	1920	2	4	2
3808	13	Aluminum / Vinyl	1.5	1928	1461	2	4	2
3809	13	Brick	1	1969	1590	1	3	1
3810	13	Aluminum / Vinyl	1	1959	1085	1	3	2
3811	13	Aluminum / Vinyl	1	1960	1047	1	3	1
3812	13	Aluminum / Vinyl	1	1947	732	1	2	1
3813	13	Aluminum / Vinyl	1	1908	1264	1	3	2
3814	13	Frame	1	1930	779	1	1	1
3815	14	Stone	1	1937	951	1	2	1
3816	14	Stone	2	1941	1944	1	3	1
3817	14	Aluminum / Vinyl	2	1942	1929	1	3	1
3818	14	Aluminum / Vinyl	1.5	1913	2034	2	5	2
3819	14	Brick	1	1930	2004	1	3	2
3820	14	Aluminum / Vinyl	1	1952	672	1	2	1
3821	14	Aluminum / Vinyl	1	1900	1242	1	3	1
3822	14	Stone	1.5	1936	1358	1	3	2
3823	15	Aluminum / Vinyl	2	2002	1184	1	3	1
3824	15	Aluminum / Vinyl	2	1911	2034	2	5	2

3825	15	Aluminum / Vinyl	1	1969	1098	1	3	1
3826	15	Brick	2	1921	2300	1	3	1
3827	1	Frame	1.5	1951	1576	1	3	2
3828	1	Aluminum / Vinyl	1.5	1925	1539	2	3	2
3829	1	Masonry / Frame	2	1927	2186	2	4	2
3830	1	Brick	1	1930	1289	1	3	1
3831	1	Aluminum / Vinyl	1	1957	894	1	3	1
3832	1	Aluminum / Vinyl	1	1950	768	1	2	1
3833	1	Frame	1	1929	1273	1	3	1
3834	1	Frame	1	1929	1273	1	3	1
3835	1	Brick	1.5	1931	1784	1	3	2
3836	1	Stone	1.5	1938	1586	1	3	1
3837	2	Brick	1	1950	1978	1	5	2
3838	2	Frame	1	1961	1268	1	4	1
3839	2	Frame	1	1961	1147	1	4	1
3840	2	Aluminum / Vinyl	1	1957	1130	1	3	1
3841	2	Brick	1	1959	1322	1	3	1
3842	2	Aluminum / Vinyl	1	1956	1120	1	3	1
3843	2	Brick	1	1957	1083	1	3	1
3844	2	Frame	1	1955	912	1	3	1
3845	3	Stucco	1.5	1914	2708	1	5	3
3846	3	Masonry / Frame	2	1909	2633	1	6	2
3847	3	Aluminum / Vinyl	1.5	1902	1627	1	4	2
3848	3	Frame	1	1924	898	1	2	1
3849	5	Brick	1	1949	1466	1	3	3
3850	5	Brick	1	1947	1251	1	3	1
3851	5	Aluminum / Vinyl	1	1950	1242	1	3	1
3852	5	Aluminum / Vinyl	1	1952	1231	1	4	1
3853	5	Stone	1	1947	1134	1	2	1
3854	5	Frame	1	1953	1108	1	4	1
3855	5	Fiber-Cement	2	2005	3583	1	5	4
3856	5	Masonry / Frame	2	1956	2189	2	5	2
3857	5	Brick	1	1953	1220	1	3	1
3858	5	Frame	1	1957	1060	1	3	1
3859	5	Aluminum / Vinyl	1	1959	988	1	3	2
3860	5	Frame	1	1958	919	1	3	1
3861	6	Aluminum / Vinyl	1.5	1890	1817	2	4	2
3862	7	Brick	1.5	1950	1604	1	3	1
3863	7	Aluminum / Vinyl	2	1940	1128	1	3	1
3864	7	Aluminum / Vinyl	1	1890	552	1	2	1
3865	7	Frame	2	1922	2608	2	6	2
3866	7	Aluminum / Vinyl	1.5	1920	1720	2	4	2
3867	7	Aluminum / Vinyl	1	1930	1680	1	4	2

3868	7 Aluminum / Vinyl	1	1928	1502	1	4	1
3869	8 Aluminum / Vinyl	1	1923	1141	1	3	1
3870	8 Aluminum / Vinyl	2	1898	1496	1	4	1
3872	9 Brick	1	1960	1527	1	3	1
3873	9 Brick	1	1957	1356	1	3	1
3874	9 Aluminum / Vinyl	1	1956	1232	1	3	2
3875	9 Brick	1	1957	1176	1	3	1
3876	9 Brick	1	1958	1124	1	3	1
3877	9 Frame	1	1957	1073	1	3	2
3878	9 Aluminum / Vinyl	1	1963	987	1	3	1
3879	10 Stone	1.5	1950	2125	1	5	2
3880	10 Masonry / Frame	2	1953	1657	1	3	1
3881	10 Aluminum / Vinyl	2	1927	2094	2	4	2
3882	10 Stone	1	1938	1112	1	2	1
3883	10 Aluminum / Vinyl	1	1953	1025	1	2	1
3884	10 Stucco	1	1915	1598	1	4	1
3885	10 Masonry / Frame	2	1928	1439	1	3	1
3886	10 Aluminum / Vinyl	1.5	1920	1186	1	3	1
3887	11 Aluminum / Vinyl	1	1949	1211	1	3	1
3888	11 Aluminum / Vinyl	1	1955	1155	1	4	1
3889	11 Aluminum / Vinyl	1	1954	1124	1	4	2
3890	11 Frame	1	1953	958	1	3	1
3891	11 Block	2	1945	1252	1	3	1
3892	11 Aluminum / Vinyl	1	1925	1883	1	5	2
3893	11 Masonry / Frame	1	1957	1914	1	2	2
3894	11 Brick	1	1957	1160	1	3	1
3895	11 Aluminum / Vinyl	1	1958	1138	1	3	1
3896	11 Brick	1	1953	1058	1	3	1
3897	11 Brick	1	1955	1019	1	3	2
3898	11 Aluminum / Vinyl	1	1960	981	1	3	1
3899	11 Aluminum / Vinyl	1	1953	890	1	3	1
3900	11 Frame	2	1920	1531	1	3	1
3901	12 Aluminum / Vinyl	1.5	1902	1693	1	4	2
3902	12 Aluminum / Vinyl	1	1885	1320	1	2	1
3903	13 Brick	1.5	1954	1812	1	4	2
3904	13 Aluminum / Vinyl	1.5	1939	1334	1	3	1
3905	13 Brick	1	1952	1070	1	3	1
3906	13 Brick	2	1939	1443	1	3	1
3907	13 Aluminum / Vinyl	1	1926	947	1	2	1
3908	13 Aluminum / Vinyl	1	1968	1392	1	3	1
3909	13 Brick	1	1967	1364	1	3	1
3910	13 Aluminum / Vinyl	1	1950	756	1	2	1
3911	14 Aluminum / Vinyl	2	1948	1378	1	3	1

3912	14	Aluminum / Vinyl	2	1941	1090	1	2	1
3913	14	Aluminum / Vinyl	2	1913	1696	2	4	2
3914	14	Aluminum / Vinyl	1	1925	1529	1	3	1
3915	14	Aluminum / Vinyl	1	1928	1504	1	3	2
3916	14	Aluminum / Vinyl	1	1924	1390	1	4	1
3917	14	Aluminum / Vinyl	1	1926	1237	1	3	2
3918	14	Aluminum / Vinyl	1	1900	945	1	2	1
3919	14	Aluminum / Vinyl	1	1956	1078	1	3	1
3920	14	Aluminum / Vinyl	1.5	1910	1669	1	3	1
3921	14	Aluminum / Vinyl	2	1913	1512	1	3	1
3922	14	Stone	1.5	1936	1684	1	3	2
3923	15	Stucco	1	1920	1855	1	4	2
3924	15	Brick	1.5	1927	2441	1	3	1
3925	15	Aluminum / Vinyl	1	1900	1386	1	3	1
3926	1	Brick	1	1944	1318	1	4	2
3927	1	Frame	2	1941	1843	1	3	1
3928	1	Frame	2	1949	1818	2	4	2
3929	1	Brick	1	1926	2152	1	5	2
3930	2	Aluminum / Vinyl	1.5	1963	1909	2	5	2
3931	2	Stone	1	1955	1131	1	3	1
3932	2	Aluminum / Vinyl	1	1959	942	1	3	1
3933	3	Frame	1	1925	1052	1	3	1
3934	3	Stucco	2	1909	3518	1	6	3
3935	5	Brick	1	1947	2014	1	5	2
3936	5	Brick	1	1947	1503	1	3	1
3937	5	Brick	1	1953	1322	1	4	2
3938	5	Aluminum / Vinyl	1	1950	1171	1	4	1
3939	5	Aluminum / Vinyl	1	1950	1156	1	3	2
3940	5	Aluminum / Vinyl	1	1952	1092	1	4	1
3941	5	Aluminum / Vinyl	1	1952	1074	1	3	1
3942	5	Aluminum / Vinyl	1	1952	1039	1	3	1
3943	5	Aluminum / Vinyl	1	1950	1022	1	3	1
3944	5	Aluminum / Vinyl	1	1952	1016	1	3	1
3945	5	Aluminum / Vinyl	1	1950	948	1	3	1
3946	5	Brick	2	1957	2584	2	6	2
3947	5	Aluminum / Vinyl	1	1962	1420	1	3	1
3948	5	Frame	1	1955	1064	1	3	1
3949	5	Aluminum / Vinyl	1	1950	912	1	3	1
3950	5	Aluminum / Vinyl	1	1957	1487	1	3	2
3951	6	Brick	2	1922	2714	2	6	2
3952	6	Aluminum / Vinyl	1.5	1915	1809	2	4	2
3953	6	Aluminum / Vinyl	1	1927	955	1	2	1
3954	7	Aluminum / Vinyl	1	1950	1200	1	3	1

3955	7	Aluminum / Vinyl	1.5	1941	1824	2	3	2
3956	8	Frame	2	1923	2425	2	4	2
3957	8	Aluminum / Vinyl	1.5	1922	1702	2	3	2
3958	8	Aluminum / Vinyl	1.5	1910	1722	2	3	2
3959	8	Aluminum / Vinyl	1	1925	952	1	3	1
3960	8	Aluminum / Vinyl	1	1900	1320	1	4	2
3961	9	Aluminum / Vinyl	1	1977	1219	1	3	1
3962	10	Brick	1	1945	1098	1	3	2
3963	10	Aluminum / Vinyl	2	1926	2256	2	4	2
3964	10	Brick	1.5	1927	1949	1	4	1
3965	10	Brick	1	1927	1856	1	4	2
3966	10	Aluminum / Vinyl	1	1926	1617	1	5	1
3967	10	Stucco	1	1915	1565	1	3	2
3968	10	Brick	1	1927	1272	1	2	1
3969	11	Stone	1	1947	1356	1	3	2
3970	11	Aluminum / Vinyl	1	1952	1347	1	4	1
3971	11	Stone	1	1954	1310	1	3	1
3972	11	Aluminum / Vinyl	1	1953	1106	1	3	1
3973	11	Aluminum / Vinyl	2	1955	1521	1	5	2
3974	11	Brick	2	1944	1564	2	4	2
3975	11	Frame	1	1956	1363	1	3	1
3976	11	Brick	1	1960	1286	1	3	1
3977	11	Brick	1	1952	1269	1	3	1
3978	11	Prem Wood	1	1958	1252	1	3	1
3979	11	Brick	1	1960	1138	1	3	1
3980	11	Brick	1	1954	1104	1	3	1
3981	12	Aluminum / Vinyl	1	1870	452	1	1	1
3982	13	Stucco	1	1930	1487	1	3	2
3983	13	Brick	2	1964	2736	3	5	3
3984	14	Aluminum / Vinyl	1	1953	1166	1	4	1
3985	14	Brick	1.5	1926	2250	2	5	2
3986	14	Aluminum / Vinyl	1.5	1926	1929	2	4	2
3987	14	Aluminum / Vinyl	2	1891	2424	2	6	2
3988	14	Aluminum / Vinyl	2	1921	2406	2	5	2
3989	14	Aluminum / Vinyl	2	1900	1620	2	4	2
3990	14	Frame	2	1897	1916	1	3	2
3991	15	Aluminum / Vinyl	2	1922	2801	2	4	2
3992	15	Aluminum / Vinyl	1.5	1924	1826	2	5	2
3993	1	Stone	1	1951	1198	1	3	1
3994	1	Aluminum / Vinyl	1	1925	1016	1	3	1
3995	2	Frame	1.5	1951	1673	1	4	2
3996	2	Aluminum / Vinyl	1	1956	853	1	2	1
3997	2	Masonry / Frame	2	1958	2276	2	5	2

3998	2	Masonry / Frame	1.5	1958	1900	2	5	2
3999	3	Brick	1	1953	1028	1	2	2
4000	3	Frame	2	1901	2496	1	5	2
4001	5	Brick	1	1953	1598	1	3	2
4002	5	Brick	1	1956	1517	1	4	1
4003	5	Stone	1	1947	1479	1	3	1
4004	5	Frame	1	1948	1118	1	4	1
4005	5	Brick	1	1955	1256	1	3	1
4006	5	Brick	1	1956	1207	1	3	1
4007	5	Brick	1	1963	1043	1	3	2
4008	5	Brick	1	1955	1025	1	3	1
4009	5	Brick	1	1950	1009	1	3	1
4010	5	Aluminum / Vinyl	2	1976	2451	2	6	2
4011	5	Aluminum / Vinyl	2	1978	2451	2	6	2
4012	7	Aluminum / Vinyl	1.5	1941	1483	1	4	1
4013	7	Brick	1	1926	1651	1	4	2
4014	8	Aluminum / Vinyl	2	1914	1722	1	3	1
4015	8	Aluminum / Vinyl	1	1922	1582	1	4	2
4016	9	Aluminum / Vinyl	1	1953	990	1	4	1
4017	9	Aluminum / Vinyl	2	2010	2571	1	4	2
4018	10	Aluminum / Vinyl	1.5	1923	1260	1	3	2
4019	10	Brick	1.5	1928	1995	2	3	2
4020	10	Aluminum / Vinyl	1.5	1923	1468	2	5	2
4021	11	Aluminum / Vinyl	1	1951	1266	1	3	1
4022	11	Brick	1	1947	1230	1	4	1
4023	11	Aluminum / Vinyl	1	1940	896	1	3	2
4024	11	Brick	1	1959	1335	1	3	1
4025	11	Brick	1	1962	1297	1	3	1
4026	11	Aluminum / Vinyl	1	1960	1222	1	3	1
4027	11	Aluminum / Vinyl	1	1954	1000	1	3	1
4028	11	Brick	1	1959	983	1	3	2
4029	11	Aluminum / Vinyl	1	1960	931	1	3	1
4030	12	Aluminum / Vinyl	1	1903	942	1	3	1
4031	13	Block	1.5	1940	913	1	2	2
4032	13	Aluminum / Vinyl	1	1927	1482	1	4	2
4033	13	Brick	1	1960	1218	1	3	1
4034	13	Brick	1	1959	988	1	3	2
4035	14	Aluminum / Vinyl	1	1947	1035	1	3	1
4036	14	Fiber-Cement	2	2006	2040	1	3	2
4037	14	Aluminum / Vinyl	2	1937	1144	1	2	1
4038	14	Aluminum / Vinyl	2	1945	990	1	2	1
4039	14	Aluminum / Vinyl	2	1916	2882	2	6	2
4040	14	Aluminum / Vinyl	1	1927	1689	1	4	2

4041	14	Aluminum / Vinyl	1	1928	992	1	3	1
4042	15	Aluminum / Vinyl	1	1920	1681	1	4	2
4043	15	Brick	1.5	1927	2539	1	5	2
4044	1	Frame	1	1928	1624	1	4	1
4045	1	Stone	1	1955	1482	1	2	1
4046	1	Brick	1	1958	1469	1	4	1
4047	1	Aluminum / Vinyl	1	1960	988	1	3	1
4048	1	Aluminum / Vinyl	1	1924	1170	1	3	1
4049	2	Brick	2	1957	2452	2	7	2
4050	2	Aluminum / Vinyl	2	1973	2340	2	6	2
4051	2	Aluminum / Vinyl	2	1973	2340	2	6	2
4052	2	Aluminum / Vinyl	2	1973	2340	2	6	2
4053	2	Frame	2	1954	1536	2	4	2
4054	2	Stone	1	1952	1424	1	2	1
4055	2	Aluminum / Vinyl	1	1954	972	1	2	1
4056	2	Aluminum / Vinyl	1	1955	1414	1	3	1
4057	3	Aluminum / Vinyl	2	1899	3304	1	5	3
4058	3	Aluminum / Vinyl	1	1887	1050	1	3	1
4059	3	Aluminum / Vinyl	2	1900	1520	2	4	2
4060	3	Stucco	2	1913	1545	1	3	1
4061	3	Aluminum / Vinyl	1	1893	1147	1	3	1
4062	5	Aluminum / Vinyl	1	1942	1546	1	4	1
4063	5	Brick	1	1950	1355	1	3	1
4064	5	Aluminum / Vinyl	1	1952	1296	1	3	1
4065	5	Aluminum / Vinyl	1	1949	1119	1	3	2
4066	5	Aluminum / Vinyl	1	1946	1068	1	3	1
4067	5	Masonry / Frame	2	2010	1441	1	3	2
4068	5	Aluminum / Vinyl	2	1953	1422	1	3	1
4069	5	Masonry / Frame	2	1946	1174	1	3	1
4070	5	Aluminum / Vinyl	1	1957	1252	1	3	1
4071	5	Brick	1	1957	1238	1	3	2
4072	5	Brick	1	1956	979	1	2	1
4073	5	Aluminum / Vinyl	1	1928	852	1	3	1
4074	6	Aluminum / Vinyl	2	1927	1321	1	3	1
4075	6	Aluminum / Vinyl	1.5	1891	1827	2	4	2
4076	6	Aluminum / Vinyl	1	1903	1378	1	4	1
4077	6	Stucco	1	1924	1028	1	3	1
4078	7	Aluminum / Vinyl	1.5	1940	1438	1	5	2
4079	7	Brick	2	1927	2902	2	6	2
4080	7	Masonry / Frame	2	1930	2626	2	4	2
4081	7	Frame	2	1961	1879	2	4	2
4082	7	Brick	2	1945	2119	2	4	2
4083	8	Aluminum / Vinyl	1.5	1920	1933	2	4	2

4084	8 Aluminum / Vinyl	1	1924	1598	1	4	1
4085	8 Aluminum / Vinyl	1	1903	1015	1	4	1
4086	9 Aluminum / Vinyl	2	2010	1852	1	3	2
4087	9 Aluminum / Vinyl	2	1968	1636	1	4	1
4088	9 Aluminum / Vinyl	1.5	1936	1574	2	2	2
4089	9 Aluminum / Vinyl	1	2001	1940	1	3	2
4090	9 Frame	1	1957	1009	1	3	1
4091	10 Aluminum / Vinyl	1.5	1948	1238	1	3	2
4092	10 Aluminum / Vinyl	2	1925	1615	1	3	1
4093	10 Aluminum / Vinyl	2	1922	2928	2	6	2
4094	10 Aluminum / Vinyl	2	1927	2247	2	4	2
4095	10 Stucco	2	1952	1670	2	4	2
4096	10 Aluminum / Vinyl	2	1928	2120	2	4	2
4097	10 Aluminum / Vinyl	1	1925	1302	1	4	2
4098	10 Aluminum / Vinyl	1	1929	1252	1	2	1
4099	10 Aluminum / Vinyl	1	1926	961	1	3	1
4100	11 Brick	1	1949	1420	1	3	1
4101	11 Aluminum / Vinyl	1.5	1953	1205	1	3	1
4102	11 Aluminum / Vinyl	1	1959	1124	1	3	2
4103	11 Aluminum / Vinyl	1	1942	868	1	3	1
4104	11 Brick	1.5	1962	2201	2	5	2
4105	11 Brick	1	1963	1216	1	3	1
4106	11 Stone	1	1946	1105	1	2	1
4107	11 Brick	1	1955	1013	1	3	1
4108	11 Brick	1	1954	976	1	3	1
4109	11 Frame	1	1961	935	1	3	1
4110	11 Aluminum / Vinyl	1	1950	802	1	3	1
4111	11 Aluminum / Vinyl	2	1975	2478	2	6	2
4112	12 Aluminum / Vinyl	1	1900	1425	1	4	2
4113	12 Frame	1	1909	1098	1	3	1
4115	13 Brick	1	1946	1133	1	2	1
4116	13 Aluminum / Vinyl	2	1973	2515	1	3	2
4117	13 Aluminum / Vinyl	2	1930	1353	1	3	1
4118	13 Aluminum / Vinyl	2	1969	1228	1	3	1
4119	13 Frame	1	1962	1000	1	3	2
4120	13 Aluminum / Vinyl	1	1959	919	1	3	2
4121	13 Masonry / Frame	2	1972	2390	2	6	2
4122	13 Brick	1.5	1932	1846	1	3	1
4123	13 Brick	2	1932	1594	1	3	1
4124	14 Stone	1	1940	1262	1	2	2
4125	14 Aluminum / Vinyl	2	2010	1354	1	3	2
4126	14 Brick	1.5	1925	2112	2	3	2
4127	14 Aluminum / Vinyl	2	1898	1848	2	5	2

4128	14	Frame	1.5	1916	1758	1	3	2
4129	14	Aluminum / Vinyl	1	1930	1542	1	4	1
4130	14	Aluminum / Vinyl	1	1945	979	1	3	1
4131	14	Aluminum / Vinyl	1	1906	1641	1	3	2
4132	14	Aluminum / Vinyl	1.5	1916	1632	1	3	2
4133	14	Aluminum / Vinyl	1	1920	1095	1	2	1
4134	14	Aluminum / Vinyl	2	1910	1080	1	2	1
4135	14	Aluminum / Vinyl	1	1924	1017	1	3	1
4136	15	Brick	2	1921	2180	1	4	1
4137	15	Frame	2	1895	1642	2	4	2
4138	1	Masonry / Frame	2	1950	1775	2	4	2
4139	1	Aluminum / Vinyl	1	1960	1095	1	3	1
4140	2	Stucco	1.5	1941	1484	1	4	1
4141	2	Aluminum / Vinyl	1	1955	1084	1	4	1
4142	2	Brick	1	1958	1372	1	3	1
4143	2	Aluminum / Vinyl	1	1955	1080	1	3	2
4144	2	Aluminum / Vinyl	1	1958	1040	1	3	1
4145	2	Aluminum / Vinyl	1	1955	864	1	3	1
4146	3	Brick	2	1921	3764	1	3	2
4147	3	Brick	2	1919	3263	1	5	3
4148	3	Brick	1.5	1928	1497	1	3	2
4149	3	Aluminum / Vinyl	2	1924	1307	1	3	1
4150	3	Aluminum / Vinyl	1	1889	1205	1	3	1
4151	5	Frame	1	1952	1664	1	4	1
4152	5	Aluminum / Vinyl	1	1952	1549	1	3	2
4153	5	Aluminum / Vinyl	1	1952	1394	1	3	1
4154	5	Aluminum / Vinyl	1	1955	1110	1	4	1
4155	5	Brick	1	1946	1089	1	3	1
4156	5	Aluminum / Vinyl	1	1951	1076	1	3	2
4157	5	Aluminum / Vinyl	1	1953	1026	1	4	1
4158	5	Aluminum / Vinyl	2	1940	1240	1	3	1
4159	5	Brick	1	1979	1469	1	3	2
4160	5	Brick	1	1957	1198	1	3	1
4161	5	Brick	1	1956	1156	1	3	1
4162	5	Frame	1	1956	1064	1	3	2
4163	5	Aluminum / Vinyl	1	1956	999	1	3	1
4164	5	Aluminum / Vinyl	1	1952	802	1	2	1
4165	6	Frame	2	1892	2260	2	6	2
4166	6	Aluminum / Vinyl	2	1911	2044	2	6	2
4167	7	Brick	1	1948	1047	1	3	1
4168	7	Aluminum / Vinyl	1	1922	2074	1	5	1
4169	7	Brick	1	1925	1891	1	4	2
4170	8	Aluminum / Vinyl	1	1949	1135	1	3	1

4171	8	Aluminum / Vinyl	1	1895	1390	1	3	2
4172	8	Frame	1	1893	1336	1	3	2
4173	8	Aluminum / Vinyl	1	1903	910	1	3	1
4174	9	Brick	1	1942	1207	1	3	2
4175	9	Aluminum / Vinyl	1	1964	1232	1	3	1
4176	10	Aluminum / Vinyl	2	1945	1607	1	4	2
4177	10	Brick	1	1949	1512	1	3	2
4178	10	Block	1	1946	1075	1	3	1
4179	10	Aluminum / Vinyl	1	1948	1070	1	3	1
4180	10	Brick	1	1947	899	1	3	1
4181	10	Aluminum / Vinyl	1.5	1927	1452	2	4	2
4182	10	Brick	1.5	1940	1502	2	3	2
4183	10	Stucco	1	1918	1722	1	5	1
4184	10	Aluminum / Vinyl	1	1954	1100	1	2	1
4185	10	Aluminum / Vinyl	1	1954	982	1	3	1
4186	10	Brick	1.5	1924	1997	1	3	1
4187	10	Aluminum / Vinyl	1.5	1900	1685	1	5	1
4188	11	Brick	1	1960	1321	1	4	2
4189	11	Frame	1.5	1939	1186	1	2	1
4190	11	Aluminum / Vinyl	1	1953	2385	2	5	2
4191	11	Aluminum / Vinyl	1.5	1959	2314	2	6	2
4192	11	Aluminum / Vinyl	2	1954	1728	2	6	2
4193	11	Brick	1	1967	1414	1	3	1
4194	11	Brick	1	1963	1376	1	3	1
4195	11	Brick	1	1956	1189	1	3	1
4196	11	Aluminum / Vinyl	1	1964	1114	1	3	1
4197	11	Aluminum / Vinyl	1	1956	1095	1	3	1
4198	11	Aluminum / Vinyl	1	1957	1063	1	3	1
4199	11	Brick	1	1955	1062	1	2	1
4200	11	Brick	1	1953	1019	1	3	1
4201	11	Aluminum / Vinyl	1	1956	995	1	3	1
4202	11	Brick	1	1954	988	1	3	1
4203	11	Aluminum / Vinyl	1	1954	955	1	3	1
4204	11	Frame	1	1960	932	1	3	1
4205	11	Brick	1	1950	871	1	2	1
4206	12	Aluminum / Vinyl	1	1903	1404	1	3	1
4207	13	Aluminum / Vinyl	1	1947	1348	1	4	2
4208	13	Aluminum / Vinyl	1	1950	1257	1	3	2
4209	13	Aluminum / Vinyl	1	1947	1149	1	3	1
4210	13	Aluminum / Vinyl	2	1951	1564	1	5	2
4211	13	Aluminum / Vinyl	1.5	1927	2199	1	3	2
4212	13	Brick	1	1967	1808	1	3	2
4213	13	Brick	1	1973	1720	1	3	1

4214	13	Brick	1	1969	1490	1	3	1
4215	13	Aluminum / Vinyl	1	1978	1354	1	3	1
4216	13	Aluminum / Vinyl	1	1962	896	1	3	1
4217	13	Aluminum / Vinyl	1	1944	746	1	2	1
4218	13	Aluminum / Vinyl	1	1954	720	1	2	1
4219	14	Aluminum / Vinyl	1	1953	1164	1	3	1
4220	14	Brick	1	1948	992	1	3	1
4221	14	Aluminum / Vinyl	1	1949	910	1	3	1
4222	14	Aluminum / Vinyl	1	1899	814	1	2	1
4223	14	Brick	2	1929	2159	2	4	2
4224	14	Frame	1.5	1920	1614	2	4	2
4225	14	Frame	2	1911	2083	2	3	2
4226	14	Aluminum / Vinyl	1	1927	1669	1	3	2
4227	14	Frame	1	1925	1339	1	3	1
4228	14	Aluminum / Vinyl	1	1926	1160	1	3	1
4229	14	Aluminum / Vinyl	1	1953	922	1	3	1
4230	14	Aluminum / Vinyl	2	1919	1888	1	3	2
4231	14	Block	1.5	1920	1308	1	2	1
4232	14	Aluminum / Vinyl	1	1918	1252	1	3	1
4233	14	Prem Wood	1	1923	1224	1	3	2
4234	14	Frame	1	1921	1030	1	3	1
4235	15	Aluminum / Vinyl	2	2008	1914	1	4	2
4236	15	Aluminum / Vinyl	2	1921	3084	2	6	2
4237	1	Brick	1	1952	1288	1	4	1
4238	1	Aluminum / Vinyl	1	1929	1076	1	2	1
4239	1	Aluminum / Vinyl	1.5	1952	1831	2	4	2
4240	1	Frame	1	1959	1132	1	3	1
4241	1	Aluminum / Vinyl	1	1956	1130	1	3	2
4242	1	Stone	1	1946	967	1	2	1
4243	1	Aluminum / Vinyl	1	1950	672	1	2	1
4244	1	Aluminum / Vinyl	1.5	1925	1324	1	2	1
4245	1	Aluminum / Vinyl	1	1932	1076	1	4	1
4246	2	Aluminum / Vinyl	1	1995	1458	1	3	2
4247	2	Aluminum / Vinyl	1	1953	1300	1	3	2
4248	2	Brick	1.5	1953	1965	2	4	2
4249	2	Frame	1	1950	1332	1	3	1
4250	2	Aluminum / Vinyl	1	1963	1163	1	3	1
4251	2	Brick	1	1955	1131	1	3	1
4252	2	Aluminum / Vinyl	1	1958	1108	1	3	2
4253	2	Aluminum / Vinyl	1	1963	1017	1	3	1
4254	2	Aluminum / Vinyl	1	1955	864	1	3	1
4255	3	Aluminum / Vinyl	2	1890	1632	1	2	2
4256	3	Frame	1	1891	1152	1	3	2

4257	3 Aluminum / Vinyl	1	1885	680	1	2	1
4258	3 Brick	1.5	1929	2211	2	4	2
4259	3 Aluminum / Vinyl	2	1912	2291	2	4	2
4260	3 Frame	2	1907	2132	2	4	2
4261	3 Stucco	1	1916	2280	1	5	2
4262	3 Brick	2	1913	4332	1	6	3
4263	3 Aluminum / Vinyl	2	1904	1986	1	4	1
4264	3 Frame	2	1889	1667	1	3	1
4266	5 Frame	1	1984	1843	1	3	2
4267	5 Brick	1	1950	1449	1	3	2
4268	5 Brick	1	1945	1172	1	3	2
4269	5 Aluminum / Vinyl	1	1952	1120	1	3	1
4270	5 Aluminum / Vinyl	1	1949	1036	1	3	1
4271	5 Aluminum / Vinyl	1	1953	935	1	3	1
4272	5 Masonry / Frame	2	1955	2310	1	4	1
4273	5 Frame	1	1952	1320	1	3	1
4274	5 Brick	1	1950	1206	1	3	2
4275	5 Brick	1	1953	1200	1	3	1
4276	5 Brick	1	1952	1176	1	3	1
4277	5 Brick	1	1953	1125	1	2	1
4278	5 Aluminum / Vinyl	1	1957	1123	1	3	1
4279	5 Aluminum / Vinyl	1	1955	1067	1	3	1
4280	5 Brick	1	1954	1036	1	3	1
4281	6 Aluminum / Vinyl	1.5	1916	1985	1	4	2
4282	6 Frame	1.5	1898	1711	1	0	1
4283	6 Aluminum / Vinyl	1	1900	1152	1	3	1
4284	7 Aluminum / Vinyl	2	1923	2207	2	4	2
4285	7 Aluminum / Vinyl	2	1915	2161	2	4	2
4286	7 Aluminum / Vinyl	1	1893	1150	1	4	1
4287	7 Stone	1	1933	1971	1	4	2
4288	8 Aluminum / Vinyl	1	1922	1326	1	4	1
4289	8 Aluminum / Vinyl	1	1900	1278	1	3	1
4290	8 Aluminum / Vinyl	1	1895	944	1	2	1
4291	9 Frame	1	1940	1173	1	4	1
4292	10 Stone	1	1948	1785	1	4	1
4293	10 Aluminum / Vinyl	1.5	1948	1418	1	4	2
4294	10 Stone	1	1946	1149	1	3	1
4295	10 Stucco	1	1952	1095	1	4	2
4296	10 Aluminum / Vinyl	1	1952	992	1	3	1
4297	10 Aluminum / Vinyl	1	1953	984	1	3	1
4298	10 Brick	2	1924	4137	1	5	3
4299	10 Stucco	2	1915	2883	2	4	2
4300	10 Aluminum / Vinyl	1	1927	1512	1	4	2

4301	10	Aluminum / Vinyl	1	1925	1506	1	2	2
4302	10	Aluminum / Vinyl	1	1953	1068	1	3	1
4303	10	Aluminum / Vinyl	1	1954	1008	1	3	1
4304	10	Aluminum / Vinyl	1	1951	768	1	2	1
4305	10	Aluminum / Vinyl	1	1953	720	1	2	1
4306	10	Stone	1.5	1940	1890	1	3	2
4307	10	Stone	1	1936	1819	1	3	2
4308	11	Aluminum / Vinyl	1	1946	795	1	2	1
4309	11	Aluminum / Vinyl	1.5	1925	2174	2	4	3
4310	11	Brick	2	1958	2528	2	6	2
4311	11	Masonry / Frame	2	1971	2496	2	5	2
4312	11	Aluminum / Vinyl	1.5	1890	2058	2	5	3
4313	11	Brick	1	1929	1865	1	3	1
4314	11	Aluminum / Vinyl	1	1928	1000	1	3	1
4315	11	Brick	1	1955	1600	1	4	1
4316	11	Brick	1	1958	1399	1	3	2
4317	11	Brick	1	1959	1230	1	3	1
4318	11	Aluminum / Vinyl	1	1967	1216	1	3	1
4319	11	Brick	1	1958	1114	1	3	1
4320	11	Aluminum / Vinyl	1	1958	1078	1	3	1
4321	11	Aluminum / Vinyl	1	1958	1072	1	3	1
4322	11	Brick	1	1956	1064	1	3	1
4323	11	Aluminum / Vinyl	1	1957	1026	1	3	1
4324	11	Aluminum / Vinyl	1	1954	989	1	3	1
4325	11	Aluminum / Vinyl	1	1955	984	1	3	1
4326	11	Brick	1	1958	910	1	2	1
4327	11	Aluminum / Vinyl	1	1953	879	1	3	1
4328	11	Aluminum / Vinyl	1	1953	879	1	3	1
4329	11	Aluminum / Vinyl	1.5	1934	1138	1	3	1
4330	12	Frame	1	1900	1088	1	2	1
4331	13	Aluminum / Vinyl	1	1940	1283	1	3	1
4332	13	Brick	1	1962	1325	1	3	1
4333	13	Brick	1	1955	1198	1	3	1
4334	13	Stone	1	1964	1100	1	2	1
4335	13	Aluminum / Vinyl	1	1960	1084	1	3	1
4336	13	Aluminum / Vinyl	1	1946	681	1	2	1
4337	13	Frame	1.5	1929	1184	1	3	1
4338	14	Aluminum / Vinyl	1	1944	1140	1	3	1
4339	14	Frame	2	1920	2096	2	4	2
4340	14	Aluminum / Vinyl	2	1892	2741	2	3	2
4341	14	Aluminum / Vinyl	2	1919	1616	2	4	2
4342	14	Aluminum / Vinyl	1.5	1942	1215	2	3	2
4343	14	Stone	1	1926	1539	1	3	1

4344	14	Aluminum / Vinyl	1.5	1927	1661	1	3	2
4345	14	Frame	1	1915	1430	1	3	1
4346	14	Aluminum / Vinyl	1.5	1926	1133	1	2	1
4347	15	Aluminum / Vinyl	2	1911	1973	2	4	2
4348	1	Brick	1.5	1937	1247	1	3	1
4349	1	Frame	1	1941	1065	1	3	1
4350	1	Brick	2	1954	2026	2	4	2
4351	1	Brick	2	1954	1810	2	6	2
4352	1	Brick	1	1926	1209	1	3	1
4353	2	Stone	1	1952	1378	1	4	1
4354	2	Stone	1	1942	1360	1	3	1
4355	2	Aluminum / Vinyl	1	1956	1124	1	3	2
4356	2	Frame	1	1962	1330	1	3	1
4357	2	Aluminum / Vinyl	1	1956	988	1	3	1
4358	2	Brick	1	1957	964	1	2	2
4359	3	Masonry / Frame	2	1926	2088	1	3	1
4360	3	Aluminum / Vinyl	1.5	1927	1737	2	4	3
4361	3	Aluminum / Vinyl	2	1880	2686	2	6	2
4362	3	Brick	2	1916	4123	1	4	3
4363	3	Brick	2	1910	5028	1	6	4
4364	3	Brick	2	1915	3618	1	3	2
4365	3	Frame	2	1904	2899	1	4	2
4366	3	Frame	2	1922	1344	1	3	1
4367	3	Aluminum / Vinyl	2	1890	3036	3	5	3
4368	5	Stone	1	1946	1902	1	3	2
4369	5	Aluminum / Vinyl	1	1951	1496	1	3	1
4370	5	Stone	1	1952	1456	1	3	2
4371	5	Aluminum / Vinyl	1.5	1949	1367	1	4	1
4372	5	Brick	1	1948	1299	1	3	2
4373	5	Brick	1	1955	1285	1	4	1
4374	5	Aluminum / Vinyl	1	1949	1190	1	4	1
4375	5	Aluminum / Vinyl	1	1937	1143	1	2	1
4376	5	Aluminum / Vinyl	1	1946	1068	1	3	1
4377	5	Aluminum / Vinyl	2	1993	2153	1	3	2
4378	5	Brick	2	1960	2524	2	6	2
4379	5	Masonry / Frame	1.5	1956	1733	2	3	2
4380	5	Aluminum / Vinyl	1.5	1910	2161	2	4	2
4381	5	Brick	1	1965	1862	1	3	1
4382	5	Masonry / Frame	1	1962	1751	1	3	2
4383	5	Brick	1	1962	1345	1	4	1
4384	5	Brick	1	1959	1300	1	3	1
4385	5	Brick	1	1961	1221	1	3	1
4386	5	Aluminum / Vinyl	1	1956	1216	1	3	1

4387	5 Aluminum / Vinyl	1	1976	1211	1	3	1
4388	5 Aluminum / Vinyl	1	1959	1211	1	3	1
4389	5 Aluminum / Vinyl	1	1971	1204	1	4	1
4390	5 Masonry / Frame	1	1956	1114	1	3	2
4391	5 Aluminum / Vinyl	1	1956	1067	1	3	1
4392	5 Aluminum / Vinyl	1	1957	958	1	3	1
4393	5 Aluminum / Vinyl	1	1952	885	1	3	1
4394	6 Frame	2	1924	2206	2	4	2
4395	6 Aluminum / Vinyl	2	1908	2314	2	6	2
4396	6 Aluminum / Vinyl	1	1908	1384	1	3	1
4397	6 Aluminum / Vinyl	1	1904	1294	1	3	1
4398	6 Aluminum / Vinyl	1	1905	1283	1	5	1
4399	7 Stone	1.5	1936	2305	1	4	2
4400	7 Brick	1	1951	1261	1	2	1
4401	7 Brick	1.5	1932	2051	1	4	1
4402	7 Aluminum / Vinyl	1	1896	1488	1	5	2
4403	7 Masonry / Frame	2	1936	1600	1	3	1
4404	8 Aluminum / Vinyl	2	1912	2516	2	5	2
4405	8 Aluminum / Vinyl	1	1922	1270	1	4	2
4406	8 Frame	1	1900	1034	1	3	1
4407	9 Masonry / Frame	2	1957	1679	1	4	1
4408	9 Aluminum / Vinyl	1	1986	1409	1	3	1
4409	9 Aluminum / Vinyl	1	1980	1209	1	3	2
4410	9 Aluminum / Vinyl	1	1971	1200	1	4	1
4411	9 Masonry / Frame	1	1957	1058	1	3	1
4412	9 Brick	1	1957	1051	1	3	1
4413	9 Aluminum / Vinyl	1	1968	1018	1	3	1
4414	9 Frame	1	1964	1006	1	3	1
4415	9 Brick	1	1956	994	1	3	1
4416	9 Brick	1	1958	1858	1	3	1
4417	9 Aluminum / Vinyl	2	1966	2451	2	6	2
4418	10 Brick	1.5	1953	1791	1	4	2
4419	10 Brick	1	1952	1657	1	3	2
4420	10 Brick	1	1952	1134	1	3	2
4421	10 Aluminum / Vinyl	1	1948	1075	1	3	1
4422	10 Aluminum / Vinyl	1	1917	686	1	2	1
4423	10 Aluminum / Vinyl	1.5	1928	2261	2	4	2
4424	10 Frame	1.5	1928	1901	2	4	2
4425	10 Aluminum / Vinyl	1.5	1888	1740	2	4	2
4426	10 Aluminum / Vinyl	1	1922	1686	1	4	2
4427	10 Aluminum / Vinyl	1	1925	1191	1	3	1
4428	10 Brick	1	1954	1125	1	3	2
4429	10 Stone	1	1938	1115	1	2	1

4430	10	Aluminum / Vinyl	1	1922	1066	1	3	1
4431	10	Aluminum / Vinyl	1	1925	1023	1	4	1
4432	10	Brick	1	1926	1884	1	4	2
4433	11	Aluminum / Vinyl	1.5	1954	1779	1	3	2
4434	11	Aluminum / Vinyl	1	1953	1498	1	4	2
4435	11	Aluminum / Vinyl	1	1941	1121	1	3	1
4436	11	Brick	1	1953	986	1	2	1
4437	11	Aluminum / Vinyl	1	1952	953	1	3	1
4438	11	Brick	1	1949	941	1	2	1
4439	11	Aluminum / Vinyl	2	1928	2778	1	5	1
4440	11	Masonry / Frame	2	1940	2174	1	3	1
4441	11	Aluminum / Vinyl	2	1957	2206	2	6	2
4442	11	Masonry / Frame	1.5	1964	2198	2	5	2
4443	11	Brick	1.5	1931	2252	1	3	1
4444	11	Aluminum / Vinyl	1	1955	1481	1	3	2
4445	11	Aluminum / Vinyl	1	1938	1245	1	3	1
4446	11	Aluminum / Vinyl	1	1957	1202	1	3	1
4447	11	Brick	1	1956	1153	1	3	2
4448	11	Brick	1	1957	1152	1	2	1
4449	11	Aluminum / Vinyl	1	1971	1136	1	4	1
4450	11	Frame	1	1964	1128	1	3	1
4451	11	Brick	1	1955	1112	1	3	1
4452	11	Aluminum / Vinyl	1	1953	1076	1	3	1
4453	11	Stone	1	1940	1054	1	2	2
4454	11	Aluminum / Vinyl	1	1957	1040	1	3	1
4455	11	Aluminum / Vinyl	1	1956	1019	1	3	1
4456	11	Frame	1	1956	995	1	3	1
4457	11	Brick	1	1955	924	1	3	1
4458	11	Aluminum / Vinyl	1	1955	876	1	3	1
4459	11	Aluminum / Vinyl	1	1953	770	1	2	2
4460	13	Stone	1	1942	1561	1	4	2
4461	13	Aluminum / Vinyl	1	1950	1253	1	3	2
4462	13	Stone	1.5	1953	2103	2	4	2
4463	13	Aluminum / Vinyl	1	1923	1239	1	3	2
4464	13	Brick	1	1964	1724	1	3	1
4465	13	Aluminum / Vinyl	1	1968	1503	1	4	1
4466	13	Brick	1	1969	1329	1	3	2
4467	13	Brick	1	1956	1150	1	3	2
4468	13	Brick	1	1955	1119	1	3	1
4469	13	Aluminum / Vinyl	1	1961	1059	1	3	1
4470	13	Aluminum / Vinyl	1	1960	956	1	3	1
4471	13	Aluminum / Vinyl	1	1959	919	1	3	1
4472	13	Aluminum / Vinyl	1	1947	771	1	2	1

4473	13 Aluminum / Vinyl	1	1944	759	1	2	1
4474	13 Aluminum / Vinyl	1	1944	730	1	2	1
4475	13 Aluminum / Vinyl	1	1944	730	1	2	1
4476	13 Aluminum / Vinyl	1	1951	696	1	2	1
4477	13 Aluminum / Vinyl	1	1929	782	1	2	1
4478	14 Aluminum / Vinyl	2	2010	1320	1	3	2
4479	14 Aluminum / Vinyl	1	1896	640	1	1	1
4480	14 Aluminum / Vinyl	1	1910	532	1	2	1
4481	14 Masonry / Frame	2	1954	2090	2	4	2
4482	14 Aluminum / Vinyl	1.5	1918	1264	1	3	1
4483	14 Brick	1	1929	1252	1	3	1
4484	14 Brick	1	1955	840	1	2	1
4485	14 Frame	1.5	1918	1560	1	3	2
4486	14 Frame	1	1900	1288	1	3	1
4487	14 Aluminum / Vinyl	1	1916	952	1	3	1
4488	14 Stone	1.5	1936	2141	1	4	1
4489	15 Aluminum / Vinyl	2	1910	2050	2	5	2
4490	1 Aluminum / Vinyl	1	1953	1120	1	4	1
4491	1 Brick	1.5	1936	1099	1	2	1
4492	1 Masonry / Frame	2	1951	1306	1	3	1
4493	1 Aluminum / Vinyl	2	1936	1144	1	3	1
4494	1 Brick	2	1957	2576	2	4	2
4495	1 Brick	1	1954	1185	1	3	1
4496	1 Aluminum / Vinyl	1	1953	1082	1	3	1
4497	2 Aluminum / Vinyl	1	1955	1119	1	3	1
4498	2 Aluminum / Vinyl	1	1952	1019	1	4	2
4499	2 Aluminum / Vinyl	1	1936	945	1	2	1
4500	2 Aluminum / Vinyl	2	1958	1872	2	4	2
4501	2 Aluminum / Vinyl	1	1961	1274	1	3	1
4502	2 Brick	1	1959	1169	1	3	1
4503	2 Aluminum / Vinyl	1	1958	942	1	3	1
4504	2 Aluminum / Vinyl	1	1954	879	1	3	1
4505	3 Brick	2	1916	3543	1	4	2
4506	3 Aluminum / Vinyl	1	1920	1918	1	4	2
4507	3 Aluminum / Vinyl	1	1919	1635	1	3	2
4508	3 Brick	2	1928	3768	1	5	3
4509	3 Brick	2	1915	3666	1	5	3
4510	3 Stucco	2	1915	3507	1	4	2
4511	3 Frame	2	1902	2781	1	4	2
4512	3 Frame	1	1908	1512	1	3	1
4513	3 Frame	1	1908	1483	1	3	1
4514	5 Aluminum / Vinyl	1.5	1998	1819	1	3	2
4515	5 Aluminum / Vinyl	1	1952	1244	1	3	1

4516	5 Aluminum / Vinyl	1	1956	1154	1	4	1
4517	5 Frame	1.5	1939	1139	1	2	1
4518	5 Aluminum / Vinyl	1	1952	1021	1	4	1
4519	5 Aluminum / Vinyl	1.5	1949	999	1	3	1
4520	5 Masonry / Frame	2	1952	1528	1	3	1
4521	5 Aluminum / Vinyl	1.5	1922	1817	2	5	2
4522	5 Stone	1	1952	1604	1	3	1
4523	5 Brick	1	1954	1232	1	2	1
4524	5 Brick	1	1949	1216	1	2	1
4525	5 Frame	1	1971	1212	1	4	1
4526	5 Aluminum / Vinyl	1	1956	1132	1	3	2
4527	5 Brick	1	1956	1082	1	3	1
4528	5 Frame	1	1960	1079	1	3	1
4529	5 Aluminum / Vinyl	1	1956	1074	1	3	1
4530	5 Aluminum / Vinyl	1	1952	1064	1	2	1
4531	5 Aluminum / Vinyl	1	1950	715	1	2	1
4532	6 Aluminum / Vinyl	2	1905	3485	2	7	3
4533	6 Aluminum / Vinyl	1.5	1908	1538	2	3	2
4534	6 Aluminum / Vinyl	1	1920	826	1	2	1
4535	7 Aluminum / Vinyl	1	1953	1227	1	4	1
4536	7 Brick	1.5	1931	2008	2	3	2
4537	7 Aluminum / Vinyl	1	1921	1644	1	4	1
4538	7 Aluminum / Vinyl	1	1891	920	1	2	1
4539	8 Aluminum / Vinyl	1	1885	1208	1	3	1
4540	8 Aluminum / Vinyl	1.5	1929	2156	2	4	2
4541	8 Aluminum / Vinyl	1.5	1921	2049	2	4	2
4542	8 Aluminum / Vinyl	2	1913	2558	2	6	2
4543	8 Aluminum / Vinyl	1.5	1900	1497	1	4	1
4544	8 Aluminum / Vinyl	1.5	1907	1470	1	4	1
4545	8 Aluminum / Vinyl	1.5	1900	1255	1	3	1
4546	8 Aluminum / Vinyl	1	1903	1254	1	4	2
4547	9 Brick	1	1939	944	1	3	2
4548	9 Aluminum / Vinyl	1	1957	1332	1	3	1
4549	9 Aluminum / Vinyl	1	1958	1039	1	3	1
4550	9 Aluminum / Vinyl	1	1965	1033	1	3	1
4551	10 Brick	1	1937	1875	1	4	1
4552	10 Stone	1	1935	1490	1	2	1
4553	10 Brick	1	1949	1204	1	3	1
4554	10 Brick	1	1948	1129	1	3	1
4555	10 Aluminum / Vinyl	1	1952	1100	1	3	1
4556	10 Aluminum / Vinyl	1	1948	1082	1	3	1
4557	10 Aluminum / Vinyl	1	1947	1063	1	2	1
4558	10 Stucco	2	1923	2304	1	4	1

4559	10	Aluminum / Vinyl	2	2004	2227	1	4	2
4560	10	Aluminum / Vinyl	2	1946	1342	1	3	1
4561	10	Aluminum / Vinyl	2	1917	2678	2	6	2
4562	10	Brick	1.5	1941	1991	2	3	2
4563	10	Aluminum / Vinyl	1.5	1917	2011	1	3	1
4564	10	Brick	1	1933	1345	1	3	1
4565	10	Aluminum / Vinyl	1	1917	964	1	3	1
4566	10	Aluminum / Vinyl	1	1917	964	1	3	1
4567	10	Brick	1	1954	1380	1	3	2
4568	10	Aluminum / Vinyl	1	1954	864	1	3	1
4569	10	Aluminum / Vinyl	1	1918	1340	1	3	1
4570	10	Aluminum / Vinyl	1	1922	1208	1	3	2
4571	10	Brick	1.5	1928	2297	1	3	1
4572	11	Stone	1	1942	2928	1	3	2
4573	11	Brick	1	1952	1705	1	4	1
4574	11	Stone	1	1950	1279	1	3	1
4575	11	Aluminum / Vinyl	1	1946	958	1	3	1
4576	11	Brick	1.5	1959	2184	2	4	2
4577	11	Aluminum / Vinyl	1.5	1941	1841	2	3	2
4578	11	Stone	1.5	1942	1808	2	3	2
4579	11	Aluminum / Vinyl	1	1959	1235	1	3	1
4580	11	Aluminum / Vinyl	1	1970	1172	1	4	1
4581	11	Aluminum / Vinyl	1	1962	1161	1	3	1
4582	11	Brick	1	1959	1053	1	3	1
4583	11	Aluminum / Vinyl	1	1955	1002	1	3	2
4584	11	Aluminum / Vinyl	1	1954	984	1	3	1
4585	11	Aluminum / Vinyl	1	1954	984	1	3	1
4586	11	Aluminum / Vinyl	1	1960	937	1	3	1
4587	11	Brick	1	1954	918	1	3	1
4588	11	Aluminum / Vinyl	1	1953	899	1	3	1
4589	12	Aluminum / Vinyl	2	2009	1672	1	3	2
4590	12	Aluminum / Vinyl	1	1885	1295	1	4	1
4591	12	Aluminum / Vinyl	1	1880	882	1	2	1
4592	12	Frame	1	1903	1530	2	4	2
4593	13	Stone	1.5	1937	1433	1	2	1
4594	13	Brick	1	1951	1348	1	3	1
4595	13	Brick	1	1947	1163	1	3	1
4596	13	Aluminum / Vinyl	1	1954	1137	1	3	1
4597	13	Brick	1.5	1951	2463	2	5	2
4598	13	Brick	1	1964	1167	1	3	1
4599	13	Brick	1	1956	961	1	2	1
4600	14	Aluminum / Vinyl	1	1952	784	1	2	1
4601	14	Frame	2	1913	1536	1	4	2

4602	14	Aluminum / Vinyl	2	1945	1360	1	2	1
4603	14	Masonry / Frame	2	1984	2660	2	6	2
4604	14	Masonry / Frame	2	1940	2378	2	5	2
4605	14	Aluminum / Vinyl	1	1929	1450	1	3	1
4606	14	Aluminum / Vinyl	1	1928	992	1	2	1
4607	14	Aluminum / Vinyl	1	1955	864	1	3	1
4608	14	Aluminum / Vinyl	2	1908	2520	1	4	2
4609	14	Aluminum / Vinyl	1.5	1883	2024	1	4	2
4610	14	Aluminum / Vinyl	1.5	1910	1745	1	4	2
4611	14	Frame	2	1910	1520	1	4	1
4612	14	Aluminum / Vinyl	1	1910	1512	1	3	1
4613	14	Frame	2	1925	1320	1	3	1
4614	15	Aluminum / Vinyl	2	2009	1604	1	3	2
4615	1	Brick	1	1951	1308	1	3	1
4616	1	Brick	1	1951	1143	1	3	1
4617	1	Aluminum / Vinyl	1	1981	1007	1	3	1
4618	1	Aluminum / Vinyl	2	1928	1359	1	3	2
4619	2	Brick	1.5	1952	1715	1	4	1
4620	2	Brick	1	1951	1235	1	3	2
4621	2	Brick	1	1960	1044	1	2	1
4622	2	Aluminum / Vinyl	1	1956	1025	1	3	1
4623	2	Aluminum / Vinyl	1	1955	1008	1	3	1
4624	2	Aluminum / Vinyl	1	1955	756	1	2	1
4625	3	Frame	2	1902	4321	1	6	2
4626	3	Brick	1.5	1928	2201	2	4	2
4627	3	Frame	1.5	1905	1929	2	5	2
4628	3	Aluminum / Vinyl	1	1920	1490	1	3	1
4629	3	Brick	2	1904	4760	1	3	2
4630	3	Masonry / Frame	2	1910	3607	1	5	3
4631	3	Brick	2	1926	3434	1	4	3
4632	3	Stucco	1	1912	2823	1	3	3
4633	3	Aluminum / Vinyl	2	1907	2568	1	6	1
4634	3	Masonry / Frame	2	1917	2063	1	1	1
4635	3	Frame	2	1904	1812	1	3	2
4637	3	Frame	1.5	1910	1564	1	3	1
4638	3	Brick	2	1907	4417	1	6	3
4639	4	Frame	2	1909	2280	2	4	2
4640	5	Brick	1	1952	1659	1	3	2
4641	5	Brick	1	1952	1476	1	3	1
4642	5	Brick	1.5	1937	1392	1	3	1
4643	5	Brick	1	1947	1332	1	4	2
4644	5	Brick	1	1949	1298	1	3	1
4645	5	Brick	1	1948	1233	1	3	1

4646	5 Aluminum / Vinyl	1	1953	1064	1	3	2
4647	5 Aluminum / Vinyl	1.5	1950	1060	1	3	1
4648	5 Aluminum / Vinyl	1	1952	1018	1	4	1
4649	5 Aluminum / Vinyl	2	1969	1852	1	4	2
4650	5 Masonry / Frame	2	1952	2384	2	4	2
4651	5 Prem Wood	1	1993	2908	1	4	3
4652	5 Aluminum / Vinyl	1	1969	1573	1	3	1
4653	5 Aluminum / Vinyl	1	1972	1424	1	3	2
4654	5 Stone	1	1955	1294	1	3	1
4655	5 Aluminum / Vinyl	1	1955	1028	1	3	1
4656	5 Brick	1	1955	1016	1	3	1
4657	5 Aluminum / Vinyl	1	1950	995	1	2	1
4658	6 Aluminum / Vinyl	2	1893	2206	2	4	2
4659	6 Frame	1	1869	1512	2	4	3
4660	6 Frame	1.5	1900	1651	1	1	0
4661	6 Aluminum / Vinyl	2	1922	1306	1	3	1
4662	6 Aluminum / Vinyl	1	1893	1012	1	3	2
4663	7 Stone	1	1935	1962	1	4	2
4664	7 Brick	1.5	1953	1358	1	4	1
4665	7 Frame	2	1924	2586	2	6	2
4666	7 Brick	1	1927	1743	1	3	1
4667	7 Aluminum / Vinyl	1	1926	1422	1	3	1
4668	7 Brick	1	1950	1163	1	3	2
4669	8 Aluminum / Vinyl	1	1892	886	1	3	1
4670	8 Aluminum / Vinyl	1.5	1922	1702	2	3	2
4671	8 Brick	1	1927	1485	1	4	1
4672	8 Frame	1	1925	980	1	3	1
4673	8 Aluminum / Vinyl	1.5	1920	1255	1	3	1
4674	8 Brick	1	1929	1390	1	3	1
4675	9 Frame	1	1966	2092	1	3	1
4676	9 Aluminum / Vinyl	1	1952	1080	1	4	1
4677	9 Brick	2	1956	1949	2	4	2
4678	9 Aluminum / Vinyl	1	1966	1333	1	4	1
4679	9 Aluminum / Vinyl	1	1968	1175	1	3	1
4680	9 Aluminum / Vinyl	1	1958	1122	1	3	1
4681	9 Brick	1	1957	1103	1	3	1
4682	9 Brick	1	1957	973	1	3	1
4683	10 Aluminum / Vinyl	2	1914	2247	1	4	2
4684	10 Brick	2	1927	2004	1	3	1
4685	10 Brick	2	1937	1734	1	3	1
4686	10 Aluminum / Vinyl	2	1941	1484	1	3	1
4687	10 Brick	2	1921	2720	2	6	2
4688	10 Aluminum / Vinyl	2	1924	2491	2	6	2

4689	10	Aluminum / Vinyl	2	1924	2212	2	4	2
4690	10	Stucco	1	1918	1637	1	4	2
4691	10	Aluminum / Vinyl	1	1929	1607	1	3	2
4692	10	Aluminum / Vinyl	1	1928	1586	1	4	2
4693	10	Brick	1	1956	1284	1	3	1
4694	10	Brick	1	1956	1269	1	3	2
4695	10	Aluminum / Vinyl	1	1955	1120	1	2	2
4696	10	Aluminum / Vinyl	1	1953	768	1	2	1
4697	11	Stone	1.5	1946	1855	1	4	1
4698	11	Stucco	1	1946	1371	1	3	1
4699	11	Aluminum / Vinyl	1	1953	1329	1	4	1
4700	11	Aluminum / Vinyl	1	1952	1296	1	3	1
4701	11	Stone	1	1941	1198	1	3	1
4702	11	Brick	1	1941	1183	1	2	1
4703	11	Aluminum / Vinyl	1	1952	1096	1	3	2
4704	11	Aluminum / Vinyl	1	1954	789	1	2	1
4705	11	Aluminum / Vinyl	2	1974	1669	1	3	2
4706	11	Masonry / Frame	2	1952	2310	2	4	2
4707	11	Brick	1	1958	1418	1	3	2
4708	11	Aluminum / Vinyl	1	1968	1413	1	4	1
4709	11	Aluminum / Vinyl	1	1979	1247	1	3	1
4710	11	Masonry / Frame	1	1952	1216	1	3	1
4711	11	Aluminum / Vinyl	1	1972	1152	1	3	1
4712	11	Brick	1	1956	1142	1	3	1
4713	11	Brick	1	1957	1114	1	3	1
4714	11	Aluminum / Vinyl	1	1955	1055	1	3	1
4715	11	Aluminum / Vinyl	1	1957	1035	1	3	1
4716	11	Brick	1	1950	975	1	3	1
4717	11	Brick	1	1960	965	1	3	1
4718	11	Brick	1	1954	959	1	3	2
4719	11	Aluminum / Vinyl	1	1950	826	1	2	1
4720	11	Aluminum / Vinyl	1	1949	726	1	2	1
4721	13	Brick	1	1949	1353	1	3	2
4722	13	Aluminum / Vinyl	1	1971	1134	1	4	1
4723	13	Aluminum / Vinyl	2	1924	2440	2	5	2
4724	13	Aluminum / Vinyl	2	1954	1536	2	4	2
4725	13	Aluminum / Vinyl	1	1979	1878	1	3	2
4726	13	Aluminum / Vinyl	1	1977	1744	1	3	3
4727	13	Aluminum / Vinyl	1	1972	1407	1	3	1
4728	13	Brick	1	1973	1325	1	3	1
4729	13	Brick	1	1964	1164	1	3	1
4730	13	Frame	1	1963	1012	1	3	1
4731	13	Aluminum / Vinyl	1	1950	832	1	2	1

4732	14 Aluminum / Vinyl	1	1953	1233	1	3	1
4733	14 Aluminum / Vinyl	1	1953	1054	1	3	1
4734	14 Aluminum / Vinyl	2	1947	1378	1	3	1
4735	14 Aluminum / Vinyl	1	1900	686	1	2	2
4736	14 Brick	1.5	1953	2073	2	4	2
4737	14 Aluminum / Vinyl	2	1943	1620	2	4	2
4738	14 Aluminum / Vinyl	2	1954	1490	2	4	2
4739	14 Aluminum / Vinyl	2	1918	1752	2	4	2
4740	14 Aluminum / Vinyl	1.5	1915	1735	1	4	2
4741	14 Aluminum / Vinyl	1	1925	1530	1	4	2
4742	14 Aluminum / Vinyl	1	1924	906	1	3	1
4743	14 Brick	1	1952	1099	1	2	1
4744	14 Aluminum / Vinyl	1	1954	891	1	3	1
4745	14 Aluminum / Vinyl	1	1953	704	1	2	1
4746	14 Brick	1	1923	1648	1	4	1
4747	14 Aluminum / Vinyl	1.5	1897	1591	1	3	2
4748	14 Frame	1.5	1916	1424	1	4	1
4749	14 Aluminum / Vinyl	1	1905	1197	1	4	3
4750	14 Aluminum / Vinyl	1	1924	1102	1	4	1
4751	15 Aluminum / Vinyl	1	1987	1362	1	3	2
4752	15 Stucco	1.5	1919	2262	1	4	1
4753	1 Stone	1	1946	1416	1	4	1
4754	1 Prem Wood	2	1931	2113	1	3	2
4755	1 Frame	1	1958	1236	1	3	1
4756	1 Brick	1	1955	1197	1	3	1
4757	1 Aluminum / Vinyl	1	1967	1186	1	3	1
4758	1 Aluminum / Vinyl	1	1954	672	1	2	1
4759	2 Frame	1	1972	1434	1	4	1
4760	2 Aluminum / Vinyl	1	1955	1302	1	4	1
4761	2 Masonry / Frame	2	1942	1310	1	3	1
4762	2 Aluminum / Vinyl	1	1971	1164	1	4	1
4763	3 Frame	2	1900	3323	1	4	3
4764	3 Stucco	2	1916	3307	1	4	3
4765	3 Frame	2	1894	1274	1	3	1
4766	3 Brick	2	1931	2552	2	4	2
4767	3 Aluminum / Vinyl	2	1915	2402	2	6	2
4768	3 Brick	2	1921	3082	1	4	2
4769	3 Fiber-Cement	2	1890	2350	1	4	2
4770	3 Frame	2	1891	2280	1	4	2
4771	3 Brick	1	1925	2253	1	3	2
4772	3 Aluminum / Vinyl	2	1912	1608	1	3	1
4773	4 Aluminum / Vinyl	2	2001	2236	1	3	3
4774	4 Aluminum / Vinyl	1	1888	574	1	2	1

4775	4	Frame	2	1903	2396	1	5	1
4776	4	Aluminum / Vinyl	2	1885	2208	1	4	2
4777	5	Brick	1	1952	1502	1	3	2
4778	5	Brick	1.5	1957	1421	1	3	2
4779	5	Stone	1.5	1953	1349	1	3	1
4780	5	Brick	1	1948	1341	1	3	1
4781	5	Aluminum / Vinyl	1	1946	1234	1	3	1
4782	5	Brick	1	1952	1159	1	3	1
4783	5	Aluminum / Vinyl	1	1950	1113	1	3	2
4784	5	Aluminum / Vinyl	1	1950	1087	1	3	2
4785	5	Brick	1	1952	950	1	2	1
4786	5	Stucco	1	1953	784	1	2	1
4787	5	Aluminum / Vinyl	2	2011	3166	1	5	3
4788	5	Brick	2	1956	2426	2	4	2
4789	5	Masonry / Frame	2	1947	2072	2	4	2
4790	5	Aluminum / Vinyl	1	1934	1476	1	4	2
4791	5	Brick	1	1961	1300	1	3	2
4792	5	Stone	1	1950	1254	1	2	1
4793	5	Brick	1	1959	1197	1	3	1
4794	5	Aluminum / Vinyl	1	1964	1164	1	3	1
4795	5	Aluminum / Vinyl	1	1958	970	1	3	1
4796	5	Aluminum / Vinyl	1	1954	962	1	3	1
4797	5	Aluminum / Vinyl	1	1955	948	1	3	1
4798	5	Aluminum / Vinyl	1	1950	720	1	2	1
4799	6	Aluminum / Vinyl	2	1905	2148	2	4	2
4800	6	Aluminum / Vinyl	1	1926	1275	1	3	2
4801	6	Brick	2	1890	3026	1	5	2
4802	7	Brick	1	1946	1073	1	3	1
4803	7	Aluminum / Vinyl	1.5	1923	2042	2	4	2
4804	7	Aluminum / Vinyl	1.5	1892	1661	2	5	2
4805	7	Brick	1.5	1925	2063	1	3	1
4806	8	Aluminum / Vinyl	2	2009	1870	1	3	2
4807	8	Frame	1	1890	1035	1	3	1
4808	8	Aluminum / Vinyl	2	1950	2260	2	4	2
4809	8	Aluminum / Vinyl	1.5	1908	1760	1	5	2
4810	8	Aluminum / Vinyl	1	1910	1639	1	3	1
4811	8	Aluminum / Vinyl	1	1903	1545	1	4	1
4813	9	Aluminum / Vinyl	1	1974	1430	1	4	2
4814	9	Aluminum / Vinyl	1	1967	1303	1	3	1
4815	9	Aluminum / Vinyl	1	1966	1227	1	3	1
4816	10	Stone	1	1945	1391	1	4	2
4817	10	Aluminum / Vinyl	1	1947	1107	1	3	2
4818	10	Brick	1.5	1920	2535	2	4	2

4819	10	Brick	1.5	1942	2240	2	3	2
4820	10	Aluminum / Vinyl	1	1929	1390	2	3	2
4821	10	Brick	2	1958	5394	2	6	4
4822	10	Masonry / Frame	2	1952	1900	2	4	2
4823	10	Aluminum / Vinyl	1.5	1971	1889	2	5	2
4824	10	Aluminum / Vinyl	1.5	1924	1307	2	2	2
4825	10	Aluminum / Vinyl	1	1924	982	1	2	1
4826	10	Brick	1	1952	960	1	2	1
4827	10	Aluminum / Vinyl	1	1951	874	1	2	1
4828	10	Aluminum / Vinyl	1	1952	828	1	2	1
4829	10	Aluminum / Vinyl	1	1926	1078	1	3	2
4830	10	Aluminum / Vinyl	1	1924	1019	1	2	1
4831	11	Brick	1	1953	1333	1	3	1
4832	11	Aluminum / Vinyl	1	1958	1054	1	3	1
4833	11	Aluminum / Vinyl	2	1959	2162	2	5	2
4834	11	Aluminum / Vinyl	2	1959	1946	2	6	2
4835	11	Aluminum / Vinyl	2	1954	1824	2	6	2
4836	11	Brick	1.5	1923	2365	1	4	2
4837	11	Frame	1	1964	1553	1	3	1
4838	11	Brick	1	1960	1438	1	3	2
4839	11	Aluminum / Vinyl	1	1964	1240	1	3	1
4840	11	Frame	1	1959	1203	1	3	1
4841	11	Aluminum / Vinyl	1	1957	1078	1	3	1
4842	11	Aluminum / Vinyl	1	1960	1063	1	3	1
4843	11	Brick	1	1955	946	1	3	1
4844	11	Aluminum / Vinyl	1	1952	846	1	2	1
4845	11	Aluminum / Vinyl	1	1941	800	1	2	1
4846	11	Aluminum / Vinyl	1	1954	768	1	2	1
4847	11	Aluminum / Vinyl	2	1971	3102	2	6	2
4848	12	Aluminum / Vinyl	1	1903	1808	1	5	2
4849	13	Aluminum / Vinyl	1.5	1940	1360	1	4	2
4850	13	Stone	1	1940	1159	1	3	2
4851	13	Brick	1	1945	1075	1	3	1
4852	13	Aluminum / Vinyl	2	1948	1378	1	3	1
4853	13	Aluminum / Vinyl	1	1971	1196	1	2	1
4854	13	Aluminum / Vinyl	1	1945	826	1	2	1
4855	13	Aluminum / Vinyl	1.5	1921	1314	1	2	1
4856	13	Brick	2	1956	2435	3	5	3
4857	14	Aluminum / Vinyl	1	1940	1300	1	3	1
4858	14	Aluminum / Vinyl	1	1948	1044	1	3	1
4859	14	Brick	2	1915	2716	1	4	1
4860	14	Aluminum / Vinyl	2	2009	2052	1	3	1
4861	14	Aluminum / Vinyl	2	2010	1354	1	3	2

4862	14	Brick	2	1929	2850	2	6	2
4863	14	Brick	2	1929	2850	2	6	2
4864	14	Brick	1.5	1926	2664	2	5	3
4865	14	Brick	1.5	1929	2284	2	5	2
4866	14	Stucco	1.5	1923	1842	2	3	2
4867	14	Aluminum / Vinyl	1.5	1885	2410	2	6	2
4868	14	Brick	1	1926	2134	1	3	2
4869	14	Aluminum / Vinyl	1	1925	1145	1	3	1
4870	14	Aluminum / Vinyl	1	1952	877	1	2	1
4871	14	Aluminum / Vinyl	2	1903	1728	1	4	1
4872	14	Fiber-Cement	2	1890	1604	1	3	2
4873	14	Frame	2	1900	1520	1	3	2
4874	14	Aluminum / Vinyl	1	1916	1458	1	3	1
4875	14	Frame	1	1895	1130	1	3	1
4876	14	Aluminum / Vinyl	1	1900	1088	1	2	1
4877	15	Brick	1	1924	2175	1	3	2
4878	15	Aluminum / Vinyl	1	2001	1298	1	3	2
4879	15	Brick	1.5	1925	5383	1	4	>4
4880	1	Stone	1	1950	1627	1	3	1
4881	1	Brick	2	1958	2156	1	5	3
4882	1	Aluminum / Vinyl	2	1966	1292	1	3	1
4883	1	Aluminum / Vinyl	1	1954	1314	1	3	1
4884	1	Aluminum / Vinyl	1	1955	1082	1	3	1
4885	1	Frame	1	1925	970	1	3	1
4886	2	Brick	1	1957	1698	2	3	2
4887	2	Aluminum / Vinyl	1	1961	1398	1	3	1
4888	2	Brick	1	1956	1237	1	3	1
4889	2	Aluminum / Vinyl	1	1959	1108	1	3	1
4890	2	Brick	1	1962	1022	1	3	1
4891	2	Frame	1	1955	963	1	3	1
4892	2	Frame	1	1955	875	1	3	1
4893	2	Aluminum / Vinyl	1	1947	858	1	2	1
4894	3	Aluminum / Vinyl	2	1870	2016	1	3	2
4895	3	Brick	2	1905	7014	2	6	4
4896	3	Frame	2	1901	2960	1	5	2
4897	3	Brick	1.5	1927	2669	1	4	2
4898	3	Masonry / Frame	2	1916	2426	1	4	2
4899	3	Aluminum / Vinyl	1	1890	1113	1	3	1
4900	4	Brick	2	1916	3607	2	6	2
4901	4	Aluminum / Vinyl	2	1899	2329	1	3	1
4902	5	Aluminum / Vinyl	1	1956	1696	1	4	2
4903	5	Stone	1	1947	1410	1	3	1
4904	5	Brick	1	1954	1359	1	4	1

4905	5	Stone	1	1948	1335	1	3	1
4906	5	Aluminum / Vinyl	1	1955	1293	1	4	2
4907	5	Brick	1	1947	1279	1	2	1
4908	5	Aluminum / Vinyl	1	1952	1176	1	3	1
4909	5	Aluminum / Vinyl	1	1954	1001	1	4	1
4910	5	Aluminum / Vinyl	1	1953	993	1	4	1
4911	5	Aluminum / Vinyl	2	1940	1248	1	3	1
4912	5	Aluminum / Vinyl	2	1942	1084	1	2	1
4913	5	Brick	2	1952	2846	2	6	2
4914	5	Aluminum / Vinyl	1	2010	2222	1	3	2
4915	5	Brick	1	1980	1573	1	2	2
4916	5	Stone	1	1963	1385	1	3	1
4917	5	Brick	1	1961	1309	1	3	1
4918	5	Aluminum / Vinyl	1	1956	1132	1	3	1
4919	5	Brick	1	1955	1101	1	2	2
4920	5	Aluminum / Vinyl	1	1956	1064	1	3	1
4921	5	Aluminum / Vinyl	1	1950	977	1	3	1
4922	5	Aluminum / Vinyl	1	1954	861	1	3	1
4923	5	Aluminum / Vinyl	1	1949	828	1	2	1
4924	5	Aluminum / Vinyl	1	1948	704	1	2	1
4925	6	Fiber-Cement	2	2004	1824	1	3	2
4926	6	Aluminum / Vinyl	2	1922	1898	2	4	2
4927	6	Aluminum / Vinyl	1.5	1908	1302	1	3	1
4928	7	Aluminum / Vinyl	1	1941	1480	1	4	1
4929	7	Stone	1	1938	1454	1	4	1
4930	7	Brick	1	1955	1180	1	3	1
4931	7	Aluminum / Vinyl	1	1929	924	1	3	1
4932	8	Aluminum / Vinyl	1	1925	960	1	2	1
4933	8	Frame	1	1890	1707	1	3	1
4934	8	Aluminum / Vinyl	2	1915	1702	1	4	1
4935	8	Aluminum / Vinyl	1	1913	1403	1	4	2
4936	8	Aluminum / Vinyl	1	1916	1096	1	3	1
4937	9	Frame	1	1960	936	1	3	1
4938	9	Masonry / Frame	2	1971	3500	3	>8	3
4939	10	Aluminum / Vinyl	1.5	1948	1380	1	3	1
4940	10	Frame	1	1952	1291	1	3	1
4941	10	Aluminum / Vinyl	1	1949	1056	1	3	1
4942	10	Stucco	2	1913	2942	2	6	2
4943	10	Brick	1	1926	1707	1	5	2
4944	10	Brick	1	1927	1368	1	3	1
4945	10	Aluminum / Vinyl	1	1953	1098	1	3	2
4946	10	Aluminum / Vinyl	1	1922	912	1	3	1
4947	11	Stucco	1	1941	1271	1	3	1

4948	11	Brick	1	1950	1150	1	3	1
4949	11	Stone	1	1952	1056	1	2	1
4950	11	Aluminum / Vinyl	1	1942	848	1	3	1
4951	11	Aluminum / Vinyl	2	1949	1400	1	3	1
4952	11	Aluminum / Vinyl	2	1954	1554	2	4	2
4953	11	Aluminum / Vinyl	1	1963	1342	1	3	1
4954	11	Brick	1	1956	1288	1	3	1
4955	11	Brick	1	1966	1170	1	3	2
4956	11	Brick	1	1958	1121	1	3	1
4957	11	Frame	1	1956	1090	1	3	1
4958	11	Aluminum / Vinyl	1	1957	1011	1	3	1
4959	11	Aluminum / Vinyl	1	1956	958	1	3	1
4960	11	Brick	1	1955	935	1	3	1
4961	12	Aluminum / Vinyl	1.5	1923	2055	2	4	2
4962	13	Stone	1	1946	1280	1	3	1
4963	13	Masonry / Frame	2	1981	1785	1	3	1
4964	13	Brick	1.5	1930	2102	2	3	2
4965	13	Aluminum / Vinyl	1	1966	1371	1	3	1
4966	13	Brick	1	1963	1333	1	3	2
4967	13	Brick	1	1959	1312	1	3	1
4968	13	Aluminum / Vinyl	1	1969	1302	1	3	2
4969	13	Brick	1	1956	1150	1	3	1
4970	13	Aluminum / Vinyl	1	1958	982	1	3	1
4971	13	Aluminum / Vinyl	1	1960	950	1	3	1
4972	13	Aluminum / Vinyl	1	1940	702	1	2	1
4973	14	Aluminum / Vinyl	1.5	1926	2073	2	4	2
4974	14	Brick	1.5	1958	2059	2	5	2
4975	14	Aluminum / Vinyl	2	1974	2012	2	6	2
4976	14	Frame	2	1913	2544	2	4	2
4977	14	Frame	1	1912	1973	2	5	2
4978	14	Aluminum / Vinyl	1	1923	1757	1	3	2
4979	14	Aluminum / Vinyl	1	1929	1175	1	4	1
4980	14	Aluminum / Vinyl	1	1992	914	1	3	1
4981	14	Aluminum / Vinyl	2	1909	2141	1	3	2
4982	14	Aluminum / Vinyl	2	1903	1440	1	4	1
4983	14	Aluminum / Vinyl	1.5	1913	1424	1	4	1
4984	14	Frame	1.5	1900	1339	1	3	1
4985	14	Aluminum / Vinyl	1	1917	1176	1	4	1
4986	14	Frame	1	1899	1000	1	2	1
4987	15	Aluminum / Vinyl	2	1912	2856	2	6	2
4988	15	Aluminum / Vinyl	2	1911	2145	2	4	2
4989	15	Aluminum / Vinyl	2	1911	2144	2	4	2
4990	15	Aluminum / Vinyl	1.5	1883	1510	2	4	2

4991	1 Aluminum / Vinyl	2	1969	2502	2	6	2
4992	1 Aluminum / Vinyl	1	1962	1068	1	3	2
4993	2 Aluminum / Vinyl	1	1953	1518	1	4	2
4994	2 Aluminum / Vinyl	1	1953	986	1	3	1
4995	2 Aluminum / Vinyl	2	2003	3079	1	5	3
4996	2 Brick	1	1952	1290	1	2	1
4997	2 Brick	1	1951	1008	1	3	1
4998	2 Brick	1	1956	936	1	3	1
4999	2 Brick	1	1956	936	1	3	1
5000	3 Aluminum / Vinyl	1	1895	1778	2	4	1
5001	3 Masonry / Frame	2	1910	3135	1	4	2
5002	3 Aluminum / Vinyl	2	1899	1556	1	4	1
5003	3 Aluminum / Vinyl	2	1895	1516	1	2	2
5004	3 Frame	1.5	1900	1317	1	3	1
5005	5 Aluminum / Vinyl	1	1955	1316	1	4	1
5006	5 Brick	1	1952	1259	1	2	1
5007	5 Aluminum / Vinyl	1	1949	1231	1	4	1
5008	5 Aluminum / Vinyl	1	1940	1150	1	3	1
5009	5 Masonry / Frame	2	1952	3312	1	5	2
5010	5 Aluminum / Vinyl	2	1953	1411	1	3	1
5011	5 Aluminum / Vinyl	2	1954	1976	2	4	2
5012	5 Brick	1	1955	2262	1	2	1
5013	5 Brick	1	1958	1492	1	3	1
5014	5 Brick	1	1949	1453	1	3	2
5015	5 Brick	1	1955	1205	1	3	1
5016	5 Aluminum / Vinyl	1	1971	1204	1	4	1
5017	5 Aluminum / Vinyl	1	1958	1129	1	3	1
5018	6 Aluminum / Vinyl	2	1910	2274	2	5	2
5019	6 Aluminum / Vinyl	2	1895	1424	1	4	1
5021	7 Stone	1.5	1941	1643	1	3	2
5022	7 Aluminum / Vinyl	1	1947	1328	1	4	1
5023	7 Block	1	1948	1120	1	3	2
5024	7 Aluminum / Vinyl	1.5	1940	2124	2	3	2
5025	7 Aluminum / Vinyl	2	1942	1798	2	4	2
5026	8 Frame	2	1910	2208	2	4	2
5027	8 Aluminum / Vinyl	1.5	1913	2100	2	4	2
5028	8 Aluminum / Vinyl	1	1925	1357	1	4	1
5029	8 Stucco	2	1916	2000	1	3	2
5031	9 Aluminum / Vinyl	1	1951	1040	1	4	1
5032	9 Aluminum / Vinyl	2	2011	2096	1	4	2
5033	10 Brick	1.5	1936	1471	1	3	1
5034	10 Brick	1.5	1946	1402	1	4	2
5035	10 Aluminum / Vinyl	1	1890	1296	1	3	3

5036	10	Masonry / Frame	2	1926	2804	2	6	2
5037	10	Brick	1.5	1931	2505	2	4	3
5038	10	Masonry / Frame	2	1925	2495	2	6	2
5039	10	Frame	2	1920	2314	2	4	2
5040	10	Brick	1	1928	2315	1	4	1
5041	10	Aluminum / Vinyl	1	1927	1461	1	3	1
5042	10	Brick	1	1952	1292	1	3	1
5043	10	Aluminum / Vinyl	1	1919	1659	1	3	1
5044	10	Aluminum / Vinyl	1.5	1911	1525	1	3	1
5045	10	Brick	1	1931	1474	1	3	1
5046	11	Brick	1.5	1953	2008	1	3	2
5047	11	Aluminum / Vinyl	1	1954	1417	1	4	1
5048	11	Stone	1	1940	1221	1	3	1
5049	11	Brick	1	1953	1184	1	3	1
5050	11	Aluminum / Vinyl	1.5	1929	1760	2	4	2
5051	11	Masonry / Frame	2	1964	2229	2	6	2
5052	11	Aluminum / Vinyl	1.5	1978	2061	2	5	2
5053	11	Brick	1	1952	1489	1	3	2
5054	11	Brick	1	1960	1423	1	3	1
5055	11	Aluminum / Vinyl	1	1954	1271	1	3	1
5056	11	Brick	1	1954	1257	1	3	2
5057	11	Aluminum / Vinyl	1	1963	1168	1	3	1
5058	11	Brick	1	1959	1134	1	3	1
5059	11	Brick	1	1954	1116	1	3	1
5060	11	Fiber-Cement	1	1957	1099	1	3	2
5061	11	Brick	1	1959	1052	1	2	1
5062	11	Brick	1	1957	1040	1	3	1
5063	11	Brick	1	1953	1013	1	3	1
5064	11	Aluminum / Vinyl	1	1953	864	1	3	1
5065	11	Aluminum / Vinyl	1	1952	811	1	2	1
5066	11	Aluminum / Vinyl	1	1954	804	1	2	1
5067	12	Brick	2	1908	2566	2	4	2
5068	12	Aluminum / Vinyl	1	1890	1547	2	4	2
5069	12	Aluminum / Vinyl	1	1884	1370	1	4	1
5070	13	Brick	1	1966	2073	1	4	2
5071	13	Aluminum / Vinyl	1.5	1949	1373	1	3	2
5072	13	Aluminum / Vinyl	1	1952	1247	1	3	2
5073	13	Brick	1	1949	1200	1	3	1
5074	13	Aluminum / Vinyl	1	1942	1099	1	3	1
5075	13	Brick	1	1954	971	1	2	1
5076	13	Aluminum / Vinyl	1	1947	860	1	2	1
5077	13	Aluminum / Vinyl	1	1941	732	1	2	1
5078	13	Aluminum / Vinyl	2	1966	1957	1	3	1

5079	13	Aluminum / Vinyl	1	1925	1349	1	3	2
5080	13	Aluminum / Vinyl	1	1969	1824	1	3	1
5081	13	Brick	1	1973	1501	1	3	1
5082	13	Aluminum / Vinyl	1	1969	1345	1	3	1
5083	13	Aluminum / Vinyl	1	1960	1139	1	3	1
5084	13	Aluminum / Vinyl	1	1942	763	1	2	1
5085	14	Aluminum / Vinyl	1	1937	948	1	2	1
5086	14	Aluminum / Vinyl	1.5	1922	1384	2	3	3
5087	14	Aluminum / Vinyl	2	1900	1496	2	3	2
5088	14	Brick	1	1931	1472	1	4	2
5089	14	Brick	1	1956	1002	1	3	1
5090	14	Aluminum / Vinyl	1	1952	976	1	2	1
5091	14	Aluminum / Vinyl	1.5	1915	1557	1	4	2
5092	15	Aluminum / Vinyl	2	1915	2616	2	6	2
5095	1	Aluminum / Vinyl	1	1955	1188	1	4	1
5096	1	Aluminum / Vinyl	1	1940	1077	1	4	1
5097	2	Brick	1	1952	1321	1	4	1
5098	2	Frame	1.5	1955	1208	1	4	1
5099	2	Aluminum / Vinyl	1	1953	984	1	3	1
5100	2	Stone	1	1946	2152	2	3	2
5101	2	Frame	1	1929	1489	1	5	2
5102	2	Brick	1	1961	1261	1	3	1
5103	2	Aluminum / Vinyl	1	1965	1144	1	3	1
5104	2	Aluminum / Vinyl	1	1961	1101	1	3	1
5105	2	Aluminum / Vinyl	1	1957	882	1	3	2
5106	2	Aluminum / Vinyl	2	1984	2504	2	6	2
5107	3	Frame	2	1929	2259	2	4	2
5108	3	Aluminum / Vinyl	1.5	1922	1659	2	4	2
5109	3	Stone	2	1929	7664	1	7	4
5110	3	Brick	2	1909	5862	1	5	4
5111	3	Brick	2	1926	4843	1	6	>4
5112	3	Frame	2	1896	3342	1	6	2
5113	3	Aluminum / Vinyl	2	1898	2887	1	4	2
5114	3	Masonry / Frame	2	1906	2490	1	3	2
5115	3	Frame	2	1900	2206	1	4	1
5116	3	Frame	1	1914	1692	1	4	1
5117	3	Aluminum / Vinyl	1.5	1889	1688	1	3	1
5118	3	Brick	2	1912	4792	1	6	3
5119	4	Aluminum / Vinyl	1	1890	1302	1	3	1
5120	5	Brick	1.5	1952	1624	1	3	2
5121	5	Stone	1	1948	1331	1	4	2
5122	5	Aluminum / Vinyl	1	1940	1127	1	2	1
5123	5	Aluminum / Vinyl	1	1952	1114	1	4	2

5124	5 Aluminum / Vinyl	2	2011	3302	1	4	3
5125	5 Brick	2	1955	2101	1	3	1
5126	5 Masonry / Frame	2	1955	2816	2	6	2
5127	5 Masonry / Frame	2	1957	2222	2	5	2
5128	5 Brick	1	1969	1642	1	3	1
5129	5 Brick	1	1951	1388	1	3	1
5130	5 Brick	1	1956	1234	1	3	1
5131	5 Brick	1	1954	1185	1	3	1
5132	5 Brick	1	1959	1124	1	3	2
5133	5 Brick	1	1951	1098	1	3	2
5134	5 Masonry / Frame	1	1954	1065	1	3	2
5135	5 Aluminum / Vinyl	1	1959	1063	1	3	1
5136	5 Aluminum / Vinyl	2	1981	2423	2	6	2
5137	6 Aluminum / Vinyl	2	1910	2952	2	6	2
5138	6 Aluminum / Vinyl	2	1908	2296	2	4	2
5139	6 Aluminum / Vinyl	2	1908	2294	2	4	2
5140	6 Aluminum / Vinyl	1	1925	1384	1	2	1
5141	6 Aluminum / Vinyl	2	1906	2092	1	4	2
5142	6 Aluminum / Vinyl	2	1910	2860	3	5	3
5143	7 Aluminum / Vinyl	1	1930	1362	1	3	1
5144	7 Aluminum / Vinyl	1.5	1924	1330	1	3	2
5145	7 Aluminum / Vinyl	1.5	1925	1229	1	3	2
5146	7 Brick	1.5	1956	2597	2	6	2
5147	8 Aluminum / Vinyl	2	1912	1408	2	4	2
5148	8 Aluminum / Vinyl	1.5	1928	1634	1	3	2
5149	9 Aluminum / Vinyl	2	2011	3441	1	4	2
5150	9 Aluminum / Vinyl	1	2011	1566	1	3	2
5151	9 Aluminum / Vinyl	1	1971	1108	1	4	1
5152	9 Aluminum / Vinyl	1	1960	936	1	3	1
5153	10 Brick	1	1949	1338	1	4	3
5154	10 Aluminum / Vinyl	1.5	1948	1265	1	3	2
5155	10 Brick	1.5	1926	2213	2	4	2
5156	10 Aluminum / Vinyl	1.5	1924	1942	2	4	2
5157	10 Aluminum / Vinyl	1.5	1924	1797	2	4	2
5158	10 Aluminum / Vinyl	2	1911	2250	2	6	2
5159	10 Aluminum / Vinyl	1	1919	1641	1	4	2
5160	10 Stucco	1	1924	1293	1	3	1
5161	10 Stucco	1	1924	1089	1	2	1
5162	10 Aluminum / Vinyl	1	1948	880	1	1	1
5163	10 Aluminum / Vinyl	2	1886	1476	1	3	1
5164	11 Aluminum / Vinyl	1	1953	1186	1	4	1
5165	11 Aluminum / Vinyl	1	1953	1177	1	4	1
5166	11 Aluminum / Vinyl	1	1941	907	1	4	1

5167	11	Brick	1	1955	1697	1	3	2
5168	11	Brick	1	1959	1307	1	3	1
5169	11	Brick	1	1959	1126	1	3	1
5170	11	Brick	1	1956	1057	1	3	1
5171	11	Aluminum / Vinyl	1	1953	1035	1	3	1
5172	11	Aluminum / Vinyl	1	1954	991	1	3	1
5173	11	Aluminum / Vinyl	1	1956	979	1	3	1
5174	11	Brick	1	1960	965	1	3	1
5175	11	Aluminum / Vinyl	1	1954	933	1	3	1
5176	11	Brick	1	1954	838	1	2	1
5177	11	Aluminum / Vinyl	1	1951	811	1	2	1
5178	11	Aluminum / Vinyl	1	1952	749	1	2	1
5179	12	Aluminum / Vinyl	1	1884	832	1	2	1
5180	13	Brick	1	1942	1491	1	3	2
5181	13	Aluminum / Vinyl	1	1951	1091	1	3	1
5182	13	Brick	2	1961	2156	2	4	2
5183	13	Aluminum / Vinyl	1.5	1929	1837	2	3	2
5184	13	Aluminum / Vinyl	1	1930	1348	1	4	1
5185	13	Brick	1	1971	1674	1	4	1
5186	13	Aluminum / Vinyl	1	1964	1342	1	3	1
5187	13	Brick	1	1953	1044	1	3	1
5188	14	Aluminum / Vinyl	1	1947	1022	1	3	1
5189	14	Aluminum / Vinyl	1	1927	1248	1	3	1
5190	14	Aluminum / Vinyl	1	1926	1004	1	3	1
5191	14	Frame	2	1904	1813	1	4	1
5192	14	Aluminum / Vinyl	2	1908	1276	1	2	1
5193	15	Aluminum / Vinyl	1.5	1925	1950	2	4	2
5194	15	Aluminum / Vinyl	2	1908	2976	2	6	2
5195	1	Aluminum / Vinyl	1	1940	1206	1	3	1
5196	1	Aluminum / Vinyl	1	1952	908	1	2	1
5197	2	Brick	1	1953	1512	1	3	2
5198	2	Aluminum / Vinyl	1	1956	1326	1	4	1
5199	2	Aluminum / Vinyl	2	2003	1991	1	4	2
5200	2	Aluminum / Vinyl	1	1955	1247	1	4	1
5201	2	Aluminum / Vinyl	1	1963	1151	1	3	2
5202	2	Brick	1	1957	1148	1	3	2
5203	2	Brick	1	1956	1144	1	2	2
5204	2	Masonry / Frame	1	1948	1032	1	3	1
5205	2	Brick	1	1950	794	1	2	1
5206	2	Aluminum / Vinyl	2	1981	2402	2	6	2
5207	3	Brick	2	1920	3212	1	5	4
5208	3	Brick	1.5	1925	2234	2	4	2
5209	3	Aluminum / Vinyl	2	1940	1872	2	4	2

5210	3	Brick	2	1921	3346	1	4	2
5211	3	Frame	2	1898	2492	1	5	2
5212	5	Stone	1	1947	1442	1	3	1
5213	5	Brick	1	1949	1338	1	3	2
5214	5	Brick	1	1955	1221	1	4	2
5215	5	Brick	1	1950	1146	1	3	1
5216	5	Aluminum / Vinyl	1	1953	693	1	2	1
5217	5	Aluminum / Vinyl	1	1957	1120	1	3	1
5218	5	Brick	1	1956	1031	1	3	2
5219	6	Frame	1	1890	1722	1	2	1
5220	6	Aluminum / Vinyl	2	1890	2288	2	5	2
5221	6	Aluminum / Vinyl	1	1890	1476	1	4	1
5222	7	Stone	1.5	1936	1775	1	4	3
5223	7	Brick	1	1947	1561	1	3	2
5224	7	Masonry / Frame	2	1926	1532	1	3	1
5225	7	Aluminum / Vinyl	1	1925	1596	1	3	2
5226	8	Aluminum / Vinyl	1	1890	1268	1	4	1
5227	8	Aluminum / Vinyl	1	1922	1138	1	3	1
5228	8	Aluminum / Vinyl	1	1913	1549	1	4	1
5229	8	Aluminum / Vinyl	1.5	1907	1398	1	3	2
5230	9	Aluminum / Vinyl	1	1955	984	1	3	1
5231	9	Aluminum / Vinyl	2	1978	1347	1	4	1
5232	10	Aluminum / Vinyl	1	1948	1170	1	4	1
5233	10	Aluminum / Vinyl	1.5	1924	1682	2	4	2
5234	10	Aluminum / Vinyl	2	1930	1232	2	2	2
5235	10	Aluminum / Vinyl	1.5	1927	1929	1	4	3
5236	10	Aluminum / Vinyl	1	1927	1513	1	4	2
5237	10	Aluminum / Vinyl	1	1926	1224	1	3	1
5238	10	Aluminum / Vinyl	1.5	1913	2135	1	3	2
5239	10	Aluminum / Vinyl	1	1924	840	1	2	1
5240	11	Frame	1	1971	2008	1	4	2
5241	11	Brick	1	1954	1442	1	4	1
5242	11	Aluminum / Vinyl	1	1953	1406	1	4	2
5243	11	Aluminum / Vinyl	1	1953	1113	1	3	1
5244	11	Masonry / Frame	2	1954	1671	2	3	2
5245	11	Brick	1	1929	2067	1	3	1
5246	11	Frame	1	1964	1126	1	3	2
5247	11	Brick	1	1950	893	1	2	1
5248	11	Stone	1	1948	819	1	2	1
5249	11	Aluminum / Vinyl	1	1942	762	1	2	1
5250	12	Aluminum / Vinyl	1	1925	1872	2	5	3
5251	13	Frame	1.5	1947	1276	1	3	2
5252	13	Brick	1	1949	1183	1	3	1

5253	13	Aluminum / Vinyl	1	1951	836	1	2	1
5254	13	Masonry / Frame	2	1968	2073	1	5	1
5255	13	Brick	1.5	1955	1518	2	4	2
5256	13	Aluminum / Vinyl	2	1920	2230	2	6	2
5257	13	Aluminum / Vinyl	1	1973	1106	1	4	1
5258	13	Aluminum / Vinyl	1	1959	978	1	3	1
5259	14	Stucco	1	1943	1131	1	2	1
5260	14	Aluminum / Vinyl	1.5	1923	1951	2	4	2
5261	14	Brick	1	1929	1677	1	3	2
5262	14	Aluminum / Vinyl	1	1924	1532	1	3	2
5263	14	Stucco	1.5	1911	2206	1	4	3
5264	14	Aluminum / Vinyl	2	1908	1726	1	3	1
5265	14	Aluminum / Vinyl	1	1906	1404	1	4	2
5266	14	Aluminum / Vinyl	1	1900	1374	1	3	2
5267	14	Frame	1	1910	1298	1	3	1
5268	14	Aluminum / Vinyl	1	1905	1136	1	4	1
5269	15	Brick	1	1919	2270	1	4	2
5270	1	Masonry / Frame	2	1970	1237	1	4	1
5271	1	Aluminum / Vinyl	1	1951	1302	1	4	1
5272	2	Aluminum / Vinyl	1	1955	1229	1	3	1
5273	2	Stone	1.5	1925	2033	2	4	2
5274	2	Brick	2	1957	2522	3	5	3
5275	3	Stucco	2	1920	2292	1	5	1
5276	3	Aluminum / Vinyl	>2	2003	2112	1	3	3
5277	3	Aluminum / Vinyl	2	1910	3944	2	6	2
5278	3	Aluminum / Vinyl	2	1912	2090	2	5	3
5279	3	Brick	2	1912	5044	1	5	3
5280	3	Brick	1.5	1930	2439	1	3	2
5281	4	Masonry / Frame	2	1907	3006	3	6	2
5282	5	Aluminum / Vinyl	1	1946	1108	1	3	2
5283	5	Aluminum / Vinyl	1	1947	1598	1	3	2
5284	5	Frame	1	1951	1256	1	3	2
5285	5	Aluminum / Vinyl	1	1956	1219	1	3	1
5286	5	Brick	1	1949	1216	1	2	1
5287	5	Aluminum / Vinyl	1	1954	1163	1	3	1
5288	5	Frame	1	1956	1093	1	3	1
5290	5	Brick	1	1956	1040	1	3	1
5291	5	Aluminum / Vinyl	1	1956	1019	1	3	1
5292	7	Stone	1	1950	1908	1	3	2
5293	8	Aluminum / Vinyl	2	1912	2516	2	5	2
5294	8	Aluminum / Vinyl	1.5	1921	1741	2	4	2
5295	8	Frame	1	1893	1385	1	4	1
5296	9	Frame	1	1970	1600	1	3	1

5297	9	Brick	1	1958	1396	1	3	1
5298	9	Aluminum / Vinyl	1	1961	967	1	3	1
5299	10	Frame	1	1949	1263	1	3	1
5300	10	Stucco	1	1919	2054	1	4	2
5301	10	Brick	1	1928	2008	1	3	1
5302	10	Brick	1	1928	1673	1	5	2
5303	10	Aluminum / Vinyl	1.5	1920	1098	1	3	1
5304	11	Aluminum / Vinyl	1	1953	1393	1	3	1
5305	11	Aluminum / Vinyl	1	1952	1016	1	3	1
5306	11	Aluminum / Vinyl	2	1964	1662	1	3	1
5307	11	Brick	2	1932	2225	2	4	2
5308	11	Frame	1	1928	1913	1	4	2
5309	11	Block	1	1951	1088	1	2	1
5310	11	Brick	2	1928	2733	1	3	1
5311	11	Aluminum / Vinyl	2	1964	2176	2	6	2
5312	13	Brick	1	1938	1443	1	3	2
5313	13	Aluminum / Vinyl	2	1994	1850	1	3	2
5314	13	Masonry / Frame	1.5	1959	1991	2	5	2
5315	13	Aluminum / Vinyl	1	1960	891	1	3	1
5316	14	Brick	1.5	1948	1401	1	4	1
5317	14	Aluminum / Vinyl	1	1957	1168	1	3	1
5318	14	Frame	2	1918	2034	2	6	2
5319	14	Frame	1	1912	1973	2	5	2
5320	14	Aluminum / Vinyl	1	1922	1462	1	4	1
5321	14	Aluminum / Vinyl	1.5	1913	1163	1	3	1
5322	14	Aluminum / Vinyl	1	1910	897	1	3	2
5323	14	Aluminum / Vinyl	1	1910	840	1	1	2
5324	15	Brick	1	1920	1974	1	3	1
5325	1	Aluminum / Vinyl	1	1942	1339	1	3	2
5326	1	Block	1.5	1947	1664	2	4	2
5327	1	Stucco	1	1924	1495	1	4	1
5328	1	Aluminum / Vinyl	1	1927	1087	1	3	1
5329	2	Brick	1	1951	1168	1	3	2
5330	2	Brick	1	1922	1174	1	2	2
5331	3	Frame	2	1898	2526	1	4	2
5332	3	Aluminum / Vinyl	2	1960	1534	1	4	1
5333	3	Frame	2	1902	2949	1	4	1
5334	3	Brick	2	1909	2068	1	4	1
5335	5	Brick	1	1952	1573	1	3	1
5336	5	Brick	1	1948	1512	1	3	1
5337	5	Frame	1	1952	1326	1	3	1
5338	5	Aluminum / Vinyl	1	1948	1256	1	4	1
5339	5	Brick	1	1947	1251	1	4	1

5340	5	Brick	1	1951	1205	1	3	1
5341	5	Brick	1	1949	1059	1	2	2
5342	5	Aluminum / Vinyl	1	1950	1040	1	3	1
5343	5	Aluminum / Vinyl	2	2010	2506	1	4	2
5344	5	Aluminum / Vinyl	2	2011	2480	1	4	2
5345	5	Brick	2	1952	2330	2	4	2
5346	5	Stone	1	1951	1703	1	2	2
5347	5	Aluminum / Vinyl	1	1969	1629	1	3	2
5348	5	Frame	1	1952	1407	1	3	1
5349	5	Frame	1	1951	1256	1	3	2
5350	5	Aluminum / Vinyl	1	1962	1238	1	3	2
5351	5	Brick	1	1959	1128	1	3	1
5352	6	Aluminum / Vinyl	2	1891	1980	2	6	3
5353	6	Prem Wood	2	1890	1878	1	4	2
5354	6	Aluminum / Vinyl	1	1892	1116	1	2	1
5355	7	Aluminum / Vinyl	1.5	1940	1504	1	3	1
5356	7	Stone	2	1945	1817	1	3	2
5357	7	Brick	2	1935	1555	1	3	1
5358	7	Brick	2	1944	1824	2	4	2
5359	8	Aluminum / Vinyl	1.5	1924	1896	2	4	2
5360	8	Aluminum / Vinyl	2	1903	1916	2	4	2
5361	8	Frame	2	1906	1875	2	4	2
5363	9	Fiber-Cement	2	2006	2028	1	3	2
5364	9	Brick	1	1957	997	1	3	1
5365	9	Aluminum / Vinyl	1	1975	906	1	3	1
5366	10	Aluminum / Vinyl	1	1984	1414	1	3	2
5367	10	Brick	1.5	1955	2230	1	4	2
5368	10	Aluminum / Vinyl	1	1953	1363	1	3	2
5369	10	Brick	1	1953	1350	1	3	1
5370	10	Masonry / Frame	2	1937	1671	1	3	1
5371	10	Aluminum / Vinyl	2	1914	2768	2	5	2
5372	10	Aluminum / Vinyl	1.5	1918	2178	1	5	2
5373	10	Frame	1	1919	1391	1	3	1
5374	10	Aluminum / Vinyl	1	1923	1387	1	4	1
5375	10	Frame	1	1926	1354	1	3	1
5376	10	Aluminum / Vinyl	1	1917	964	1	3	1
5377	10	Aluminum / Vinyl	2	1926	1356	1	4	1
5378	10	Aluminum / Vinyl	1	1928	906	1	2	1
5379	11	Aluminum / Vinyl	1	1942	1728	1	3	1
5380	11	Aluminum / Vinyl	1	1953	1525	1	4	2
5381	11	Brick	1	1948	1477	1	4	2
5382	11	Aluminum / Vinyl	1	1948	958	1	3	1
5383	11	Stone	2	1937	1676	1	3	1

5384	11	Masonry / Frame	2	1954	2168	2	4	2
5385	11	Aluminum / Vinyl	1.5	1955	1697	2	4	2
5386	11	Frame	1	1928	1121	1	3	1
5387	11	Aluminum / Vinyl	1	1953	1727	1	3	2
5388	11	Brick	1	1951	1455	1	3	1
5389	11	Brick	1	1967	1232	1	3	1
5390	11	Brick	1	1955	1166	1	3	2
5391	11	Aluminum / Vinyl	1	1970	1107	1	3	2
5392	11	Aluminum / Vinyl	1	1956	1073	1	3	1
5393	11	Brick	1	1953	1013	1	3	1
5394	11	Aluminum / Vinyl	1	1958	936	1	3	1
5395	11	Aluminum / Vinyl	1	1939	858	1	2	1
5396	11	Frame	1	1956	672	1	2	1
5397	12	Aluminum / Vinyl	2	2009	1848	1	4	2
5398	12	Aluminum / Vinyl	2	1909	2117	2	5	2
5399	12	Aluminum / Vinyl	1	1930	1588	1	4	1
5400	13	Brick	1	1947	1292	1	4	1
5401	13	Block	1	1940	1227	1	4	2
5402	13	Brick	1	1950	1190	1	3	1
5403	13	Aluminum / Vinyl	1	1950	1141	1	3	2
5404	13	Aluminum / Vinyl	1	1949	979	1	3	1
5405	13	Aluminum / Vinyl	2	1994	1636	1	3	1
5406	13	Brick	2	1949	1404	1	3	1
5407	13	Aluminum / Vinyl	1.5	1930	1397	2	4	2
5408	13	Brick	1	1968	1463	1	2	1
5409	13	Brick	1	1963	1242	1	3	1
5410	13	Brick	1	1963	1104	1	3	1
5411	13	Aluminum / Vinyl	1	1960	891	1	3	1
5412	13	Fiber-Cement	1	1929	1056	1	3	1
5413	13	Aluminum / Vinyl	2	1976	2538	2	6	2
5414	14	Aluminum / Vinyl	1	1947	1132	1	3	1
5415	14	Aluminum / Vinyl	1	1948	1054	1	3	1
5416	14	Prem Wood	2	1981	1574	1	2	1
5417	14	Aluminum / Vinyl	2	1941	1196	1	2	1
5418	14	Aluminum / Vinyl	1.5	1925	1982	2	5	2
5419	14	Aluminum / Vinyl	2	1885	2660	2	5	2
5420	14	Brick	1	1952	961	1	3	1
5421	14	Brick	2	1922	2761	1	5	1
5422	14	Frame	2	1888	1627	1	3	2
5423	14	Aluminum / Vinyl	1.5	1885	1232	1	3	2
5424	15	Aluminum / Vinyl	2	2000	1449	1	3	1
5425	15	Aluminum / Vinyl	2	1924	2022	2	4	2
5426	15	Aluminum / Vinyl	1	1920	1655	1	4	2

5427	15	Frame	1	1922	1553	1	4	1
5428	1	Stone	1	1936	1560	1	4	1
5429	1	Aluminum / Vinyl	1	1941	1062	1	3	1
5430	1	Brick	1	1945	1033	1	3	1
5431	1	Brick	1	1948	1302	1	4	2
5432	2	Brick	1	1952	1699	1	3	1
5433	2	Frame	1	1970	1120	1	4	1
5434	2	Aluminum / Vinyl	1	1959	1103	1	3	1
5435	2	Aluminum / Vinyl	1	1950	936	1	3	1
5436	3	Frame	2	1906	5160	2	5	4
5437	3	Aluminum / Vinyl	2	1927	1725	1	3	1
5438	3	Masonry / Frame	2	1906	3056	2	6	2
5439	3	Aluminum / Vinyl	1.5	1898	1594	2	3	2
5440	3	Frame	1	1920	1420	1	3	1
5441	3	Brick	2	1922	4044	1	5	3
5442	3	Aluminum / Vinyl	1.5	1900	1786	1	4	1
5443	3	Brick	1.5	1939	1313	1	2	1
5444	4	Aluminum / Vinyl	2	1898	1882	1	4	1
5445	4	Aluminum / Vinyl	1.5	1888	1568	1	3	1
5446	5	Brick	1	1950	1530	1	4	2
5447	5	Brick	1	1947	1294	1	3	1
5448	5	Aluminum / Vinyl	1.5	1956	1271	1	4	1
5449	5	Brick	1	1949	1186	1	3	2
5450	5	Aluminum / Vinyl	1	1947	1072	1	3	1
5451	5	Stone	1	1950	989	1	2	1
5452	5	Aluminum / Vinyl	1	1951	971	1	3	1
5453	5	Aluminum / Vinyl	1	1953	946	1	3	1
5454	5	Aluminum / Vinyl	2	1950	1378	1	3	1
5455	5	Brick	1.5	1980	2366	2	5	2
5456	5	Masonry / Frame	1	1950	1733	1	3	2
5457	5	Aluminum / Vinyl	1	1968	1616	1	3	2
5458	5	Brick	1	1953	1308	1	3	2
5459	5	Brick	1	1959	1290	1	3	2
5460	5	Aluminum / Vinyl	1	1949	1286	1	3	1
5461	5	Brick	1	1958	1276	1	3	1
5462	5	Aluminum / Vinyl	1	1954	1168	1	3	1
5463	5	Masonry / Frame	1	1954	1137	1	3	1
5464	5	Frame	1	1960	1115	1	3	1
5465	5	Aluminum / Vinyl	1	1952	1040	1	2	1
5466	5	Aluminum / Vinyl	1	1956	1019	1	3	1
5467	6	Aluminum / Vinyl	2	1890	2028	2	4	2
5468	7	Brick	1	1945	1460	1	4	2
5469	7	Stone	1	1938	1396	1	3	1

5470	7	Aluminum / Vinyl	1	1942	1357	1	3	1
5471	7	Aluminum / Vinyl	2	1940	1364	1	3	1
5472	7	Frame	2	1924	2618	2	4	2
5473	7	Masonry / Frame	2	1924	2930	1	5	2
5474	7	Brick	1	1924	2429	1	4	2
5476	7	Brick	1	1956	1498	1	3	2
5477	8	Aluminum / Vinyl	1.5	1913	1783	2	4	2
5478	8	Aluminum / Vinyl	1	1925	1261	1	4	2
5479	8	Frame	1	1923	945	1	3	1
5480	9	Aluminum / Vinyl	2	1999	1503	1	3	1
5481	9	Aluminum / Vinyl	1	1957	1560	1	4	1
5482	9	Aluminum / Vinyl	1	1971	1210	1	3	1
5483	10	Stone	1	1939	1688	1	3	1
5484	10	Brick	1.5	1937	1496	1	4	1
5485	10	Frame	1	1953	1484	1	3	2
5486	10	Brick	1	1952	1376	1	4	1
5487	10	Brick	1	1923	1342	1	3	2
5488	10	Aluminum / Vinyl	1	1949	1204	1	3	2
5489	10	Aluminum / Vinyl	1	1952	1144	1	3	1
5490	10	Frame	1	1890	920	1	3	1
5491	10	Frame	2	1923	2530	2	4	2
5492	10	Stone	2	1937	2417	2	4	2
5493	10	Aluminum / Vinyl	2	1923	2212	2	4	2
5494	10	Masonry / Frame	1.5	1929	2053	2	4	2
5495	10	Aluminum / Vinyl	1.5	1928	1973	2	4	2
5496	10	Frame	1	1918	1835	1	3	2
5497	10	Frame	1	1900	1684	1	3	1
5498	10	Aluminum / Vinyl	1	1930	1454	1	4	1
5499	10	Aluminum / Vinyl	1	1924	1235	1	3	1
5500	10	Aluminum / Vinyl	1	1929	1169	1	3	1
5501	10	Aluminum / Vinyl	1	1926	1120	1	4	1
5502	10	Aluminum / Vinyl	1	1926	1010	1	3	1
5503	10	Stone	1.5	1940	1890	1	3	2
5504	11	Brick	1	1950	1588	1	4	1
5505	11	Aluminum / Vinyl	1	1954	1321	1	3	1
5507	11	Aluminum / Vinyl	1	1949	1106	1	3	1
5508	11	Aluminum / Vinyl	1	1950	1032	1	3	1
5509	11	Masonry / Frame	2	1989	2481	1	4	2
5510	11	Masonry / Frame	2	1968	1577	1	4	1
5511	11	Masonry / Frame	2	1955	2096	2	4	2
5512	11	Brick	1.5	1956	1846	2	4	2
5513	11	Aluminum / Vinyl	2	1954	1728	2	6	2
5514	11	Brick	1	1959	1533	1	3	1

5515	11	Brick	1	1968	1506	1	3	1
5516	11	Brick	1	1956	1334	1	3	2
5517	11	Brick	1	1958	1304	1	2	2
5518	11	Brick	1	1963	1172	1	3	1
5519	11	Frame	1	1964	1128	1	3	1
5520	11	Aluminum / Vinyl	1	1954	1065	1	3	1
5521	11	Brick	1	1958	1050	1	3	1
5522	11	Brick	1	1953	1013	1	3	1
5523	11	Brick	1	1930	1822	1	4	2
5524	12	Aluminum / Vinyl	2	2010	1892	1	4	2
5525	12	Aluminum / Vinyl	2	2011	1848	1	4	2
5526	12	Frame	2	1909	2052	2	4	2
5527	12	Frame	2	1923	2032	2	6	2
5528	12	Aluminum / Vinyl	1	1902	1118	1	3	1
5529	13	Aluminum / Vinyl	1	1955	2475	1	4	1
5530	13	Brick	1	1949	1327	1	3	1
5531	13	Stone	1	1941	1291	1	3	1
5532	13	Aluminum / Vinyl	1	1946	1137	1	3	1
5533	13	Brick	1	1949	1120	1	3	1
5534	13	Aluminum / Vinyl	2	1940	1468	1	3	1
5535	13	Aluminum / Vinyl	2	1948	1300	1	3	1
5536	13	Aluminum / Vinyl	1	1976	1820	1	3	2
5537	13	Brick	1	1965	1116	1	3	1
5538	13	Brick	1	1952	1092	1	3	1
5539	13	Aluminum / Vinyl	1	1944	698	1	2	1
5540	13	Frame	1.5	1890	1602	1	3	2
5541	13	Aluminum / Vinyl	1.5	1924	1458	1	2	1
5542	13	Aluminum / Vinyl	1.5	1900	1141	1	2	1
5543	13	Frame	1	1900	1007	1	2	1
5544	14	Aluminum / Vinyl	1	1947	1021	1	3	1
5545	14	Aluminum / Vinyl	1	1949	998	1	4	1
5546	14	Frame	>2	1959	1996	1	3	2
5547	14	Aluminum / Vinyl	2	1940	1248	1	3	1
5548	14	Aluminum / Vinyl	1.5	1950	1456	2	3	2
5549	14	Aluminum / Vinyl	1	1924	1772	1	5	1
5550	14	Aluminum / Vinyl	1	1925	1474	1	3	2
5551	14	Aluminum / Vinyl	1	1926	1165	1	3	1
5552	14	Aluminum / Vinyl	1	1950	768	1	2	1
5553	14	Stucco	1.5	1889	1800	1	4	2
5554	14	Aluminum / Vinyl	1.5	1890	1766	1	3	2
5555	14	Aluminum / Vinyl	1	1910	1333	1	3	2
5556	14	Aluminum / Vinyl	1.5	1919	1247	1	3	2
5557	14	Aluminum / Vinyl	1	1898	1187	1	3	1

5558	14	Aluminum / Vinyl	1.5	1926	934	1	2	1
5560	15	Aluminum / Vinyl	1	1917	1863	1	3	2
5561	15	Fiber-Cement	1	2010	2008	1	4	2
5562	1	Prem Wood	1.5	1915	1386	1	4	2
5563	1	Aluminum / Vinyl	2	1923	1357	1	3	1
5564	1	Aluminum / Vinyl	1	1989	1548	1	3	1
5565	2	Brick	1	1953	1230	1	3	1
5566	2	Aluminum / Vinyl	1	1953	1207	1	3	1
5567	2	Brick	2	1961	2768	2	6	2
5568	2	Aluminum / Vinyl	1	1954	1256	1	3	1
5569	2	Aluminum / Vinyl	1	1957	909	1	3	1
5570	2	Brick	2	1953	2880	3	5	3
5571	3	Aluminum / Vinyl	1	1890	1000	1	2	1
5572	3	Aluminum / Vinyl	2	1897	2468	2	2	2
5573	3	Stone	2	1930	4517	1	5	3
5574	3	Masonry / Frame	2	1912	3605	1	7	2
5575	3	Masonry / Frame	2	1913	1795	1	4	1
5576	3	Aluminum / Vinyl	1	1875	1484	1	2	1
5577	3	Aluminum / Vinyl	1	1925	1152	1	2	1
5578	3	Aluminum / Vinyl	1	1904	1144	1	3	1
5579	3	Prem Wood	1.5	1885	1042	1	2	1
5580	3	Brick	2	1922	3858	1	5	3
5581	3	Masonry / Frame	2	1910	3795	1	5	3
5582	4	Frame	2	1904	1786	1	4	2
5583	5	Aluminum / Vinyl	1.5	1950	1402	1	3	1
5584	5	Brick	1	1952	1354	1	3	1
5585	5	Aluminum / Vinyl	1	1952	1351	1	4	2
5586	5	Aluminum / Vinyl	1	1951	1275	1	3	1
5587	5	Block	1	1948	1267	1	3	1
5588	5	Brick	1	1950	1259	1	3	2
5589	5	Brick	1	1949	1246	1	3	1
5590	5	Aluminum / Vinyl	1	1952	1235	1	4	2
5591	5	Aluminum / Vinyl	1	1951	1209	1	4	1
5592	5	Aluminum / Vinyl	1	1951	1172	1	3	1
5593	5	Aluminum / Vinyl	1	1952	1089	1	3	1
5594	5	Brick	1	1946	1087	1	3	1
5595	5	Aluminum / Vinyl	1	1950	988	1	3	1
5596	5	Masonry / Frame	2	1952	1680	1	3	1
5597	5	Aluminum / Vinyl	2	1941	1486	1	3	1
5598	5	Brick	2	1969	2668	2	6	2
5599	5	Brick	2	1957	2234	2	6	2
5600	5	Brick	1	1956	1269	1	4	1
5601	5	Aluminum / Vinyl	1	1952	1138	1	3	2

5602	5	Brick	1	1960	1117	1	2	1
5603	5	Brick	1	1956	1112	1	3	1
5604	5	Aluminum / Vinyl	1	1955	1028	1	3	1
5605	5	Aluminum / Vinyl	1	1954	984	1	3	2
5606	5	Aluminum / Vinyl	1	1949	912	1	3	1
5607	5	Aluminum / Vinyl	1	1949	842	1	2	1
5608	6	Aluminum / Vinyl	2	1895	2833	1	6	2
5609	6	Aluminum / Vinyl	1	1927	1200	1	3	2
5610	6	Aluminum / Vinyl	1.5	1915	1779	1	5	2
5611	6	Aluminum / Vinyl	2	1930	1500	1	3	1
5612	7	Aluminum / Vinyl	1	1940	1219	1	3	1
5613	7	Aluminum / Vinyl	2	1924	3056	2	6	2
5614	7	Stone	2	1936	2302	2	4	2
5615	7	Aluminum / Vinyl	1	1927	1576	1	3	1
5616	7	Brick	1	1927	1538	1	3	2
5617	7	Brick	2	1933	1886	1	2	1
5618	8	Frame	1	1890	1320	1	4	1
5619	8	Aluminum / Vinyl	2	1916	2260	2	4	2
5620	8	Aluminum / Vinyl	2	1908	1502	1	4	1
5621	8	Aluminum / Vinyl	1	1910	1110	1	3	1
5622	9	Aluminum / Vinyl	2	2008	2190	1	3	2
5623	9	Frame	2	1966	2108	1	4	2
5624	9	Frame	2	1968	1636	1	4	1
5625	9	Aluminum / Vinyl	1	1964	1227	1	3	1
5626	9	Aluminum / Vinyl	1	1958	1119	1	3	1
5627	9	Aluminum / Vinyl	1	1957	985	1	3	1
5628	9	Aluminum / Vinyl	1	1952	864	1	3	1
5629	10	Aluminum / Vinyl	1.5	1942	1715	1	4	2
5630	10	Brick	1	1938	1479	1	4	2
5631	10	Brick	1	1949	1296	1	3	1
5632	10	Aluminum / Vinyl	1	1954	1223	1	3	1
5633	10	Aluminum / Vinyl	1	1955	1024	1	3	1
5634	10	Aluminum / Vinyl	1	1953	965	1	3	1
5635	10	Stone	2	1946	1982	1	3	1
5636	10	Masonry / Frame	2	1956	1873	1	3	1
5637	10	Aluminum / Vinyl	1.5	1916	1658	1	3	1
5638	10	Aluminum / Vinyl	2	1945	1260	1	3	1
5639	10	Frame	2	1912	3012	2	6	2
5640	10	Brick	1	1930	2099	1	4	4
5641	10	Stucco	1.5	1915	2091	1	4	2
5642	10	Brick	1.5	1927	1980	1	4	2
5643	10	Brick	1	1928	1944	1	3	2
5644	10	Brick	1	1925	1715	1	4	1

5645	10	Brick	1	1927	1633	1	3	1
5646	10	Aluminum / Vinyl	1	1926	1462	1	3	1
5647	10	Aluminum / Vinyl	1	1953	918	1	3	1
5648	10	Aluminum / Vinyl	2	1920	1464	1	3	2
5649	10	Aluminum / Vinyl	2	1926	1444	1	3	2
5650	11	Stucco	1.5	1955	2580	1	4	2
5651	11	Brick	1.5	1937	1751	1	3	1
5652	11	Brick	1.5	1952	1395	1	4	1
5653	11	Aluminum / Vinyl	1	1938	1157	1	4	1
5654	11	Brick	1	1950	1148	1	3	1
5655	11	Aluminum / Vinyl	1	1951	1096	1	3	1
5656	11	Brick	1	1949	1044	1	2	1
5657	11	Aluminum / Vinyl	1	1922	999	1	3	1
5658	11	Aluminum / Vinyl	2	1959	2174	1	4	2
5659	11	Aluminum / Vinyl	2	1940	1256	1	3	1
5660	11	Stone	1.5	1952	1977	2	4	2
5661	11	Brick	1.5	1942	1636	2	4	2
5662	11	Aluminum / Vinyl	1	1928	1452	1	4	1
5663	11	Aluminum / Vinyl	1	1953	1296	1	3	1
5664	11	Frame	1	1964	1292	1	4	1
5665	11	Brick	1	1959	1181	1	3	1
5666	11	Aluminum / Vinyl	1	1954	1158	1	3	1
5667	11	Brick	1	1954	1070	1	3	1
5668	11	Aluminum / Vinyl	1	1954	1034	1	3	1
5669	11	Brick	1	1955	1013	1	2	1
5670	11	Aluminum / Vinyl	1	1954	882	1	3	1
5671	11	Brick	1	1958	1845	1	4	2
5672	12	Frame	1.5	1885	1445	2	4	2
5673	13	Aluminum / Vinyl	1	1941	1436	1	3	1
5674	13	Aluminum / Vinyl	1	1947	1294	1	3	1
5675	13	Aluminum / Vinyl	1	1948	1154	1	3	2
5676	13	Aluminum / Vinyl	1	1943	1008	1	3	1
5677	13	Aluminum / Vinyl	2	1990	1856	1	2	3
5678	13	Aluminum / Vinyl	2	1957	2237	2	6	2
5679	13	Brick	2	1957	2224	2	5	2
5680	13	Brick	1	1961	1660	1	3	1
5681	13	Frame	1	1956	1650	1	3	2
5682	13	Aluminum / Vinyl	1	1973	1465	1	3	1
5683	13	Brick	1	1953	1188	1	3	2
5684	13	Aluminum / Vinyl	1	1959	1181	1	3	1
5685	13	Brick	1	1956	1150	1	3	2
5686	13	Stone	1	1951	967	1	3	1
5687	13	Brick	1	1932	1515	1	3	2

5688	13	Aluminum / Vinyl	1	1918	1410	1	4	1
5689	14	Stone	1.5	1948	1717	1	3	3
5690	14	Frame	1	1954	1273	1	3	2
5691	14	Aluminum / Vinyl	1	1953	1128	1	3	1
5692	14	Aluminum / Vinyl	2	1915	2745	2	5	3
5693	14	Aluminum / Vinyl	1.5	1928	1980	2	5	2
5694	14	Aluminum / Vinyl	1.5	1927	1900	2	4	2
5695	14	Aluminum / Vinyl	1.5	1925	1817	2	4	2
5696	14	Aluminum / Vinyl	1.5	1915	1892	1	4	2
5697	14	Stucco	1	1911	1294	1	3	2
5698	14	Aluminum / Vinyl	1	1925	1223	1	3	2
5699	14	Aluminum / Vinyl	1	1929	1198	1	3	1
5700	14	Aluminum / Vinyl	1	1923	1178	1	3	1
5701	14	Aluminum / Vinyl	1	1922	1060	1	3	1
5702	14	Aluminum / Vinyl	1	1954	1353	1	3	1
5703	14	Aluminum / Vinyl	1	1951	884	1	2	1
5704	14	Brick	1	1955	878	1	2	1
5705	14	Brick	1	1956	874	1	2	1
5706	14	Aluminum / Vinyl	1	1951	867	1	2	1
5707	14	Aluminum / Vinyl	1	1953	704	1	2	1
5708	14	Aluminum / Vinyl	2	2011	1785	1	2	3
5709	14	Aluminum / Vinyl	1.5	1889	1656	1	3	2
5710	14	Aluminum / Vinyl	1.5	1919	1414	1	4	2
5711	14	Aluminum / Vinyl	1	1920	1392	1	4	1
5712	14	Aluminum / Vinyl	1.5	1916	1305	1	3	1
5713	14	Aluminum / Vinyl	1	1887	1158	1	3	1
5714	14	Aluminum / Vinyl	1	1905	951	1	2	1
5715	15	Aluminum / Vinyl	1	1997	1588	1	4	2
5716	15	Aluminum / Vinyl	2	1913	2464	2	6	2
5717	15	Aluminum / Vinyl	1.5	1901	1741	1	3	1
5718	15	Frame	1	1894	1401	1	5	1
5719	15	Aluminum / Vinyl	1	1890	1100	1	3	1
5720	1	Brick	1	1947	1538	1	3	1
5721	1	Brick	1	1956	1174	1	3	1
5722	2	Brick	1	1952	1199	1	3	2
5723	2	Brick	1	1958	1017	1	2	1
5724	2	Aluminum / Vinyl	1	1961	1406	1	3	1
5725	2	Aluminum / Vinyl	1	1948	1091	1	3	1
5726	2	Brick	1	1958	1043	1	3	1
5727	3	Stucco	2	1913	2918	2	6	2
5728	3	Aluminum / Vinyl	2	1913	2362	2	4	3
5729	3	Aluminum / Vinyl	2	1894	1936	2	6	2
5730	3	Aluminum / Vinyl	1	1927	1035	1	3	1

5731	3	Stucco	2	1911	3553	1	6	3
5732	3	Stucco	2	1916	3097	1	6	3
5733	3	Frame	2	1889	2552	1	4	1
5734	3	Masonry / Frame	2	1911	1950	1	4	1
5735	3	Frame	2	1894	1924	1	3	1
5736	3	Frame	2	1902	1672	1	4	1
5737	3	Aluminum / Vinyl	1	1893	1610	1	4	1
5738	3	Frame	1	1890	1443	1	3	2
5739	3	Aluminum / Vinyl	1	1900	1382	1	3	2
5740	3	Frame	1	1894	1246	1	3	2
5741	3	Brick	2	1922	4733	1	6	>4
5742	5	Aluminum / Vinyl	1	1971	1566	1	4	1
5743	5	Aluminum / Vinyl	1	1950	1447	1	4	1
5744	5	Brick	1	1951	1386	1	4	1
5745	5	Aluminum / Vinyl	1	1948	1338	1	3	1
5746	5	Brick	1	1952	1336	1	3	1
5747	5	Aluminum / Vinyl	1.5	1952	1332	1	3	1
5748	5	Brick	1	1950	1329	1	3	1
5749	5	Aluminum / Vinyl	1	1950	1308	1	3	1
5750	5	Masonry / Frame	1	1959	1304	1	3	1
5751	5	Brick	1	1951	1273	1	3	1
5752	5	Aluminum / Vinyl	1	1949	1029	1	4	1
5753	5	Aluminum / Vinyl	2	2011	3110	1	5	3
5754	5	Brick	2	1948	2376	2	4	2
5755	5	Masonry / Frame	1.5	1957	2045	2	4	2
5756	5	Stone	1	1954	1415	1	3	2
5757	5	Stone	1	1956	1405	1	3	1
5758	5	Brick	1	1957	1288	1	3	1
5759	5	Brick	1	1962	1283	1	3	1
5760	5	Brick	1	1952	1268	1	2	1
5761	5	Brick	1	1959	1197	1	3	1
5762	5	Aluminum / Vinyl	1	1954	1168	1	3	1
5763	5	Aluminum / Vinyl	1	1958	1163	1	2	1
5764	5	Aluminum / Vinyl	1	1957	1163	1	3	1
5765	5	Brick	1	1954	1051	1	3	1
5766	5	Aluminum / Vinyl	1	1955	1008	1	3	1
5767	5	Frame	1	1952	873	1	2	1
5768	5	Aluminum / Vinyl	1	1950	828	1	2	1
5769	6	Brick	1.5	1929	2133	2	4	2
5770	6	Aluminum / Vinyl	2	1890	2013	2	4	2
5771	6	Aluminum / Vinyl	2	1890	1717	1	4	2
5773	7	Fiber-Cement	2	2003	1908	1	4	2
5774	7	Frame	1	1926	1453	1	5	1

5775	8	Frame	1	1925	850	1	2	1
5776	8	Aluminum / Vinyl	1	1896	1550	1	4	2
5777	8	Frame	1.5	1912	1383	1	3	1
5778	9	Aluminum / Vinyl	1	1954	1111	1	3	1
5779	9	Aluminum / Vinyl	2	2004	2016	1	3	2
5780	9	Aluminum / Vinyl	2	1969	1743	1	4	1
5781	9	Frame	2	1980	1445	1	3	1
5782	9	Aluminum / Vinyl	1	1958	1322	1	3	1
5783	9	Aluminum / Vinyl	1	1972	1134	1	3	1
5784	9	Aluminum / Vinyl	1	1964	1054	1	3	1
5785	9	Brick	1	1960	1014	1	3	1
5786	9	Frame	1	1963	1006	1	3	1
5787	9	Frame	1	1965	1006	1	3	1
5788	9	Aluminum / Vinyl	1	1974	906	1	3	1
5789	9	Aluminum / Vinyl	1	1985	1668	1	3	1
5790	10	Frame	1	1951	1410	1	3	2
5791	10	Stone	1	1951	1391	1	4	2
5792	10	Aluminum / Vinyl	1	1949	1114	1	3	1
5793	10	Brick	2	1938	1608	1	3	1
5794	10	Frame	2	1925	1536	1	3	2
5795	10	Frame	1	1925	720	1	1	1
5796	10	Aluminum / Vinyl	2	1930	2642	2	4	2
5797	10	Aluminum / Vinyl	1.5	1915	2220	1	4	1
5798	10	Aluminum / Vinyl	1	1922	1800	1	3	1
5799	10	Stucco	1	1918	1589	1	4	1
5800	10	Aluminum / Vinyl	1	1928	1584	1	4	1
5801	10	Aluminum / Vinyl	1	1925	1332	1	3	1
5802	10	Aluminum / Vinyl	1	1915	1296	1	4	2
5803	10	Frame	1	1925	1158	1	4	2
5804	10	Aluminum / Vinyl	1	1922	1125	1	3	1
5805	10	Aluminum / Vinyl	1.5	1923	1050	1	2	1
5806	10	Aluminum / Vinyl	1	1925	932	1	2	2
5807	10	Brick	1	1926	1449	1	2	2
5808	10	Aluminum / Vinyl	1	1969	1132	1	2	1
5809	10	Brick	1	1953	937	1	3	1
5810	10	Brick	1	1931	1548	1	3	1
5811	11	Stone	1.5	1942	1670	1	3	1
5812	11	Brick	1	1950	1450	1	4	2
5813	11	Aluminum / Vinyl	1	1938	1146	1	2	1
5814	11	Aluminum / Vinyl	1	1949	1072	1	2	2
5815	11	Aluminum / Vinyl	1	1942	1001	1	3	1
5816	11	Aluminum / Vinyl	1	1940	975	1	3	1
5817	11	Stucco	1	1938	928	1	3	1

5818	11	Aluminum / Vinyl	2	1958	2228	1	3	1
5819	11	Aluminum / Vinyl	2	2004	2174	1	3	2
5820	11	Aluminum / Vinyl	1.5	1923	1979	2	5	2
5821	11	Brick	1.5	1966	2274	2	5	2
5822	11	Brick	1.5	1961	1960	2	5	2
5823	11	Aluminum / Vinyl	1.5	1950	1669	2	3	2
5824	11	Brick	2	1932	2225	2	4	2
5825	11	Aluminum / Vinyl	1	1929	1653	1	4	2
5826	11	Brick	1	1962	1952	1	3	2
5827	11	Brick	1	1958	1524	1	3	1
5828	11	Brick	1	1962	1342	1	3	1
5829	11	Aluminum / Vinyl	1	1957	1137	1	3	1
5830	11	Brick	1	1954	1120	1	3	1
5831	11	Aluminum / Vinyl	1	1956	1073	1	3	1
5832	11	Brick	1	1956	1070	1	3	1
5833	11	Aluminum / Vinyl	1	1958	1055	1	2	2
5834	11	Aluminum / Vinyl	1	1956	1033	1	3	1
5835	11	Aluminum / Vinyl	1	1955	1020	1	3	1
5836	11	Aluminum / Vinyl	1	1955	972	1	3	2
5837	11	Aluminum / Vinyl	1	1955	867	1	3	1
5838	11	Aluminum / Vinyl	2	1990	3355	2	6	4
5840	12	Aluminum / Vinyl	1	1893	1870	2	5	2
5841	13	Brick	1	1951	1638	1	3	2
5842	13	Brick	1	1955	1619	1	4	2
5843	13	Aluminum / Vinyl	1	1946	1421	1	3	1
5844	13	Brick	1	1950	1347	1	2	1
5845	13	Brick	1	1959	1227	1	3	1
5846	13	Aluminum / Vinyl	1	1943	1008	1	3	1
5847	13	Frame	2	1984	1895	1	3	1
5848	13	Masonry / Frame	2	1977	1769	1	3	1
5849	13	Aluminum / Vinyl	2	1940	1144	1	2	1
5850	13	Masonry / Frame	2	1958	2352	2	4	2
5851	13	Masonry / Frame	2	1944	2111	2	4	2
5852	13	Aluminum / Vinyl	2	1952	2090	2	4	2
5853	13	Aluminum / Vinyl	1.5	1959	1744	2	4	2
5854	13	Stone	1.5	1952	1616	2	3	2
5855	13	Frame	1.5	1887	1919	2	5	1
5856	13	Aluminum / Vinyl	1	1929	1462	1	3	1
5857	13	Brick	1	1966	1726	1	4	2
5858	13	Brick	1	1963	1427	1	3	1
5859	13	Aluminum / Vinyl	1	1961	1411	1	4	1
5860	13	Aluminum / Vinyl	1	1976	1338	1	3	2
5861	13	Brick	1	1959	1174	1	3	1

5862	13	Aluminum / Vinyl	1	1960	1021	1	3	1
5863	13	Aluminum / Vinyl	1	1960	909	1	3	1
5864	13	Aluminum / Vinyl	1	1961	902	1	3	1
5866	13	Aluminum / Vinyl	1.5	1932	1600	1	5	2
5867	13	Aluminum / Vinyl	1.5	1925	1366	1	4	1
5868	14	Frame	1	1950	1361	1	4	1
5869	14	Aluminum / Vinyl	1	1949	1167	1	3	1
5870	14	Aluminum / Vinyl	1	1941	1150	1	2	1
5871	14	Aluminum / Vinyl	1	1951	1098	1	3	1
5872	14	Aluminum / Vinyl	1	1948	1048	1	3	1
5873	14	Aluminum / Vinyl	1	1890	1040	1	3	1
5874	14	Aluminum / Vinyl	1.5	1926	2100	2	4	2
5875	14	Aluminum / Vinyl	1	1895	1951	2	6	2
5876	14	Aluminum / Vinyl	1	1926	1726	1	3	2
5877	14	Aluminum / Vinyl	1	1925	1621	1	4	1
5878	14	Aluminum / Vinyl	1	1926	1425	1	4	2
5879	14	Aluminum / Vinyl	1	1919	1386	1	4	2
5881	14	Aluminum / Vinyl	1	1929	1164	1	3	1
5882	14	Aluminum / Vinyl	1	1919	848	1	3	1
5883	14	Brick	1	1961	984	1	3	1
5884	14	Aluminum / Vinyl	1	1947	784	1	2	1
5885	14	Aluminum / Vinyl	2	1915	1768	1	2	1
5886	14	Stucco	2	1913	1373	1	2	1
5887	14	Aluminum / Vinyl	1	1918	1368	1	2	1
5888	14	Aluminum / Vinyl	1	1911	997	1	2	1
5889	15	Aluminum / Vinyl	2	1918	2963	2	6	2
5890	15	Aluminum / Vinyl	2	1922	2712	2	4	2
5891	15	Brick	1	1927	2971	1	5	3
5892	15	Aluminum / Vinyl	1	1921	1407	1	4	1
5893	1	Aluminum / Vinyl	1	1940	1359	1	3	1
5894	1	Frame	1	1952	672	1	2	1
5895	2	Aluminum / Vinyl	1.5	1993	2324	1	3	2
5896	2	Aluminum / Vinyl	2	1961	2070	2	6	2
5897	2	Aluminum / Vinyl	1	1974	1959	1	4	2
5898	2	Stone	1	1954	1298	1	3	2
5899	2	Aluminum / Vinyl	1	1955	988	1	3	2
5900	2	Aluminum / Vinyl	1	1956	963	1	3	1
5901	2	Brick	1	1958	888	1	2	1
5902	2	Aluminum / Vinyl	1	1932	1231	1	3	1
5903	3	Stucco	1.5	1918	1305	1	2	1
5904	3	Masonry / Frame	2	1907	3809	1	4	2
5905	3	Aluminum / Vinyl	2	1905	2744	1	5	2
5906	3	Brick	2	1910	2694	1	5	2

5907	3	Stucco	2	1909	2629	1	5	2
5908	3	Masonry / Frame	2	1910	2414	1	3	1
5909	3	Masonry / Frame	2	1907	2358	1	4	2
5910	3	Stucco	2	1916	1937	1	4	1
5911	3	Aluminum / Vinyl	2	1896	1707	1	3	1
5912	3	Aluminum / Vinyl	1.5	1897	1345	1	4	2
5913	5	Stone	1	1949	2254	1	5	2
5914	5	Brick	1	1950	1400	1	4	2
5915	5	Brick	1	1956	1304	1	3	1
5916	5	Stone	1.5	1948	1301	1	3	1
5917	5	Frame	1	1950	1298	1	4	1
5918	5	Brick	1	1952	1167	1	3	1
5919	5	Brick	1	1950	1164	1	3	1
5920	5	Frame	1	1950	1149	1	3	1
5921	5	Aluminum / Vinyl	1	1951	1119	1	3	1
5922	5	Aluminum / Vinyl	1	1939	1049	1	2	1
5923	5	Aluminum / Vinyl	1	1950	846	1	3	1
5924	5	Aluminum / Vinyl	2	1980	2248	1	4	2
5925	5	Masonry / Frame	2	1955	2064	2	4	2
5926	5	Frame	1	1965	1865	1	3	2
5927	5	Frame	1	1965	1750	1	3	1
5928	5	Brick	1	1962	1225	1	3	1
5929	5	Brick	1	1957	1183	1	3	1
5930	5	Stone	1	1951	1147	1	3	1
5931	5	Aluminum / Vinyl	1	1950	1103	1	2	1
5932	5	Aluminum / Vinyl	1	1952	1084	1	3	1
5933	5	Aluminum / Vinyl	1	1963	1080	1	3	1
5934	5	Aluminum / Vinyl	1	1955	1008	1	3	1
5935	5	Aluminum / Vinyl	1	1953	977	1	3	2
5937	5	Brick	1	1953	952	1	2	1
5938	5	Aluminum / Vinyl	1	1949	915	1	2	1
5939	5	Aluminum / Vinyl	1	1951	772	1	2	1
5940	6	Frame	1.5	1922	2028	2	4	2
5941	6	Aluminum / Vinyl	1.5	1894	1629	2	4	2
5942	6	Aluminum / Vinyl	1	1925	1440	1	4	1
5943	6	Frame	2	1898	2572	1	4	2
5944	6	Aluminum / Vinyl	1.5	1880	1752	1	3	0
5945	7	Frame	1.5	1950	1336	1	4	2
5946	7	Brick	1	1951	1335	1	3	1
5947	7	Brick	2	1931	1734	1	4	2
5948	7	Aluminum / Vinyl	1.5	1931	1574	1	3	2
5949	7	Aluminum / Vinyl	1.5	1880	1415	1	5	2
5950	8	Aluminum / Vinyl	1.5	1907	1678	2	3	2

5951	8	Frame	1.5	1889	1645	1	4	2
5952	8	Aluminum / Vinyl	1.5	1906	1402	1	4	2
5953	8	Aluminum / Vinyl	1.5	1922	1197	1	3	1
5954	9	Aluminum / Vinyl	1	1952	990	1	4	1
5955	9	Fiber-Cement	2	1994	2325	1	3	2
5956	9	Aluminum / Vinyl	2	2008	2055	1	4	2
5957	9	Aluminum / Vinyl	1	1972	1210	1	3	1
5958	9	Aluminum / Vinyl	1	1965	1147	1	3	1
5959	9	Aluminum / Vinyl	1	1961	1041	1	3	1
5960	9	Frame	1	1959	898	1	3	1
5961	9	Frame	1	1957	1608	1	4	1
5962	9	Aluminum / Vinyl	1	1992	1547	1	3	2
5963	10	Stone	1.5	1941	1794	1	2	2
5964	10	Aluminum / Vinyl	1	1950	1482	1	3	1
5965	10	Brick	1	1949	1453	1	4	2
5966	10	Brick	1	1948	1395	1	4	1
5967	10	Aluminum / Vinyl	1	1953	1380	1	3	1
5968	10	Stone	1	1951	1290	1	3	2
5969	10	Brick	1	1940	1248	1	3	2
5970	10	Aluminum / Vinyl	1.5	1940	1153	1	3	1
5971	10	Aluminum / Vinyl	2	1948	1300	1	3	1
5972	10	Brick	1.5	1931	2553	2	4	2
5973	10	Aluminum / Vinyl	2	1923	2486	2	6	2
5974	10	Aluminum / Vinyl	2	1928	2364	2	5	2
5975	10	Stone	1.5	1935	2129	2	4	2
5976	10	Aluminum / Vinyl	1.5	1929	1386	2	3	2
5977	10	Aluminum / Vinyl	1.5	1894	1654	2	4	2
5978	10	Brick	1	1926	1863	1	3	2
5979	10	Aluminum / Vinyl	1.5	1926	1811	1	3	2
5980	10	Frame	1	1925	1734	1	4	2
5981	10	Brick	1	1927	1727	1	3	2
5982	10	Aluminum / Vinyl	1	1921	1719	1	3	1
5983	10	Aluminum / Vinyl	1	1925	1556	1	3	2
5984	10	Aluminum / Vinyl	1	1928	1445	1	4	2
5985	10	Aluminum / Vinyl	1	1925	1398	1	3	2
5986	10	Aluminum / Vinyl	1	1928	1373	1	4	1
5987	10	Brick	1	1965	1636	1	3	1
5988	10	Frame	1	1952	1056	1	3	2
5989	10	Brick	1	1948	788	1	2	1
5990	10	Brick	1.5	1930	1860	1	3	1
5991	10	Aluminum / Vinyl	1	1926	1318	1	3	0
5992	10	Aluminum / Vinyl	1	1927	691	1	2	1
5993	11	Stone	1	1936	1702	1	3	2

5994	11	Aluminum / Vinyl	1	1961	1098	1	3	1
5995	11	Aluminum / Vinyl	1	1942	1038	1	3	1
5996	11	Masonry / Frame	2	1953	1896	1	6	2
5997	11	Aluminum / Vinyl	2	1953	1554	1	3	1
5998	11	Aluminum / Vinyl	2	1938	1032	1	2	1
5999	11	Aluminum / Vinyl	2	1957	1946	2	4	2
6000	11	Brick	2	1954	1925	2	4	2
6001	11	Brick	2	1865	2274	2	4	2
6002	11	Frame	1	1987	1581	1	3	2
6003	11	Brick	1	1952	1305	1	2	1
6004	11	Brick	1	1959	1235	1	3	1
6005	11	Brick	1	1960	1201	1	3	1
6006	11	Aluminum / Vinyl	1	1965	1110	1	3	1
6007	11	Brick	1	1965	1057	1	3	1
6008	11	Aluminum / Vinyl	1	1958	1018	1	3	1
6009	11	Brick	1	1955	1013	1	3	1
6010	11	Brick	1	1959	1004	1	2	1
6011	11	Aluminum / Vinyl	1	1957	915	1	3	1
6012	11	Aluminum / Vinyl	1	1953	879	1	3	1
6013	11	Aluminum / Vinyl	1	1953	879	1	3	1
6014	11	Aluminum / Vinyl	1	1953	864	1	3	1
6015	12	Frame	2	1918	1796	2	4	2
6016	12	Aluminum / Vinyl	1.5	1890	1828	2	5	2
6017	12	Stone	1.5	1940	2315	1	5	2
6018	12	Brick	2	1895	3627	>3	>8	3
6019	13	Brick	1.5	1951	1822	1	4	2
6020	13	Brick	1	1976	1601	1	3	2
6021	13	Stucco	1	1951	1453	1	4	2
6022	13	Aluminum / Vinyl	1.5	1939	1338	1	3	1
6023	13	Brick	1	1949	1327	1	3	1
6024	13	Frame	1	1951	1300	1	3	1
6025	13	Brick	1	1964	1036	1	2	1
6026	13	Brick	1	1953	826	1	2	1
6027	13	Brick	1	1951	825	1	2	1
6028	13	Aluminum / Vinyl	1	1948	805	1	2	1
6029	13	Aluminum / Vinyl	2	1957	2098	2	6	2
6030	13	Aluminum / Vinyl	1.5	1959	1738	2	4	3
6031	13	Brick	1	1948	1497	2	3	2
6032	13	Aluminum / Vinyl	1.5	1923	1660	1	4	2
6033	13	Frame	1	1923	1653	1	4	2
6034	13	Brick	1	1966	1678	1	3	1
6035	13	Brick	1	1964	1116	1	3	1
6036	13	Aluminum / Vinyl	1	1959	936	1	3	1

6037	13	Aluminum / Vinyl	1	1900	1199	1	2	1
6038	14	Aluminum / Vinyl	1	1947	1468	1	3	2
6040	14	Fiber-Cement	>2	2005	3504	1	4	3
6041	14	Frame	1.5	1895	1190	1	3	1
6042	14	Aluminum / Vinyl	1	1890	592	1	1	1
6043	14	Aluminum / Vinyl	2	1923	2217	2	5	2
6044	14	Aluminum / Vinyl	2	1913	1968	2	5	2
6045	14	Aluminum / Vinyl	1.5	1900	1840	2	4	2
6046	14	Aluminum / Vinyl	1.5	1917	1582	1	3	2
6047	14	Aluminum / Vinyl	1	1925	1573	1	3	2
6048	14	Stucco	1	1922	1380	1	3	2
6049	14	Brick	1	1956	1505	1	3	1
6050	14	Aluminum / Vinyl	1	1950	923	1	3	1
6051	14	Aluminum / Vinyl	1	1947	826	1	2	1
6052	14	Brick	1.5	1918	1521	1	3	1
6053	14	Aluminum / Vinyl	1	1919	1290	1	3	1
6054	14	Aluminum / Vinyl	1	1895	1276	1	4	2
6055	14	Aluminum / Vinyl	2	1931	3265	3	7	3
6056	15	Aluminum / Vinyl	2	1883	2378	2	4	2
6057	15	Aluminum / Vinyl	1.5	1890	1746	2	5	2
6058	15	Brick	2	1905	2455	1	3	1
6059	1	Masonry / Frame	2	1931	2770	2	6	2
6060	1	Brick	1	1928	1706	1	4	1
6061	1	Aluminum / Vinyl	1	1955	1082	1	3	1
6062	2	Aluminum / Vinyl	1	1997	1360	1	3	2
6063	2	Aluminum / Vinyl	1	1955	1384	1	3	1
6064	2	Aluminum / Vinyl	1	1957	1084	1	3	2
6065	2	Aluminum / Vinyl	1	1959	1226	1	3	1
6066	2	Stone	1	1950	1147	1	3	1
6067	2	Brick	1	1962	1121	1	3	1
6068	2	Brick	1	1961	1071	1	3	1
6069	2	Brick	1	1958	1019	1	3	1
6070	2	Aluminum / Vinyl	1	1947	844	1	2	2
6071	2	Aluminum / Vinyl	1	1956	784	1	2	1
6072	2	Aluminum / Vinyl	1	1955	756	1	2	1
6073	2	Aluminum / Vinyl	1	1955	1486	1	3	1
6074	3	Frame	1	1956	1488	1	3	1
6075	3	Aluminum / Vinyl	1	1892	1662	2	3	2
6076	3	Aluminum / Vinyl	1	1901	900	1	1	1
6077	3	Frame	2	1924	2940	2	6	2
6078	3	Frame	2	1916	2420	2	4	2
6079	3	Stucco	2	1922	2047	2	4	2
6080	3	Aluminum / Vinyl	2	1895	2310	2	4	2

6081	3	Brick	2	1916	4562	1	6	3
6082	3	Aluminum / Vinyl	2	1898	3185	2	4	2
6083	3	Brick	2	1923	3137	1	4	2
6084	3	Brick	2	1906	2403	1	4	1
6085	3	Frame	2	1905	2328	1	4	2
6086	3	Aluminum / Vinyl	2	1912	1749	1	4	1
6087	4	Aluminum / Vinyl	2	1970	1471	1	4	1
6088	4	Frame	2	1902	3685	2	5	3
6089	4	Aluminum / Vinyl	2	1910	1661	1	3	1
6090	5	Brick	1	1953	1609	1	4	2
6091	5	Aluminum / Vinyl	1	1955	1477	1	3	1
6092	5	Brick	1	1949	1467	1	3	1
6094	5	Aluminum / Vinyl	1.5	1950	1251	1	3	2
6095	5	Aluminum / Vinyl	1	1953	1181	1	3	1
6096	5	Brick	1	1947	1158	1	2	1
6097	5	Aluminum / Vinyl	1	1950	1105	1	3	1
6098	5	Aluminum / Vinyl	1	1950	1092	1	3	3
6099	5	Aluminum / Vinyl	1	1953	1027	1	3	1
6100	5	Masonry / Frame	2	1952	1795	1	3	1
6101	5	Aluminum / Vinyl	2	1955	1419	1	3	1
6102	5	Aluminum / Vinyl	2	1939	1248	1	2	1
6103	5	Aluminum / Vinyl	2	1967	2100	2	6	2
6104	5	Aluminum / Vinyl	1.5	1963	2018	2	5	2
6105	5	Brick	1	1952	1516	1	3	1
6106	5	Frame	1	1964	1491	1	3	1
6107	5	Stone	1	1958	1252	1	3	1
6108	5	Brick	1	1960	1238	1	3	1
6109	5	Aluminum / Vinyl	1	1964	1212	1	3	1
6110	5	Aluminum / Vinyl	1	1961	1024	1	3	1
6111	5	Aluminum / Vinyl	1	1956	1019	1	2	2
6112	5	Aluminum / Vinyl	1	1956	1014	1	3	1
6113	5	Aluminum / Vinyl	1	1957	987	1	3	1
6114	5	Brick	1	1956	965	1	3	1
6115	5	Aluminum / Vinyl	1	1952	912	1	3	1
6116	5	Aluminum / Vinyl	1	1952	910	1	3	1
6117	5	Aluminum / Vinyl	1	1952	768	1	2	1
6118	6	Aluminum / Vinyl	2	2004	2366	1	3	2
6119	6	Aluminum / Vinyl	2	1924	2192	2	4	2
6120	6	Brick	1	1927	2212	1	5	2
6121	6	Aluminum / Vinyl	1.5	1881	1871	1	3	2
6122	7	Brick	2	1932	2696	2	5	3
6123	7	Aluminum / Vinyl	2	1924	2422	2	4	2
6124	7	Aluminum / Vinyl	1	1920	1781	1	5	1

6125	7	Aluminum / Vinyl	1	1932	1233	1	3	1
6126	7	Brick	1.5	1940	1802	1	3	1
6127	8	Frame	2	1922	2557	2	6	2
6128	8	Aluminum / Vinyl	1.5	1885	2071	2	5	3
6129	9	Frame	1	1957	1181	1	3	1
6130	9	Aluminum / Vinyl	1	1962	1001	1	3	1
6131	10	Brick	1	1952	1346	1	4	1
6132	10	Aluminum / Vinyl	1	1951	1134	1	3	2
6133	10	Brick	1	1941	1031	1	3	1
6134	10	Brick	1	1950	932	1	2	1
6135	10	Masonry / Frame	2	1941	1546	1	3	1
6136	10	Masonry / Frame	2	1941	1448	1	3	1
6137	10	Aluminum / Vinyl	2	1947	1117	1	2	1
6138	10	Brick	1.5	1928	2283	2	4	2
6139	10	Aluminum / Vinyl	1.5	1919	2012	2	4	2
6140	10	Aluminum / Vinyl	1	1919	1939	1	3	1
6141	10	Brick	2	1926	1792	1	4	2
6142	10	Aluminum / Vinyl	1	1927	1582	1	4	2
6143	10	Aluminum / Vinyl	1	1925	1458	1	3	2
6144	10	Aluminum / Vinyl	1	1923	962	1	3	1
6145	10	Brick	1	1952	1049	1	2	1
6146	10	Brick	1	1952	1035	1	2	1
6147	10	Aluminum / Vinyl	1	1953	704	1	2	1
6148	10	Stucco	1.5	1921	2090	1	5	1
6149	10	Frame	1	1918	1152	1	3	2
6150	10	Frame	1	1925	748	1	2	1
6151	11	Aluminum / Vinyl	1	1941	1448	1	4	1
6152	11	Aluminum / Vinyl	1	1925	1026	1	2	1
6153	11	Brick	1	1970	1484	1	3	1
6155	11	Brick	1	1956	1382	1	2	1
6156	11	Brick	1	1958	1191	1	3	1
6157	11	Aluminum / Vinyl	1	1960	1186	1	3	1
6158	11	Aluminum / Vinyl	1	1958	1079	1	3	1
6159	11	Aluminum / Vinyl	1	1960	946	1	2	1
6160	11	Brick	1	1956	941	1	3	1
6161	11	Stone	1	1939	924	1	2	1
6162	11	Aluminum / Vinyl	1	1949	726	1	2	1
6163	12	Aluminum / Vinyl	1	1903	1575	2	5	2
6164	13	Aluminum / Vinyl	1.5	1989	2103	1	4	2
6165	13	Brick	1	1953	1379	1	3	2
6166	13	Brick	1	1949	1217	1	3	1
6167	13	Brick	1	1947	1152	1	3	1
6168	13	Brick	1	1955	1090	1	3	2

6169	13	Aluminum / Vinyl	1	1947	923	1	3	1
6170	13	Masonry / Frame	2	1938	1569	1	3	1
6171	13	Aluminum / Vinyl	2	1959	2293	2	6	2
6172	13	Brick	1.5	1956	2016	2	5	2
6173	13	Aluminum / Vinyl	1.5	1953	1650	2	4	2
6174	13	Aluminum / Vinyl	1	1922	1333	1	2	2
6175	13	Masonry / Frame	1	1961	1863	1	3	2
6176	13	Brick	1	1981	1797	1	3	2
6177	13	Aluminum / Vinyl	1	1975	1466	1	3	1
6179	13	Aluminum / Vinyl	1	1954	1194	1	3	1
6180	13	Brick	1	1963	1090	1	3	1
6181	13	Aluminum / Vinyl	1	1969	1087	1	3	1
6182	13	Brick	1	1958	1048	1	3	1
6183	13	Brick	1	1958	998	1	3	1
6184	13	Brick	1	1964	997	1	3	1
6185	13	Aluminum / Vinyl	1	1960	994	1	3	2
6186	13	Aluminum / Vinyl	1	1958	978	1	3	1
6187	13	Stucco	1	1954	936	1	3	1
6188	13	Aluminum / Vinyl	1	1961	907	1	3	1
6189	14	Aluminum / Vinyl	1	1950	1392	1	4	2
6190	14	Aluminum / Vinyl	1	1951	1150	1	4	1
6191	14	Aluminum / Vinyl	1	1952	795	1	2	1
6192	14	Aluminum / Vinyl	2	1950	1512	1	3	1
6193	14	Brick	2	1948	1391	1	3	1
6194	14	Aluminum / Vinyl	2	1948	979	1	2	1
6195	14	Aluminum / Vinyl	1	1929	747	1	2	1
6196	14	Aluminum / Vinyl	2	1908	3403	2	6	4
6197	14	Aluminum / Vinyl	2	1893	2648	2	4	2
6198	14	Aluminum / Vinyl	2	1890	1952	2	3	2
6199	14	Aluminum / Vinyl	1.5	1896	1849	2	4	2
6200	14	Frame	1	1926	1444	1	2	1
6201	14	Brick	1	1929	1340	1	3	1
6202	14	Aluminum / Vinyl	1	1929	1194	1	3	1
6204	15	Aluminum / Vinyl	2	1919	2714	2	6	2
6205	15	Aluminum / Vinyl	1.5	1910	1713	2	3	2
6206	1	Aluminum / Vinyl	1	1951	1213	1	3	1
6207	1	Aluminum / Vinyl	1	1955	1082	1	3	1
6208	2	Brick	1	1954	1512	1	3	1
6209	2	Brick	1	1954	1204	1	4	1
6210	2	Aluminum / Vinyl	2	1957	1984	2	6	2
6211	2	Frame	1	1956	1046	1	3	1
6212	3	Frame	2	1898	3159	1	5	4
6213	3	Aluminum / Vinyl	1.5	1921	1678	2	4	2

6214	3	Brick	2	1953	2080	2	4	2
6215	3	Frame	2	1890	2224	2	4	2
6216	3	Brick	1	1890	1898	2	4	2
6217	3	Stucco	2	1917	6567	1	6	3
6218	3	Brick	2	1915	6143	1	6	3
6219	3	Brick	2	1916	3872	1	4	3
6220	3	Brick	2	1922	3365	1	5	3
6221	3	Aluminum / Vinyl	2	1904	2251	1	4	1
6222	3	Aluminum / Vinyl	2	1900	2068	1	3	2
6223	3	Frame	2	1901	1717	1	4	1
6224	3	Aluminum / Vinyl	1	1903	1465	1	3	2
6225	3	Stucco	1	1922	1371	1	3	2
6226	4	Frame	1	1848	853	1	3	1
6227	4	Aluminum / Vinyl	2	1885	2528	2	4	2
6228	5	Aluminum / Vinyl	1	1948	1226	1	3	2
6229	5	Aluminum / Vinyl	1	1942	1165	1	2	1
6230	5	Brick	1	1949	892	1	2	1
6231	5	Aluminum / Vinyl	1	1952	828	1	2	2
6232	5	Fiber-Cement	2	2002	2452	1	3	2
6233	5	Aluminum / Vinyl	2	1976	1610	1	3	1
6234	5	Aluminum / Vinyl	2	1941	1270	1	3	1
6235	5	Aluminum / Vinyl	2	1947	1205	1	3	1
6236	5	Aluminum / Vinyl	2	1956	2240	2	6	2
6237	5	Aluminum / Vinyl	1	1950	1430	1	3	1
6238	5	Brick	1	1960	1237	1	3	2
6239	5	Aluminum / Vinyl	1	1971	1204	1	4	1
6240	5	Brick	1	1956	1075	1	3	1
6241	5	Aluminum / Vinyl	1	1957	936	1	3	1
6242	7	Frame	2	1924	3280	2	7	2
6243	7	Aluminum / Vinyl	1.5	1925	1822	2	4	2
6244	7	Aluminum / Vinyl	2	1892	2028	2	4	2
6245	7	Brick	1	1929	1584	1	3	1
6246	7	Stone	1.5	1936	1647	1	3	1
6247	8	Aluminum / Vinyl	1.5	1921	1186	1	4	1
6248	8	Stucco	1	1915	1531	1	2	1
6249	8	Aluminum / Vinyl	1.5	1910	1133	1	3	2
6250	9	Aluminum / Vinyl	2	2002	1900	1	3	2
6251	9	Aluminum / Vinyl	1	1980	1609	1	3	1
6252	9	Aluminum / Vinyl	1	1968	1426	1	3	1
6253	9	Aluminum / Vinyl	1	1964	1327	1	3	1
6254	9	Aluminum / Vinyl	1	1969	1232	1	3	1
6255	9	Aluminum / Vinyl	1	1973	1194	1	3	1
6256	9	Brick	1	1956	1042	1	3	1

6257	9	Frame	1	1964	1006	1	3	1
6258	9	Brick	1	1958	953	1	3	1
6259	9	Aluminum / Vinyl	1	1992	1751	1	4	2
6261	10	Aluminum / Vinyl	1	1942	1113	1	3	1
6262	10	Brick	1	1945	1107	1	3	1
6263	10	Brick	2	1924	2334	1	4	1
6264	10	Masonry / Frame	2	1937	1751	1	3	1
6265	10	Aluminum / Vinyl	2	1928	1152	1	3	1
6266	10	Masonry / Frame	1.5	1931	2391	2	5	2
6267	10	Aluminum / Vinyl	1.5	1928	2081	2	4	2
6268	10	Frame	1.5	1924	1914	2	4	2
6269	10	Aluminum / Vinyl	1	1926	1417	1	3	2
6270	10	Aluminum / Vinyl	1	1927	1339	1	3	2
6271	10	Frame	1	1930	1318	1	3	1
6272	10	Aluminum / Vinyl	1	1955	828	1	2	1
6273	10	Aluminum / Vinyl	1	1913	1663	1	4	2
6274	10	Aluminum / Vinyl	1.5	1920	1186	1	3	1
6275	10	Frame	1.5	1912	1122	1	3	1
6276	11	Brick	1.5	1951	1883	1	4	2
6277	11	Brick	1	1941	1487	1	4	1
6278	11	Stone	1	1952	1305	1	3	2
6279	11	Aluminum / Vinyl	1	1942	1095	1	3	1
6280	11	Prem Wood	2	2003	2204	1	4	2
6281	11	Aluminum / Vinyl	1	1958	1519	1	3	1
6282	11	Stone	1	1952	1501	1	3	1
6283	11	Brick	1	1955	1392	1	3	1
6284	11	Brick	1	1957	1240	1	2	2
6285	11	Stone	1	1951	1181	1	2	1
6286	11	Brick	1	1961	1172	1	3	1
6287	11	Aluminum / Vinyl	1	1953	1158	1	3	1
6288	11	Aluminum / Vinyl	1	1966	1157	1	3	2
6289	11	Brick	1	1958	1114	1	3	2
6290	11	Aluminum / Vinyl	1	1954	1073	1	3	1
6291	11	Brick	1	1959	1052	1	2	2
6292	11	Aluminum / Vinyl	1	1957	1023	1	2	2
6293	11	Aluminum / Vinyl	1	1958	1001	1	3	1
6294	11	Frame	1	1953	985	1	3	1
6295	11	Aluminum / Vinyl	1	1955	984	1	3	1
6296	11	Aluminum / Vinyl	1	1960	931	1	3	1
6297	11	Brick	1	1949	862	1	2	1
6298	11	Aluminum / Vinyl	1	1955	793	1	2	1
6299	11	Aluminum / Vinyl	1	1950	776	1	2	1
6300	11	Aluminum / Vinyl	1	1952	759	1	2	1

6301	11 Aluminum / Vinyl	1	1937	740	1	2	1
6302	11 Aluminum / Vinyl	1	1949	726	1	2	1
6303	11 Aluminum / Vinyl	1.5	1932	870	1	3	1
6304	11 Aluminum / Vinyl	2	1966	2409	2	6	2
6305	12 Frame	1	1884	740	1	3	1
6306	12 Block	2	1906	2998	2	6	2
6307	12 Frame	2	1870	1840	2	5	2
6308	12 Aluminum / Vinyl	1	1886	976	1	4	1
6309	13 Brick	1	1949	1398	1	4	2
6310	13 Aluminum / Vinyl	1	1955	1243	1	3	1
6311	13 Aluminum / Vinyl	1	1948	1184	1	4	1
6312	13 Stone	1	1951	1045	1	3	1
6313	13 Stucco	1	1942	1027	1	3	1
6314	13 Brick	1	1957	1025	1	2	1
6315	13 Aluminum / Vinyl	2	1989	2009	1	3	1
6316	13 Brick	1	1955	1304	1	3	2
6317	13 Aluminum / Vinyl	1	1961	1275	1	4	1
6318	13 Aluminum / Vinyl	1	1936	1092	1	3	1
6319	13 Frame	1	1963	1011	1	3	2
6320	13 Aluminum / Vinyl	1	1963	999	1	3	1
6321	13 Brick	1	1956	827	1	2	1
6322	13 Aluminum / Vinyl	1	1951	707	1	2	1
6323	14 Brick	1	1947	1731	1	5	2
6324	14 Brick	1	1948	1153	1	3	2
6325	14 Aluminum / Vinyl	1	1947	1026	1	3	2
6326	14 Aluminum / Vinyl	2	1940	1528	1	3	1
6327	14 Aluminum / Vinyl	1.5	1927	2295	2	4	2
6328	14 Aluminum / Vinyl	2	1880	2106	2	4	2
6329	14 Aluminum / Vinyl	2	1922	1716	2	4	2
6330	14 Brick	1	1929	1461	1	3	1
6331	14 Brick	1	1931	1174	1	3	1
6332	14 Aluminum / Vinyl	1	1955	936	1	3	1
6333	14 Aluminum / Vinyl	1.5	1917	1636	1	4	2
6334	14 Aluminum / Vinyl	2	1911	1478	1	4	1
6335	14 Frame	1.5	1907	1415	1	4	2
6336	14 Aluminum / Vinyl	1.5	1899	1339	1	3	1
6337	1 Block	2	1949	1664	1	3	2
6338	1 Frame	1.5	1925	1342	2	4	2
6339	1 Aluminum / Vinyl	1	1928	1480	1	5	1
6340	1 Masonry / Frame	1	1953	912	1	3	1
6341	1 Aluminum / Vinyl	1	1954	728	1	2	1
6342	1 Frame	1.5	1901	1824	1	3	1
6343	1 Aluminum / Vinyl	1	1929	924	1	3	1

6344	2	Aluminum / Vinyl	1	1947	1509	1	4	2
6345	2	Aluminum / Vinyl	2	1957	2142	2	6	2
6346	2	Brick	1	1954	1176	1	3	1
6347	2	Aluminum / Vinyl	1	1960	1044	1	3	1
6348	2	Aluminum / Vinyl	1	1958	1040	1	3	1
6349	2	Brick	1	1958	1019	1	3	2
6350	2	Aluminum / Vinyl	1	1940	918	1	2	1
6351	3	Stucco	1	1900	1694	1	2	1
6352	3	Aluminum / Vinyl	1.5	1924	1952	2	4	2
6353	3	Aluminum / Vinyl	1	1890	2020	2	4	2
6354	3	Aluminum / Vinyl	2	1922	1988	2	4	2
6355	3	Stone	2	1926	4818	1	6	3
6356	3	Stucco	2	1906	2350	1	5	1
6357	3	Aluminum / Vinyl	1	1918	1450	1	3	1
6358	5	Brick	1	1945	1465	1	3	1
6359	5	Aluminum / Vinyl	1	1952	1288	1	3	2
6360	5	Brick	1	1952	1224	1	3	1
6361	5	Aluminum / Vinyl	1	1947	1221	1	2	2
6362	5	Aluminum / Vinyl	1	1952	1188	1	4	1
6363	5	Aluminum / Vinyl	1	1950	1176	1	4	1
6364	5	Aluminum / Vinyl	1	1950	1166	1	3	1
6365	5	Aluminum / Vinyl	1	1952	1163	1	4	1
6366	5	Aluminum / Vinyl	1	1950	1133	1	3	1
6367	5	Aluminum / Vinyl	1	1954	1037	1	3	1
6368	5	Aluminum / Vinyl	1	1940	1026	1	3	1
6369	5	Aluminum / Vinyl	2	1953	1422	1	3	1
6370	5	Brick	2	1950	2240	2	4	2
6371	5	Aluminum / Vinyl	2	1957	2076	2	6	2
6372	5	Aluminum / Vinyl	1	1954	1904	2	4	3
6373	5	Aluminum / Vinyl	1	1952	1486	1	3	2
6374	5	Aluminum / Vinyl	1	1957	1300	1	3	1
6375	5	Brick	1	1957	1246	1	3	1
6376	5	Brick	1	1960	1208	1	3	1
6377	5	Aluminum / Vinyl	1	1969	1136	1	3	1
6378	5	Brick	1	1956	1082	1	3	2
6379	5	Aluminum / Vinyl	1	1956	1019	1	3	1
6380	5	Aluminum / Vinyl	1	1956	997	1	3	2
6381	5	Aluminum / Vinyl	1	1952	972	1	3	1
6382	5	Aluminum / Vinyl	1	1957	963	1	3	1
6383	5	Frame	1	1957	948	1	2	2
6384	6	Frame	2	1885	3122	2	5	2
6385	6	Aluminum / Vinyl	2	1880	4091	2	6	2
6386	7	Brick	1	1936	1632	1	4	1

6387	7	Brick	2	1929	3074	2	6	2
6388	7	Masonry / Frame	2	1928	2265	2	5	2
6389	7	Stone	1	1949	916	1	2	1
6390	7	Aluminum / Vinyl	1.5	1928	1348	1	3	1
6391	7	Aluminum / Vinyl	1	1923	864	1	3	1
6392	8	Aluminum / Vinyl	2	1910	2666	2	4	2
6393	8	Aluminum / Vinyl	1	1928	1556	1	4	2
6394	8	Aluminum / Vinyl	1	1926	1263	1	3	1
6395	8	Frame	2	1895	1718	1	4	1
6396	9	Brick	1	1958	1616	1	4	2
6397	10	Aluminum / Vinyl	1.5	1951	1575	1	3	2
6398	10	Aluminum / Vinyl	1.5	1939	1573	1	3	1
6399	10	Brick	1	1947	1402	1	3	1
6400	10	Aluminum / Vinyl	1	1953	1260	1	4	1
6401	10	Aluminum / Vinyl	1	1942	1242	1	3	1
6402	10	Brick	1	1941	1199	1	3	1
6403	10	Aluminum / Vinyl	1	1950	1114	1	3	1
6404	10	Brick	2	1936	1869	1	3	1
6405	10	Aluminum / Vinyl	2	1914	1754	1	3	2
6406	10	Aluminum / Vinyl	2	1941	1641	1	3	1
6407	10	Aluminum / Vinyl	2	1921	1237	1	4	1
6408	10	Aluminum / Vinyl	2	1926	2204	2	4	2
6409	10	Aluminum / Vinyl	1.5	1925	1891	1	3	2
6410	10	Aluminum / Vinyl	1	1928	1707	1	4	2
6411	10	Aluminum / Vinyl	1	1919	1617	1	4	2
6412	10	Aluminum / Vinyl	1	1925	1570	1	4	2
6413	10	Aluminum / Vinyl	1	1922	1126	1	3	1
6414	10	Aluminum / Vinyl	1	1942	828	1	2	1
6415	10	Brick	2	1931	2000	1	3	1
6416	11	Aluminum / Vinyl	1.5	1952	2276	1	4	3
6417	11	Aluminum / Vinyl	1	1956	1320	1	4	2
6418	11	Aluminum / Vinyl	1	1953	1198	1	4	1
6419	11	Brick	1	1949	1017	1	3	1
6420	11	Aluminum / Vinyl	2	1959	1378	1	3	1
6421	11	Aluminum / Vinyl	2	1968	1264	1	3	1
6422	11	Brick	1	1929	1865	1	3	1
6423	11	Frame	1	1958	1354	1	3	1
6424	11	Aluminum / Vinyl	1	1954	1210	1	3	1
6425	11	Aluminum / Vinyl	1	1959	1122	1	3	1
6426	11	Aluminum / Vinyl	1	1963	1109	1	3	1
6427	11	Brick	1	1954	1076	1	3	2
6428	11	Aluminum / Vinyl	1	1964	1064	1	3	2
6429	11	Frame	1	1957	1038	1	3	1

6430	11	Brick	1	1954	1013	1	3	1
6431	11	Aluminum / Vinyl	1	1955	988	1	3	1
6432	11	Aluminum / Vinyl	1	1953	922	1	3	1
6433	11	Aluminum / Vinyl	1	1953	906	1	3	1
6434	11	Brick	1	1953	886	1	2	1
6435	11	Aluminum / Vinyl	1	1956	876	1	3	1
6436	11	Brick	2	1931	2200	1	4	1
6437	13	Aluminum / Vinyl	1	1947	1321	1	4	3
6438	13	Block	1	1935	922	1	2	1
6439	13	Aluminum / Vinyl	2	1997	2669	1	5	2
6440	13	Aluminum / Vinyl	1.5	1952	2232	2	4	2
6441	13	Stone	1	1964	1663	1	3	2
6442	13	Brick	1	1960	1510	1	4	2
6443	13	Brick	1	1963	1428	1	3	1
6444	13	Brick	1	1966	1298	1	3	1
6445	13	Aluminum / Vinyl	1	1958	1168	1	3	1
6446	13	Aluminum / Vinyl	1	1953	1067	1	3	1
6447	13	Aluminum / Vinyl	1	1958	1016	1	3	2
6448	13	Brick	1	1955	982	1	3	1
6449	13	Brick	1	1954	784	1	2	1
6450	14	Aluminum / Vinyl	1	1953	1296	1	3	1
6451	14	Aluminum / Vinyl	1	1949	1022	1	3	1
6452	14	Brick	1.5	1926	1777	2	4	2
6453	14	Aluminum / Vinyl	2	1893	2372	2	6	2
6454	14	Aluminum / Vinyl	1.5	1928	1699	1	3	2
6455	14	Frame	1	1924	1381	1	3	1
6456	14	Aluminum / Vinyl	1	1928	1312	1	5	1
6457	14	Aluminum / Vinyl	1	1924	1074	1	3	1
6458	14	Brick	1	1955	840	1	2	1
6459	14	Aluminum / Vinyl	1	1942	792	1	2	1
6460	14	Aluminum / Vinyl	1	1950	725	1	2	1
6461	14	Frame	1.5	1913	1610	1	4	2
6462	14	Aluminum / Vinyl	1.5	1894	1548	1	4	2
6463	14	Frame	2	1913	1544	1	4	1
6464	14	Aluminum / Vinyl	1	1925	1196	1	2	1
6465	14	Aluminum / Vinyl	1	1921	1122	1	3	1
6466	14	Aluminum / Vinyl	1	1924	850	1	1	1
6467	15	Brick	1	1921	2189	1	5	1
6468	1	Aluminum / Vinyl	1.5	1950	1401	1	4	1
6469	1	Aluminum / Vinyl	1.5	1969	1779	2	4	2
6470	1	Brick	1	1927	1507	1	3	1
6471	1	Aluminum / Vinyl	1	1950	672	1	2	1
6472	2	Brick	1	1954	1008	1	2	1

6473	2 Aluminum / Vinyl	2	1965	1970	2	6	2
6474	2 Brick	1	1956	1243	1	3	2
6475	2 Aluminum / Vinyl	1	1957	925	1	3	1
6476	3 Aluminum / Vinyl	2	1908	1496	2	4	2
6477	3 Stucco	2	1920	3037	1	5	3
6478	3 Frame	2	1892	2850	1	4	2
6479	3 Aluminum / Vinyl	2	1885	1235	1	3	1
6481	3 Frame	2	1903	3572	3	8	3
6482	3 Masonry / Frame	2	1922	3282	1	4	3
6483	4 Aluminum / Vinyl	2	1904	2191	2	5	2
6484	4 Aluminum / Vinyl	1.5	1891	2064	1	4	2
6485	5 Fiber-Cement	2	2006	2694	1	4	2
6486	5 Brick	1	1950	1832	1	4	2
6487	5 Stone	1	1952	1550	1	3	1
6488	5 Brick	1	1952	1502	1	3	1
6489	5 Aluminum / Vinyl	1	1949	1338	1	3	2
6490	5 Stone	1	1950	1223	1	2	1
6491	5 Masonry / Frame	2	1952	2027	1	4	2
6492	5 Brick	2	1967	2672	2	6	2
6493	5 Aluminum / Vinyl	1	1951	1619	1	3	1
6494	5 Brick	1	1967	1300	1	3	1
6495	5 Masonry / Frame	1	1957	1216	1	3	1
6496	5 Frame	1	1956	1131	1	3	1
6497	5 Brick	1	1962	1129	1	3	1
6498	5 Aluminum / Vinyl	1	1955	1095	1	3	1
6499	5 Aluminum / Vinyl	1	1950	1062	1	2	1
6500	5 Brick	1	1945	990	1	2	2
6501	5 Aluminum / Vinyl	1	1956	977	1	3	2
6502	5 Aluminum / Vinyl	1	1958	919	1	3	1
6503	5 Aluminum / Vinyl	1	1940	912	1	2	1
6504	5 Aluminum / Vinyl	1	1955	1489	1	3	2
6505	6 Fiber-Cement	1	1900	1524	1	3	2
6506	6 Aluminum / Vinyl	2	1880	2270	2	4	2
6507	6 Frame	1	1863	1652	1	2	2
6508	7 Aluminum / Vinyl	1	1940	1279	1	3	1
6509	7 Aluminum / Vinyl	1	1924	1110	1	2	1
6510	7 Aluminum / Vinyl	1.5	1925	2078	1	5	3
6511	7 Brick	1	1948	1152	1	3	1
6512	7 Aluminum / Vinyl	1	1974	1086	1	3	1
6513	8 Brick	1	1922	1626	1	3	1
6514	8 Aluminum / Vinyl	1	1913	1461	1	3	1
6515	9 Aluminum / Vinyl	1	1974	1695	1	4	2
6516	9 Aluminum / Vinyl	2	2001	1916	1	3	1

6517	9	Aluminum / Vinyl	1	1980	1218	1	3	2
6518	9	Brick	1	1957	1176	1	3	1
6519	9	Aluminum / Vinyl	1	1964	1132	1	3	2
6520	9	Frame	1	1968	1063	1	3	1
6521	9	Aluminum / Vinyl	1	1961	762	1	2	1
6522	10	Brick	1.5	1939	1608	1	3	2
6523	10	Brick	2	1941	1920	1	4	1
6524	10	Stucco	1.5	1921	2080	2	4	2
6525	10	Frame	1.5	1919	2010	2	4	2
6526	10	Aluminum / Vinyl	1.5	1925	1972	2	4	2
6527	10	Aluminum / Vinyl	1.5	1972	2122	2	5	2
6528	10	Aluminum / Vinyl	1	1951	768	1	2	1
6529	10	Aluminum / Vinyl	1	1951	707	1	2	1
6530	11	Stone	1.5	1948	1767	1	4	2
6531	11	Brick	1	1949	1150	1	2	1
6532	11	Frame	2	1919	1724	1	4	2
6533	11	Brick	1	1960	1227	1	3	1
6534	11	Masonry / Frame	1	1952	1216	1	3	1
6535	11	Aluminum / Vinyl	1	1963	1156	1	3	1
6536	11	Brick	1	1960	1016	1	3	1
6537	11	Brick	1	1954	1013	1	3	1
6538	11	Brick	1	1959	957	1	2	1
6539	11	Aluminum / Vinyl	1	1956	919	1	2	1
6540	11	Aluminum / Vinyl	1	1954	867	1	2	1
6541	13	Aluminum / Vinyl	1	1953	1373	1	3	1
6542	13	Aluminum / Vinyl	1	1951	1117	1	3	1
6543	13	Aluminum / Vinyl	2	2003	2271	1	4	3
6544	13	Aluminum / Vinyl	1.5	1967	2158	2	5	3
6545	13	Aluminum / Vinyl	1	1926	1348	1	4	1
6546	13	Aluminum / Vinyl	1	1926	1192	1	3	1
6547	13	Brick	1	1966	1666	1	3	1
6548	13	Brick	1	1974	1644	1	3	1
6549	13	Brick	1	1954	1346	1	3	2
6550	13	Brick	1	1958	1208	1	3	1
6551	13	Brick	1	1958	1074	1	3	2
6552	13	Aluminum / Vinyl	1	1958	1053	1	3	1
6553	13	Aluminum / Vinyl	1	1959	1041	1	3	1
6554	13	Aluminum / Vinyl	1	1915	1424	1	3	2
6555	14	Aluminum / Vinyl	1	1953	1222	1	4	1
6556	14	Stucco	2	1913	1441	1	3	1
6557	14	Frame	2	1947	1378	1	3	1
6558	14	Aluminum / Vinyl	1	1905	842	1	2	1
6559	14	Aluminum / Vinyl	1	1900	711	1	2	2

6560	14	Brick	1.5	1929	2510	2	4	2
6561	14	Brick	>2	1900	4634	2	4	2
6562	14	Aluminum / Vinyl	1.5	1911	1786	2	3	3
6563	14	Aluminum / Vinyl	1	1926	1711	1	5	2
6564	14	Aluminum / Vinyl	1	1923	1617	1	3	2
6565	14	Aluminum / Vinyl	1	1924	1143	1	3	1
6566	14	Aluminum / Vinyl	2	1900	1931	1	4	2
6567	14	Masonry / Frame	2	1935	1793	1	3	1
6568	14	Frame	2	1895	1673	1	4	1
6569	14	Aluminum / Vinyl	1.5	1891	1336	1	3	1
6571	14	Frame	2	1889	2885	3	5	3
6572	1	Aluminum / Vinyl	1.5	1924	1624	2	3	3
6573	1	Aluminum / Vinyl	2	1953	1824	2	6	2
6574	1	Aluminum / Vinyl	1	1927	1426	1	4	1
6575	1	Aluminum / Vinyl	1	1953	768	1	2	1
6576	1	Aluminum / Vinyl	1	1915	1371	1	4	1
6577	2	Brick	1.5	1952	1389	1	4	2
6578	2	Aluminum / Vinyl	1	1980	1198	1	3	2
6579	3	Brick	2	1919	2466	1	4	3
6580	3	Frame	2	1895	1872	2	4	2
6581	3	Fiber-Cement	1.5	1890	1796	2	4	2
6582	3	Frame	2	1910	1642	2	4	2
6583	3	Stucco	2	1912	2624	1	2	2
6584	3	Masonry / Frame	2	1906	2316	1	3	2
6585	3	Aluminum / Vinyl	2	1904	1790	1	4	2
6586	3	Frame	1.5	1891	1669	1	3	2
6587	3	Aluminum / Vinyl	1.5	1901	1427	1	3	2
6588	3	Aluminum / Vinyl	>2	2002	3654	3	>8	3
6589	3	Brick	2	1926	2817	1	5	3
6590	5	Stone	1.5	1949	1772	1	4	2
6591	5	Stone	1	1948	1333	1	3	1
6592	5	Aluminum / Vinyl	1	1952	1243	1	3	1
6593	5	Aluminum / Vinyl	1	1956	1210	1	3	1
6594	5	Aluminum / Vinyl	1	1953	1176	1	3	1
6595	5	Aluminum / Vinyl	1	1950	1171	1	3	1
6596	5	Aluminum / Vinyl	1	1949	1036	1	4	1
6597	5	Aluminum / Vinyl	1	1952	1011	1	3	1
6598	5	Brick	1	1950	847	1	2	1
6599	5	Prem Wood	2	1964	3042	1	4	2
6600	5	Masonry / Frame	2	1948	2448	1	5	3
6601	5	Aluminum / Vinyl	1	1964	1304	1	3	1
6602	5	Aluminum / Vinyl	1	1956	1132	1	3	1
6603	5	Brick	1	1956	1110	1	3	1

6604	5 Aluminum / Vinyl	1	1955	1084	1	3	2
6605	5 Aluminum / Vinyl	1	1956	1014	1	3	2
6606	5 Brick	1	1953	986	1	2	1
6607	5 Aluminum / Vinyl	1	1957	963	1	3	1
6608	5 Aluminum / Vinyl	1	1958	952	1	3	1
6609	5 Aluminum / Vinyl	1	1961	1826	1	3	2
6610	6 Aluminum / Vinyl	1.5	1909	1845	2	4	2
6611	7 Aluminum / Vinyl	1	1940	1581	1	4	1
6612	7 Stone	1	1937	1547	1	4	1
6613	8 Block	1	1951	1522	1	4	1
6614	8 Aluminum / Vinyl	1	1941	1135	1	3	1
6615	8 Aluminum / Vinyl	1.5	1887	1519	1	5	1
6616	8 Aluminum / Vinyl	1	1907	1008	1	3	1
6617	9 Aluminum / Vinyl	2	1961	2088	2	6	2
6618	9 Aluminum / Vinyl	1	1990	1751	1	4	2
6619	10 Stone	1	1940	1416	1	3	2
6620	10 Aluminum / Vinyl	1	1941	1170	1	3	1
6621	10 Aluminum / Vinyl	2	1900	2026	2	4	2
6622	10 Stucco	1	1915	1307	1	3	1
6623	10 Aluminum / Vinyl	1.5	1920	1093	1	3	1
6624	11 Brick	1	1953	1534	1	3	2
6625	11 Brick	1	1941	982	1	2	1
6626	11 Frame	2	1942	1792	1	3	1
6627	11 Masonry / Frame	2	1950	1754	1	3	1
6628	11 Masonry / Frame	2	1940	1470	1	3	1
6629	11 Brick	1.5	1957	1947	2	3	2
6630	11 Brick	1	1979	1717	1	3	2
6631	11 Brick	1	1959	1122	1	3	1
6632	11 Brick	1	1958	1114	1	3	1
6633	11 Aluminum / Vinyl	1	1956	1050	1	3	1
6634	11 Aluminum / Vinyl	1	1959	1033	1	3	1
6635	11 Frame	1	1959	936	1	3	1
6636	12 Aluminum / Vinyl	1.5	1897	1364	1	4	1
6637	12 Frame	2	1895	1455	2	5	2
6638	12 Frame	2	1890	2141	1	3	1
6639	13 Aluminum / Vinyl	1	1947	1348	1	4	2
6640	13 Aluminum / Vinyl	1	1958	1131	1	4	2
6641	13 Stucco	2	1938	1714	1	3	1
6642	13 Aluminum / Vinyl	1.5	1898	1596	2	4	2
6643	13 Aluminum / Vinyl	1	1929	1333	1	3	2
6644	13 Aluminum / Vinyl	1	1974	1361	1	3	1
6645	13 Aluminum / Vinyl	2	1875	1611	1	4	1
6646	13 Aluminum / Vinyl	1	1925	1470	1	3	2

6647	13	Brick	2	1972	2390	2	6	2
6648	14	Aluminum / Vinyl	1	1942	1306	1	3	1
6649	14	Aluminum / Vinyl	1	1946	1204	1	2	1
6650	14	Brick	1	1950	1187	1	3	1
6651	14	Stucco	1	1944	1174	1	4	2
6652	14	Aluminum / Vinyl	2	1909	2538	2	6	2
6653	14	Aluminum / Vinyl	1.5	1921	1782	1	5	2
6654	14	Aluminum / Vinyl	1	1927	1074	1	3	1
6655	14	Brick	1	1954	1716	1	3	2
6656	14	Aluminum / Vinyl	1	1947	826	1	2	1
6657	14	Aluminum / Vinyl	1	1950	735	1	2	1
6658	14	Aluminum / Vinyl	2	1890	2193	1	4	2
6659	14	Frame	1	1918	1117	1	3	1
6660	14	Aluminum / Vinyl	1.5	1922	929	1	2	2
6661	14	Brick	2	1954	1769	2	4	2
6662	15	Aluminum / Vinyl	1.5	1924	2189	2	3	2
6663	15	Frame	2	1890	1964	2	4	2
6664	1	Brick	1	1951	1535	1	4	2
6665	1	Aluminum / Vinyl	1	1943	704	1	2	1
6666	2	Brick	1	1940	1180	1	3	1
6667	2	Aluminum / Vinyl	1	1957	1306	1	4	2
6668	2	Aluminum / Vinyl	1	1964	1254	1	3	1
6669	2	Brick	1	1957	1155	1	3	1
6670	2	Brick	1	1957	942	1	3	1
6671	2	Aluminum / Vinyl	1	1958	936	1	3	1
6672	3	Brick	2	1926	3954	1	4	3
6673	3	Aluminum / Vinyl	2	1899	1961	1	4	1
6674	3	Frame	1	1895	1705	3	3	3
6675	5	Fiber-Cement	2	2003	2703	1	4	4
6676	5	Stone	1	1947	1538	1	3	2
6677	5	Aluminum / Vinyl	1	1952	1444	1	4	1
6678	5	Aluminum / Vinyl	1.5	1956	1194	1	4	2
6679	5	Aluminum / Vinyl	1	1953	1074	1	3	1
6680	5	Aluminum / Vinyl	2	1964	1988	2	6	2
6681	5	Aluminum / Vinyl	1	1956	1324	1	3	1
6682	5	Brick	1	1955	1149	1	3	2
6683	5	Aluminum / Vinyl	1	1954	933	1	3	1
6684	5	Stone	1.5	1936	1552	1	3	1
6685	6	Frame	1	1900	1320	1	2	1
6686	6	Aluminum / Vinyl	1	1884	880	1	2	1
6687	7	Stone	1	1938	1460	1	4	2
6688	7	Stone	2	1935	2007	1	4	1
6689	8	Aluminum / Vinyl	1	1896	1189	1	3	1

6690	9 Aluminum / Vinyl	2	2012	2600	1	4	3
6691	9 Aluminum / Vinyl	1	1980	1505	1	3	1
6692	9 Frame	1	1966	1315	1	3	1
6693	9 Aluminum / Vinyl	1	1958	1217	1	3	1
6694	10 Aluminum / Vinyl	1	1951	998	1	3	1
6695	10 Frame	1	1948	928	1	3	2
6696	10 Brick	2	1914	2698	1	4	2
6697	10 Aluminum / Vinyl	2	1925	2480	2	6	2
6698	10 Aluminum / Vinyl	2	1928	2170	2	4	2
6699	10 Aluminum / Vinyl	1.5	1927	1964	2	4	2
6700	10 Brick	1	1955	2666	2	7	3
6701	10 Stucco	1	1919	2054	1	4	2
6702	10 Aluminum / Vinyl	1	1926	1398	1	3	1
6703	10 Aluminum / Vinyl	2	1908	1886	1	3	1
6704	10 Aluminum / Vinyl	1.5	1924	1445	1	3	1
6705	10 Aluminum / Vinyl	1.5	1926	1169	1	2	2
6706	10 Frame	1	1926	1018	1	3	1
6707	10 Brick	1.5	1914	3040	3	4	3
6708	11 Aluminum / Vinyl	1	1941	1617	1	4	2
6709	11 Stucco	1	1942	1330	1	3	1
6710	11 Aluminum / Vinyl	1	1948	934	1	3	1
6711	11 Aluminum / Vinyl	1.5	1960	2114	2	5	2
6712	11 Aluminum / Vinyl	1	1980	1463	1	3	1
6713	11 Frame	1	1961	1358	1	3	1
6714	11 Aluminum / Vinyl	1	1953	1088	1	3	1
6715	11 Brick	1	1950	1014	1	3	1
6716	11 Aluminum / Vinyl	1	1961	1007	1	3	1
6717	11 Brick	1	1955	924	1	3	1
6718	11 Aluminum / Vinyl	1	1953	906	1	2	1
6719	11 Brick	1	1949	863	1	2	1
6720	11 Stucco	1	1927	1147	1	3	1
6721	11 Masonry / Frame	1	1958	1537	1	3	1
6722	11 Brick	2	1933	1572	1	3	1
6723	12 Aluminum / Vinyl	1	1891	1512	1	6	2
6724	12 Frame	2	1890	2698	1	4	2
6725	12 Aluminum / Vinyl	1	1901	1058	1	2	1
6727	13 Brick	1	1960	1569	1	3	2
6728	13 Frame	1.5	1928	1654	1	4	2
6729	13 Aluminum / Vinyl	1	1950	1305	1	3	1
6730	13 Aluminum / Vinyl	1	1969	1132	1	3	2
6731	13 Aluminum / Vinyl	1	1942	808	1	2	1
6732	14 Aluminum / Vinyl	2	1939	1170	1	2	1
6733	14 Brick	1.5	1926	2154	2	5	2

6734	14 Aluminum / Vinyl	1.5	1908	1667	2	3	3
6735	14 Aluminum / Vinyl	2	1919	1616	2	4	2
6736	14 Aluminum / Vinyl	1	1929	1658	1	3	2
6737	14 Aluminum / Vinyl	1	1928	1209	1	3	1
6738	14 Brick	1	1956	1140	1	3	1
6739	14 Stucco	1	1944	784	1	2	1
6740	14 Aluminum / Vinyl	1	1942	753	1	2	1
6741	14 Aluminum / Vinyl	2	1890	1487	1	3	2
6742	14 Aluminum / Vinyl	1	1888	1320	1	2	1
6743	14 Aluminum / Vinyl	1	1898	1074	1	2	1
6744	14 Aluminum / Vinyl	1	1905	1048	1	3	2
6745	14 Aluminum / Vinyl	1	1905	748	1	2	1
6746	15 Aluminum / Vinyl	2	1902	2650	2	6	2
6747	1 Aluminum / Vinyl	1	1942	1198	1	4	2
6748	1 Aluminum / Vinyl	1	1951	1027	1	4	1
6749	1 Aluminum / Vinyl	2	1981	2143	2	5	2
6750	1 Aluminum / Vinyl	1	1953	1082	1	3	2
6751	2 Brick	1	1938	1395	1	3	2
6752	2 Aluminum / Vinyl	2	1961	1652	1	3	1
6753	2 Aluminum / Vinyl	2	1956	2265	2	6	2
6754	2 Aluminum / Vinyl	2	1940	1762	2	4	2
6755	2 Aluminum / Vinyl	1	1955	1404	1	4	2
6756	2 Aluminum / Vinyl	1	1949	820	1	2	1
6757	2 Aluminum / Vinyl	1	1955	1414	1	3	1
6758	3 Aluminum / Vinyl	2	1922	2771	2	6	2
6759	3 Aluminum / Vinyl	2	1897	2468	2	4	3
6760	3 Aluminum / Vinyl	2	1907	2130	1	5	1
6761	3 Brick	2	1909	3821	1	5	3
6762	3 Brick	2	1927	3234	1	4	3
6763	4 Aluminum / Vinyl	2	1925	2414	2	4	2
6764	4 Brick	>2	1905	8810	1	>8	>4
6765	5 Aluminum / Vinyl	1	1952	1360	1	3	2
6766	5 Aluminum / Vinyl	1	1957	1231	1	4	2
6767	5 Aluminum / Vinyl	1	1950	1152	1	4	1
6768	5 Brick	1	1946	1148	1	3	1
6769	5 Aluminum / Vinyl	1	1952	1092	1	4	2
6770	5 Aluminum / Vinyl	1	1952	1009	1	3	1
6771	5 Aluminum / Vinyl	2	1953	2063	2	6	2
6772	5 Brick	1	1960	1757	1	3	2
6773	5 Brick	1	1957	1340	1	3	1
6774	5 Brick	1	1956	1222	1	3	1
6775	5 Brick	1	1954	1150	1	3	1
6776	5 Aluminum / Vinyl	1	1951	1073	1	3	1

6777	5 Aluminum / Vinyl	1	1956	999	1	3	1
6778	5 Aluminum / Vinyl	1	1955	991	1	3	1
6779	5 Aluminum / Vinyl	1	1958	960	1	3	1
6780	5 Aluminum / Vinyl	1	1950	909	1	3	1
6781	5 Aluminum / Vinyl	1	1951	899	1	2	1
6782	5 Aluminum / Vinyl	1.5	1928	1622	1	3	2
6783	5 Masonry / Frame	2	1983	2641	2	6	2
6784	6 Aluminum / Vinyl	1.5	1909	1983	2	6	2
6785	6 Aluminum / Vinyl	1.5	1904	1549	1	4	1
6786	6 Frame	1	1922	1461	1	2	1
6788	7 Stone	1	1939	1714	1	3	1
6789	7 Brick	1	1927	1804	1	5	2
6790	8 Aluminum / Vinyl	2	1911	2408	2	6	2
6791	8 Aluminum / Vinyl	2	1927	1668	1	3	1
6792	8 Masonry / Frame	2	1909	2714	1	5	1
6793	8 Brick	1	1900	1399	1	3	1
6794	8 Aluminum / Vinyl	2	1924	1249	1	3	1
6795	8 Aluminum / Vinyl	1	1929	1152	1	3	1
6796	8 Aluminum / Vinyl	1	1900	2344	3	5	3
6797	9 Aluminum / Vinyl	2	2008	2224	1	4	2
6798	9 Frame	2	1963	2007	1	5	2
6799	10 Aluminum / Vinyl	1	1951	975	1	3	1
6800	10 Frame	2	1920	2063	1	4	1
6801	10 Aluminum / Vinyl	1	1930	1333	1	3	2
6802	10 Brick	1	1928	1298	1	3	1
6803	10 Aluminum / Vinyl	1	1953	704	1	2	1
6804	10 Aluminum / Vinyl	1	1923	1129	1	4	1
6806	10 Masonry / Frame	2	1933	2514	2	6	2
6807	11 Brick	1	1945	1243	1	3	1
6808	11 Aluminum / Vinyl	1	1953	1103	1	3	1
6809	11 Aluminum / Vinyl	1	1942	1000	1	3	1
6810	11 Aluminum / Vinyl	1	1937	917	1	2	1
6811	11 Prem Wood	2	1990	2238	1	4	2
6812	11 Aluminum / Vinyl	1	1928	984	1	3	1
6813	11 Brick	1	1967	1177	1	3	1
6814	11 Brick	1	1957	1131	1	3	1
6815	11 Aluminum / Vinyl	1	1957	1090	1	3	2
6816	11 Aluminum / Vinyl	1	1960	1077	1	3	1
6817	11 Brick	1	1955	947	1	3	1
6818	11 Aluminum / Vinyl	1	1929	1190	1	4	1
6819	12 Frame	1.5	1900	1810	1	3	2
6820	12 Aluminum / Vinyl	1	1903	1690	2	4	2
6821	13 Stone	1	1940	1251	1	4	2

6822	13	Masonry / Frame	2	1976	3014	1	4	2
6823	13	Aluminum / Vinyl	2	1953	1842	1	3	1
6824	13	Brick	2	1936	1770	1	3	1
6825	13	Brick	1	1965	1491	1	3	1
6826	13	Brick	1	1960	1082	1	3	1
6827	13	Aluminum / Vinyl	1	1936	893	1	3	1
6828	13	Frame	1.5	1900	1231	1	3	2
6829	14	Aluminum / Vinyl	1	1953	1129	1	3	1
6830	14	Aluminum / Vinyl	1.5	1924	1809	2	4	2
6831	14	Aluminum / Vinyl	1.5	1926	1800	2	3	2
6832	14	Aluminum / Vinyl	2	1920	2208	2	4	2
6834	14	Aluminum / Vinyl	1	1905	1130	1	3	1
6835	14	Brick	1	1948	684	1	2	1
6836	14	Frame	1.5	1900	1563	1	3	1
6837	14	Aluminum / Vinyl	1	1910	1003	1	3	1
6838	14	Stucco	1.5	1940	1453	1	3	1
6839	15	Aluminum / Vinyl	2	2012	1854	1	4	2
6840	15	Aluminum / Vinyl	2	1900	2264	2	6	2
6841	15	Frame	2	1892	2464	2	6	2
6842	1	Brick	1	1948	1248	1	3	1
6843	1	Brick	1	1951	1143	1	3	1
6844	1	Aluminum / Vinyl	1	1949	1041	1	3	1
6845	1	Masonry / Frame	2	1940	1684	1	3	1
6846	1	Frame	1	1907	544	1	1	1
6847	1	Aluminum / Vinyl	1	1955	1082	1	3	1
6848	1	Aluminum / Vinyl	1	1955	1082	1	3	1
6849	2	Brick	1	1955	1290	1	4	1
6850	2	Aluminum / Vinyl	1	1956	1286	1	4	1
6851	2	Aluminum / Vinyl	2	1964	1778	1	4	1
6852	2	Frame	1	1966	1237	1	3	1
6853	2	Brick	1	1956	1097	1	3	1
6854	2	Frame	1	1955	970	1	3	1
6855	2	Aluminum / Vinyl	1	1956	905	1	3	2
6856	3	Brick	1	1956	1469	1	3	1
6857	3	Aluminum / Vinyl	1.5	1900	1421	1	2	1
6858	3	Aluminum / Vinyl	2	1910	4435	2	8	3
6859	3	Frame	2	1900	2520	2	6	3
6860	3	Aluminum / Vinyl	2	1902	2112	2	5	2
6861	3	Aluminum / Vinyl	1.5	1900	1456	2	4	2
6862	3	Aluminum / Vinyl	2	1880	1952	2	4	2
6863	3	Brick	2	1911	4113	1	5	4
6864	3	Frame	2	1904	3555	1	5	2
6865	3	Frame	2	1897	3373	1	4	4

6866	3	Stucco	2	1908	2582	1	3	2
6867	3	Aluminum / Vinyl	2	1904	2345	1	4	3
6868	3	Frame	2	1899	2340	1	5	2
6869	3	Brick	1.5	1941	1368	1	2	1
6870	4	Aluminum / Vinyl	2	1977	1253	1	4	1
6871	4	Frame	2	1892	2080	2	4	2
6872	5	Frame	1	1950	1484	1	4	2
6873	5	Brick	1.5	1948	1885	1	4	2
6874	5	Aluminum / Vinyl	1	1941	1238	1	3	2
6875	5	Aluminum / Vinyl	1.5	1950	1231	1	3	1
6876	5	Aluminum / Vinyl	1	1951	1218	1	3	1
6877	5	Brick	1	1951	1133	1	2	1
6878	5	Aluminum / Vinyl	2	1979	2137	1	4	2
6879	5	Aluminum / Vinyl	2	1942	1088	1	2	1
6880	5	Brick	2	1957	2744	2	6	3
6881	5	Aluminum / Vinyl	2	2012	3027	1	3	3
6882	5	Aluminum / Vinyl	1	1969	1569	1	3	1
6883	5	Aluminum / Vinyl	1	1956	1405	1	3	1
6884	5	Brick	1	1952	1316	1	4	1
6885	5	Aluminum / Vinyl	1	1976	1287	1	3	1
6886	5	Brick	1	1953	1108	1	3	1
6887	5	Aluminum / Vinyl	1	1956	1077	1	3	1
6888	5	Brick	1	1949	1053	1	2	1
6889	5	Aluminum / Vinyl	1	1950	950	1	2	1
6890	5	Aluminum / Vinyl	1	1954	940	1	2	2
6891	5	Aluminum / Vinyl	1	1956	864	1	2	1
6892	5	Brick	2	1910	1848	1	3	1
6893	6	Aluminum / Vinyl	1.5	1917	1786	2	4	2
6894	6	Aluminum / Vinyl	2	1899	2374	2	5	2
6895	6	Aluminum / Vinyl	1	1925	1355	1	3	1
6896	6	Aluminum / Vinyl	1	1894	1070	1	3	1
6897	6	Frame	1	1926	833	1	2	1
6898	7	Aluminum / Vinyl	1.5	1940	949	1	2	1
6899	7	Brick	2	1923	3069	2	6	2
6900	7	Brick	1	1937	1737	1	4	1
6901	7	Aluminum / Vinyl	1	1926	1512	1	4	2
6902	8	Aluminum / Vinyl	1	1955	966	1	3	1
6903	8	Aluminum / Vinyl	1.5	1905	1367	1	3	1
6904	9	Aluminum / Vinyl	1	2008	1971	1	3	2
6905	9	Aluminum / Vinyl	1	1980	1505	1	3	1
6906	9	Brick	1	1958	1166	1	3	1
6907	9	Aluminum / Vinyl	1	1957	1110	1	3	2
6908	9	Aluminum / Vinyl	2	1977	2613	2	6	2

6909	9	Aluminum / Vinyl	2	1979	2290	2	6	2
6910	10	Stucco	1	1947	1389	1	4	1
6911	10	Masonry / Frame	1	1952	1335	1	4	2
6912	10	Aluminum / Vinyl	1	1952	1050	1	3	1
6913	10	Aluminum / Vinyl	1	1948	1012	1	3	1
6914	10	Aluminum / Vinyl	1	1948	982	1	3	1
6915	10	Brick	2	1918	3306	1	4	2
6916	10	Brick	2	1935	1692	1	4	2
6917	10	Aluminum / Vinyl	1	1920	680	1	1	1
6918	10	Masonry / Frame	2	1942	1766	2	4	2
6919	10	Frame	2	1957	2132	2	6	2
6920	10	Masonry / Frame	2	1957	1993	2	6	2
6921	10	Aluminum / Vinyl	1	1955	1038	1	3	1
6922	10	Stucco	2	1914	2520	1	4	1
6923	11	Brick	1	1940	1578	1	3	2
6924	11	Aluminum / Vinyl	1	1952	1389	1	3	1
6925	11	Stucco	1	1948	1382	1	3	1
6926	11	Aluminum / Vinyl	1.5	1947	1221	1	4	1
6927	11	Brick	1	1954	1183	1	3	1
6928	11	Aluminum / Vinyl	1	1939	1118	1	3	1
6929	11	Aluminum / Vinyl	1	1949	900	1	3	1
6930	11	Aluminum / Vinyl	2	1922	1410	1	3	1
6931	11	Brick	1.5	1929	1924	2	3	2
6932	11	Brick	1.5	1931	1789	1	3	2
6933	11	Fiber-Cement	1	2002	2344	1	4	3
6934	11	Brick	1	1956	1236	1	4	1
6935	11	Brick	1	1956	1188	1	3	1
6936	11	Aluminum / Vinyl	1	1963	1184	1	3	2
6937	11	Brick	1	1960	1138	1	3	1
6938	11	Brick	1	1949	1037	1	3	1
6939	11	Aluminum / Vinyl	1	1960	1036	1	3	1
6940	11	Aluminum / Vinyl	1	1955	984	1	3	1
6941	11	Aluminum / Vinyl	1	1953	908	1	3	1
6942	12	Aluminum / Vinyl	2	2012	2016	1	4	3
6943	12	Aluminum / Vinyl	1	1881	1260	1	3	1
6944	12	Aluminum / Vinyl	1	1921	1369	1	3	1
6945	12	Aluminum / Vinyl	1	1900	1518	1	3	1
6946	13	Aluminum / Vinyl	1.5	1996	3701	1	5	3
6947	13	Aluminum / Vinyl	1.5	1991	2300	1	3	2
6948	13	Aluminum / Vinyl	1	1939	1149	1	3	1
6949	13	Aluminum / Vinyl	1	1948	1019	1	3	1
6950	13	Aluminum / Vinyl	2	2001	2190	1	3	2
6951	13	Brick	2	1949	1414	1	3	1

6952	13	Aluminum / Vinyl	2	1958	2044	2	6	2
6953	13	Brick	2	1946	2000	2	4	2
6954	13	Brick	1	1959	1276	1	3	1
6955	13	Aluminum / Vinyl	1	1954	1216	1	2	2
6956	13	Brick	1	1961	1036	1	3	1
6957	13	Brick	1	1959	988	1	3	2
6958	13	Frame	1	1952	948	1	2	1
6959	13	Aluminum / Vinyl	1	1959	919	1	3	1
6960	13	Aluminum / Vinyl	1	1954	768	1	3	1
6961	13	Masonry / Frame	1	1959	1841	1	3	2
6962	14	Aluminum / Vinyl	1	1942	1307	1	3	1
6963	14	Aluminum / Vinyl	1	1956	1415	1	4	2
6964	14	Aluminum / Vinyl	1	1900	1406	1	2	2
6965	14	Frame	1.5	1900	1349	1	3	1
6966	14	Aluminum / Vinyl	1.5	1918	1045	1	1	1
6967	14	Aluminum / Vinyl	1.5	1901	1916	2	4	1
6968	14	Aluminum / Vinyl	2	1914	1672	2	4	1
6969	14	Brick	1	1928	1145	1	3	1
6970	14	Aluminum / Vinyl	1	1930	1144	1	3	2
6971	14	Fiber-Cement	1	1924	1132	1	2	1
6972	14	Frame	1	1988	1365	1	3	2
6973	14	Aluminum / Vinyl	1.5	1907	1641	1	3	2
6974	14	Aluminum / Vinyl	1.5	1895	1519	1	4	1
6975	14	Aluminum / Vinyl	1.5	1923	1175	1	3	2
6976	14	Masonry / Frame	1	1962	1921	1	2	1
6977	15	Frame	2	1914	2545	2	6	2
6978	1	Frame	1	1942	1057	1	3	2
6979	1	Aluminum / Vinyl	1	1951	971	1	4	1
6980	1	Brick	2	1953	1680	2	4	2
6981	1	Brick	2	1953	1680	2	4	2
6982	1	Frame	1	1929	1274	1	3	1
6983	1	Aluminum / Vinyl	1	1925	937	1	2	1
6984	2	Aluminum / Vinyl	1	1952	1019	1	3	1
6985	2	Brick	1	1955	1619	1	3	2
6986	2	Aluminum / Vinyl	1	1955	1356	1	3	2
6987	2	Stone	1	1954	1164	1	3	1
6988	2	Brick	1	1958	1139	1	3	1
6989	2	Stone	1	1953	1024	1	3	1
6990	2	Aluminum / Vinyl	1	1960	1002	1	3	2
6991	2	Aluminum / Vinyl	1	1955	900	1	3	2
6992	3	Brick	2	1922	2242	1	4	2
6993	3	Brick	2	1916	2188	1	3	2
6994	3	Aluminum / Vinyl	2	1901	2020	2	5	2

6995	3 Aluminum / Vinyl	2	1908	1496	2	4	2
6996	3 Aluminum / Vinyl	1	1927	1530	1	4	2
6997	3 Brick	2	1912	3973	2	4	3
6998	3 Aluminum / Vinyl	2	1902	3480	1	6	2
6999	3 Aluminum / Vinyl	2	1898	3222	1	6	2
7000	3 Frame	2	1899	2383	1	5	2
7001	3 Fiber-Cement	1.5	1889	2174	1	4	2
7002	3 Frame	2	1905	2141	1	3	2
7003	3 Aluminum / Vinyl	1.5	1928	1736	1	4	2
7004	3 Aluminum / Vinyl	1.5	1903	1510	1	3	2
7005	3 Frame	1	1890	1488	1	3	2
7006	3 Aluminum / Vinyl	2	1888	1378	1	3	1
7007	3 Frame	1.5	1900	1257	1	3	1
7008	3 Aluminum / Vinyl	2	1912	2486	3	5	3
7009	3 Brick	1.5	1914	3791	1	3	>4
7010	4 Aluminum / Vinyl	2	1894	2699	2	6	2
7011	5 Aluminum / Vinyl	1.5	1942	1737	1	4	2
7012	5 Brick	1	1950	1720	1	3	2
7013	5 Aluminum / Vinyl	1.5	1949	1511	1	3	2
7014	5 Brick	1.5	1947	1473	1	4	2
7015	5 Brick	1	1947	1368	1	4	1
7016	5 Brick	1.5	1937	1364	1	3	1
7017	5 Aluminum / Vinyl	1.5	1949	1357	1	4	2
7018	5 Stone	1	1950	1140	1	2	1
7019	5 Aluminum / Vinyl	1	1954	1130	1	4	1
7020	5 Aluminum / Vinyl	1	1952	1092	1	4	2
7021	5 Aluminum / Vinyl	1	1951	1041	1	3	1
7022	5 Aluminum / Vinyl	1	1949	1029	1	4	1
7023	5 Aluminum / Vinyl	1	1952	977	1	3	1
7024	5 Aluminum / Vinyl	2	1986	2069	1	3	2
7025	5 Masonry / Frame	2	2010	1441	1	3	2
7026	5 Masonry / Frame	2	1956	2240	2	6	3
7027	5 Aluminum / Vinyl	1	1971	2048	2	4	4
7028	5 Brick	1	1955	1320	1	3	1
7029	5 Aluminum / Vinyl	1	1962	1255	1	3	1
7030	5 Stone	1	1953	1254	1	2	1
7031	5 Masonry / Frame	1	1957	1247	1	3	1
7032	5 Aluminum / Vinyl	1	1962	1080	1	3	1
7033	5 Brick	1	1956	964	1	3	1
7034	5 Aluminum / Vinyl	1	1953	864	1	3	1
7035	5 Aluminum / Vinyl	1	1950	728	1	2	1
7036	6 Fiber-Cement	2	2007	2685	1	4	2
7037	6 Aluminum / Vinyl	2	2007	1584	1	3	3

7038	6 Aluminum / Vinyl	2	2007	1584	1	3	3
7039	6 Aluminum / Vinyl	1.5	1925	1661	2	4	2
7040	6 Aluminum / Vinyl	2	1913	1976	2	4	2
7041	6 Aluminum / Vinyl	1.5	1905	1960	2	4	2
7042	6 Frame	1.5	1917	1447	2	4	2
7043	6 Aluminum / Vinyl	2	1895	2092	2	5	3
7044	6 Brick	2	1897	3868	1	4	3
7045	6 Aluminum / Vinyl	1	1890	953	1	3	1
7046	7 Masonry / Frame	2	1946	1475	1	3	2
7047	7 Brick	1	1927	1815	1	4	3
7048	7 Stucco	1	1919	1521	1	4	1
7049	7 Aluminum / Vinyl	1	1913	1149	1	3	1
7050	7 Stone	1	1947	1363	1	4	2
7051	7 Aluminum / Vinyl	1	1955	976	1	3	1
7052	8 Frame	1.5	1900	1426	2	3	2
7053	8 Frame	1	1892	1188	2	3	2
7054	8 Stucco	1.5	1914	1267	1	3	2
7055	8 Aluminum / Vinyl	1	1925	947	1	3	1
7056	8 Aluminum / Vinyl	1	1895	1320	1	4	1
7057	9 Aluminum / Vinyl	2	1957	2052	2	6	2
7058	9 Aluminum / Vinyl	1	1968	1422	1	3	1
7059	9 Aluminum / Vinyl	1	1957	1052	1	3	2
7060	10 Brick	1.5	1937	1584	1	3	1
7061	10 Brick	1	1953	1368	1	3	1
7062	10 Aluminum / Vinyl	1	1949	1343	1	4	1
7063	10 Brick	1	1946	1150	1	3	2
7064	10 Aluminum / Vinyl	1	1949	974	1	3	1
7065	10 Frame	2	1925	1588	1	3	1
7066	10 Aluminum / Vinyl	2	1952	1473	1	3	1
7067	10 Stone	2	1940	2595	2	4	2
7068	10 Brick	1.5	1928	2108	2	5	2
7069	10 Aluminum / Vinyl	1.5	1925	1355	2	3	2
7070	10 Stucco	1	1925	1900	1	5	1
7071	10 Brick	1	1927	1807	1	3	1
7072	10 Aluminum / Vinyl	1	1924	1670	1	3	1
7073	10 Brick	1	1927	1593	1	4	1
7074	10 Aluminum / Vinyl	1	1921	1310	1	4	1
7075	10 Aluminum / Vinyl	1	1953	864	1	3	2
7076	10 Aluminum / Vinyl	1	1953	753	1	2	1
7077	10 Aluminum / Vinyl	2	1924	2071	3	2	3
7078	11 Aluminum / Vinyl	1.5	1942	1674	1	4	2
7079	11 Aluminum / Vinyl	1	1949	1257	1	3	1
7080	11 Aluminum / Vinyl	1	1942	1163	1	3	1

7081	11 Aluminum / Vinyl	1	1942	1134	1	3	1
7082	11 Brick	2	1946	1437	1	3	1
7083	11 Aluminum / Vinyl	1	1936	1374	1	2	2
7084	11 Aluminum / Vinyl	1	1956	1151	1	3	1
7085	11 Aluminum / Vinyl	1	1953	1144	1	3	2
7086	11 Brick	1	1955	1062	1	2	1
7087	11 Aluminum / Vinyl	1	1956	1054	1	2	1
7088	11 Brick	1	1958	1052	1	3	1
7089	11 Aluminum / Vinyl	1	1949	1032	1	2	1
7090	11 Brick	1	1956	994	1	3	1
7091	11 Block	1	1949	857	1	2	1
7092	11 Stone	1	1945	806	1	2	1
7093	11 Masonry / Frame	1	1965	2947	1	3	2
7094	12 Aluminum / Vinyl	2	1913	2148	2	6	2
7095	12 Aluminum / Vinyl	2	1914	1854	2	4	2
7096	12 Brick	>2	1894	3001	1	3	2
7098	13 Brick	1	1951	1419	1	3	2
7099	13 Aluminum / Vinyl	1	1948	977	1	3	1
7100	13 Brick	1.5	1931	2151	2	4	2
7101	13 Aluminum / Vinyl	1.5	1926	1950	2	5	2
7102	13 Brick	2	1952	2080	2	4	2
7103	13 Brick	1	1966	1302	1	3	2
7104	13 Brick	1	1960	1201	1	2	2
7105	13 Frame	1	1961	998	1	3	1
7106	13 Brick	1	1969	964	1	2	1
7107	13 Aluminum / Vinyl	1	1959	936	1	3	1
7108	13 Aluminum / Vinyl	1	1939	921	1	2	1
7109	13 Aluminum / Vinyl	1	1939	845	1	2	1
7110	13 Frame	1	1950	818	1	2	1
7111	13 Aluminum / Vinyl	1	1947	771	1	2	1
7112	13 Aluminum / Vinyl	1	1914	828	1	1	1
7113	13 Masonry / Frame	2	1965	2222	2	6	2
7114	14 Aluminum / Vinyl	1	1938	1140	1	3	1
7115	14 Aluminum / Vinyl	2	1939	1212	1	3	1
7116	14 Aluminum / Vinyl	2	1919	2075	2	5	2
7117	14 Brick	2	1956	2160	2	4	2
7118	14 Frame	2	1921	1935	2	4	2
7119	14 Aluminum / Vinyl	1.5	1900	1824	2	3	2
7120	14 Aluminum / Vinyl	1	1944	1624	2	4	2
7121	14 Brick	1	1929	1878	1	4	3
7122	14 Aluminum / Vinyl	1.5	1925	1845	1	3	2
7123	14 Aluminum / Vinyl	1	1925	1518	1	4	1
7124	14 Aluminum / Vinyl	1	1927	1448	1	3	1

7125	14 Aluminum / Vinyl	1	1928	1244	1	3	1
7126	14 Aluminum / Vinyl	1	1926	1172	1	2	1
7127	14 Aluminum / Vinyl	1	1943	707	1	2	1
7128	14 Aluminum / Vinyl	1.5	1891	1623	1	3	2
7129	14 Aluminum / Vinyl	1.5	1896	1441	1	4	2
7130	14 Aluminum / Vinyl	1.5	1920	1415	1	4	2
7131	14 Aluminum / Vinyl	1.5	1900	1205	1	3	1
7132	14 Aluminum / Vinyl	1	1890	1154	1	3	2
7133	14 Aluminum / Vinyl	1	1910	1044	1	3	2
7134	14 Fiber-Cement	1	1900	972	1	2	1
7135	14 Block	2	1915	3186	3	8	3
7136	15 Brick	2	1913	2333	1	5	1
7137	15 Aluminum / Vinyl	1.5	1919	1797	2	4	2
7138	15 Aluminum / Vinyl	1.5	1919	1797	2	4	2
7139	15 Fiber-Cement	1	2010	2008	1	4	2
7140	1 Aluminum / Vinyl	1	1951	1309	1	3	1
7141	1 Aluminum / Vinyl	1.5	1926	1863	2	3	2
7142	1 Fiber-Cement	1	1942	796	1	2	1
7143	2 Aluminum / Vinyl	1	1958	1136	1	3	1
7144	2 Aluminum / Vinyl	1	1955	1070	1	3	1
7145	2 Aluminum / Vinyl	1	1939	1013	1	3	1
7146	2 Stone	2	1948	1847	1	4	1
7147	2 Aluminum / Vinyl	2	1947	1124	1	4	2
7148	2 Frame	1.5	1956	2138	2	5	2
7149	2 Aluminum / Vinyl	1	1964	1306	1	4	1
7150	2 Brick	1	1960	1260	1	3	1
7151	2 Masonry / Frame	1	1961	1246	1	3	1
7152	2 Brick	1	1959	1135	1	3	1
7153	2 Aluminum / Vinyl	1	1957	945	1	3	1
7154	2 Aluminum / Vinyl	1	1959	938	1	3	1
7155	2 Aluminum / Vinyl	1	1957	909	1	3	1
7156	2 Stone	1	1954	842	1	2	2
7157	3 Brick	2	1916	4075	1	5	3
7158	3 Aluminum / Vinyl	2	1924	2432	2	4	2
7159	3 Masonry / Frame	2	1902	6733	1	>8	>4
7160	3 Brick	2	1906	5977	1	7	>4
7161	3 Frame	1.5	1921	2101	1	4	2
7162	3 Brick	1	1924	2080	1	3	2
7163	3 Aluminum / Vinyl	1	1925	1607	1	3	2
7164	3 Brick	2	1912	4304	1	4	3
7165	3 Aluminum / Vinyl	2	1902	1476	1	3	1
7166	3 Aluminum / Vinyl	1	1904	1417	1	3	2
7167	3 Aluminum / Vinyl	1.5	1900	1307	1	3	2

7168	3	Masonry / Frame	2	1926	2388	1	4	2
7169	4	Brick	2	1906	3035	2	6	2
7170	4	Frame	2	1890	3040	1	4	2
7171	5	Aluminum / Vinyl	1	1971	1746	1	4	1
7172	5	Aluminum / Vinyl	1.5	1955	1874	1	4	2
7173	5	Brick	1	1947	1613	1	4	2
7174	5	Stone	1	1952	1560	1	3	2
7175	5	Stone	1	1939	1522	1	3	2
7176	5	Brick	1	1948	1520	1	3	2
7177	5	Brick	1	1951	1511	1	3	1
7178	5	Aluminum / Vinyl	1.5	1949	1485	1	3	2
7179	5	Aluminum / Vinyl	1	1952	1445	1	3	2
7180	5	Brick	1	1951	1442	1	4	2
7181	5	Brick	1	1947	1440	1	3	2
7182	5	Frame	1	1948	1383	1	4	1
7183	5	Brick	1	1949	1372	1	3	1
7184	5	Aluminum / Vinyl	1.5	1950	1269	1	3	2
7185	5	Aluminum / Vinyl	1	1951	1192	1	3	1
7186	5	Brick	1	1951	1169	1	4	1
7187	5	Aluminum / Vinyl	1	1952	1144	1	4	1
7188	5	Aluminum / Vinyl	1	1942	1128	1	4	1
7189	5	Aluminum / Vinyl	1	1948	1051	1	3	1
7190	5	Aluminum / Vinyl	1	1949	1036	1	3	1
7191	5	Aluminum / Vinyl	1	1949	926	1	3	1
7192	5	Brick	1	1947	897	1	2	1
7193	5	Fiber-Cement	2	2005	3214	1	4	3
7194	5	Aluminum / Vinyl	2	1988	1800	1	3	1
7195	5	Brick	2	1949	1650	1	3	1
7196	5	Aluminum / Vinyl	2	1948	1493	1	3	1
7197	5	Stone	1	1952	1856	1	3	1
7198	5	Aluminum / Vinyl	1	1980	1768	1	3	2
7199	5	Aluminum / Vinyl	1	1969	1627	1	3	2
7200	5	Brick	1	1957	1339	1	3	1
7201	5	Brick	1	1956	1338	1	3	2
7202	5	Aluminum / Vinyl	1	1976	1236	1	3	1
7203	5	Brick	1	1952	1204	1	2	1
7204	5	Aluminum / Vinyl	1	1981	1176	1	3	1
7205	5	Brick	1	1961	1126	1	3	1
7206	5	Aluminum / Vinyl	1	1956	1094	1	3	1
7207	5	Aluminum / Vinyl	1	1951	1078	1	3	1
7208	5	Brick	1	1957	1076	1	3	1
7209	5	Brick	1	1959	1050	1	3	2
7210	5	Brick	1	1956	1020	1	3	1

7211	5	Aluminum / Vinyl	1	1952	720	1	2	1
7212	5	Brick	1	1931	1467	1	4	1
7213	5	Brick	1	1961	1727	1	4	2
7214	6	Fiber-Cement	2	2005	2886	1	3	2
7215	6	Aluminum / Vinyl	2	1915	2374	2	4	2
7216	6	Aluminum / Vinyl	2	1906	2256	2	5	2
7217	6	Aluminum / Vinyl	1.5	1892	1868	1	4	2
7218	6	Aluminum / Vinyl	1.5	1898	1720	1	3	1
7219	6	Aluminum / Vinyl	1	1890	1210	1	4	1
7220	6	Aluminum / Vinyl	2	1992	2762	2	6	2
7221	7	Aluminum / Vinyl	1	1949	990	1	3	1
7222	7	Brick	1	1936	1549	1	4	2
7223	7	Brick	1	1936	1549	1	4	2
7224	7	Aluminum / Vinyl	1	1916	1478	1	5	1
7225	8	Aluminum / Vinyl	2	1910	1994	1	4	1
7226	8	Frame	1	1896	1328	1	4	1
7227	8	Frame	1	1896	1328	1	4	1
7228	8	Frame	1	1896	1328	1	4	1
7229	8	Frame	1.5	1901	1186	1	3	1
7230	9	Stucco	2	1981	1354	1	3	1
7231	9	Aluminum / Vinyl	1	1965	1333	1	4	1
7232	10	Stone	1.5	1940	1470	1	3	1
7233	10	Aluminum / Vinyl	1	1950	1217	1	3	1
7234	10	Aluminum / Vinyl	1	1953	1082	1	3	1
7235	10	Aluminum / Vinyl	1	1942	1013	1	3	1
7236	10	Aluminum / Vinyl	1	1947	1010	1	3	1
7237	10	Masonry / Frame	2	1937	1513	1	4	1
7238	10	Aluminum / Vinyl	2	1923	1451	1	3	1
7239	10	Aluminum / Vinyl	2	1926	1365	1	3	1
7240	10	Aluminum / Vinyl	1.5	1924	1736	2	4	2
7241	10	Stone	2	1947	2272	2	4	2
7242	10	Frame	1	1919	1606	1	4	2
7243	10	Aluminum / Vinyl	1	1921	824	1	3	1
7244	10	Aluminum / Vinyl	1	1915	760	1	2	1
7245	11	Aluminum / Vinyl	1	1950	1748	1	4	2
7246	11	Brick	1.5	1953	1629	1	3	1
7247	11	Aluminum / Vinyl	1	1951	1353	1	3	1
7248	11	Brick	1.5	1936	1306	1	2	1
7249	11	Brick	1	1951	1209	1	3	1
7250	11	Brick	1	1947	1200	1	3	1
7251	11	Brick	1	1955	1151	1	3	2
7252	11	Aluminum / Vinyl	1.5	1941	1079	1	3	1
7253	11	Aluminum / Vinyl	1	1955	821	1	3	1

7254	11	Aluminum / Vinyl	1.5	1930	1743	2	4	3
7255	11	Aluminum / Vinyl	2	1963	2563	2	6	3
7256	11	Aluminum / Vinyl	1	1925	1338	1	3	2
7257	11	Aluminum / Vinyl	1	1965	1285	1	3	1
7258	11	Brick	1	1959	1270	1	3	1
7259	11	Aluminum / Vinyl	1	1959	1257	1	3	1
7260	11	Brick	1	1961	1127	1	3	1
7261	11	Brick	1	1964	1116	1	3	1
7262	11	Brick	1	1957	1053	1	3	1
7263	11	Stone	1	1940	1035	1	2	1
7264	11	Aluminum / Vinyl	1	1964	1025	1	3	1
7265	11	Aluminum / Vinyl	1	1955	984	1	3	1
7266	11	Aluminum / Vinyl	1	1962	912	1	3	1
7267	11	Aluminum / Vinyl	1	1953	888	1	3	1
7268	11	Aluminum / Vinyl	1	1952	884	1	3	1
7269	11	Aluminum / Vinyl	1	1953	879	1	3	1
7270	11	Masonry / Frame	1	1958	2210	1	4	2
7271	11	Brick	2	1958	2760	3	5	3
7272	11	Stone	2	1936	1674	1	3	1
7273	12	Frame	1	1895	1330	2	5	2
7274	12	Brick	1	1924	1268	1	4	1
7275	12	Aluminum / Vinyl	1	1925	1075	1	3	1
7276	13	Aluminum / Vinyl	1	1953	1176	1	3	1
7277	13	Aluminum / Vinyl	1	1948	1165	1	3	1
7278	13	Brick	1	1946	1116	1	4	1
7279	13	Aluminum / Vinyl	1	1947	1072	1	3	1
7280	13	Block	1.5	1937	1003	1	2	2
7281	13	Brick	2	1939	1859	1	3	1
7282	13	Aluminum / Vinyl	2	1940	2260	2	4	3
7283	13	Brick	1	1960	1267	1	3	1
7284	13	Brick	1	1968	1245	1	3	1
7285	13	Brick	1	1964	1126	1	3	1
7286	13	Aluminum / Vinyl	1	1960	985	1	3	1
7287	13	Aluminum / Vinyl	1	1960	966	1	3	2
7288	13	Aluminum / Vinyl	1	1951	960	1	3	1
7289	13	Aluminum / Vinyl	1	1960	941	1	3	1
7290	13	Brick	1	1954	864	1	3	1
7291	13	Aluminum / Vinyl	1	1947	732	1	2	1
7292	13	Aluminum / Vinyl	1	1948	686	1	2	1
7293	13	Aluminum / Vinyl	1	1912	972	1	3	2
7294	14	Brick	1	1953	1524	1	4	2
7295	14	Stucco	1.5	1940	1501	1	4	1
7296	14	Aluminum / Vinyl	1	1952	1096	1	4	1

7297	14	Aluminum / Vinyl	1	1950	1092	1	3	1
7298	14	Aluminum / Vinyl	2	1948	1248	1	3	1
7299	14	Brick	2	1900	2825	2	5	2
7300	14	Frame	2	1913	1616	2	4	2
7301	14	Frame	2	1913	1616	2	4	2
7302	14	Aluminum / Vinyl	1.5	1921	1404	2	3	2
7303	14	Aluminum / Vinyl	1	1923	1638	1	5	2
7304	14	Brick	1	1927	1297	1	3	1
7305	14	Aluminum / Vinyl	1	1926	924	1	3	1
7306	14	Aluminum / Vinyl	2	1897	2064	1	5	3
7307	14	Frame	2	1918	1514	1	2	1
7308	14	Frame	1	1910	1377	1	4	2
7309	14	Prem Wood	1	1923	1224	1	3	2
7310	14	Brick	2	1929	2008	1	3	1
7311	15	Aluminum / Vinyl	2	1922	2798	2	6	2
7312	15	Stucco	1	1913	1770	1	3	2
7313	15	Aluminum / Vinyl	1	1905	1276	1	5	1
7314	15	Aluminum / Vinyl	1	1890	1101	1	4	1
7315	1	Brick	1	1952	1256	1	4	1
7316	1	Aluminum / Vinyl	1	1958	985	1	3	1
7317	1	Frame	2	1940	1186	1	3	1
7318	1	Frame	1.5	1957	1618	2	4	2
7319	1	Aluminum / Vinyl	1	1954	963	1	3	2
7320	1	Aluminum / Vinyl	1	1940	898	1	3	1
7321	1	Aluminum / Vinyl	1	1952	882	1	2	1
7322	1	Aluminum / Vinyl	1	1950	876	1	2	1
7323	1	Aluminum / Vinyl	1	1951	689	1	2	1
7324	1	Brick	2	1928	2270	1	4	1
7325	2	Masonry / Frame	1.5	1960	1779	1	3	1
7326	2	Brick	1	1956	1242	1	3	1
7327	2	Brick	1	1956	1188	1	3	1
7328	2	Brick	1	1958	1152	1	3	1
7329	2	Aluminum / Vinyl	1	1957	914	1	3	2
7330	2	Aluminum / Vinyl	1	1954	870	1	3	1
7331	2	Aluminum / Vinyl	1	1951	792	1	2	1
7332	3	Brick	2	1924	1773	1	4	1
7333	3	Brick	2	1931	2552	2	4	2
7334	3	Aluminum / Vinyl	2	1923	2464	2	6	2
7335	3	Aluminum / Vinyl	1.5	1925	1838	2	4	2
7336	3	Brick	2	1901	4662	2	7	4
7337	3	Masonry / Frame	2	1905	3297	2	5	2
7338	3	Frame	2	1912	3075	2	7	2
7339	3	Aluminum / Vinyl	2	1910	2107	2	4	3

7340	3	Frame	1.5	1903	1664	2	3	2
7341	3	Aluminum / Vinyl	2	1900	1664	2	4	2
7342	3	Brick	2	1928	4588	1	6	3
7343	3	Brick	1.5	1919	4187	1	5	3
7344	3	Aluminum / Vinyl	1	1945	859	1	2	1
7345	3	Brick	2	1918	3579	1	4	3
7346	3	Masonry / Frame	2	1896	2922	1	4	1
7347	3	Brick	2	1929	2795	1	4	4
7348	3	Prem Wood	2	1885	1858	1	2	2
7349	3	Frame	1	1910	1501	1	3	1
7350	3	Brick	1.5	1921	1424	1	3	1
7351	3	Aluminum / Vinyl	1	1902	1173	1	3	1
7352	3	Aluminum / Vinyl	2	1914	2220	3	4	2
7353	4	Aluminum / Vinyl	1	1970	1104	1	3	1
7354	4	Frame	2	1906	2073	1	3	1
7355	4	Aluminum / Vinyl	1	1892	940	1	2	1
7356	5	Brick	1	1942	1452	1	3	1
7357	5	Brick	1	1954	1448	1	3	1
7358	5	Stone	1	1950	1433	1	4	2
7359	5	Brick	1	1951	1411	1	4	1
7360	5	Brick	1	1949	1328	1	3	1
7361	5	Brick	1	1949	1316	1	3	1
7362	5	Aluminum / Vinyl	1	1952	1225	1	3	2
7363	5	Aluminum / Vinyl	1	1948	1221	1	3	2
7364	5	Aluminum / Vinyl	1	1953	1217	1	4	2
7365	5	Brick	1	1952	1183	1	3	1
7366	5	Brick	1	1949	1156	1	3	1
7367	5	Brick	1	1949	1145	1	2	1
7368	5	Brick	1	1950	1134	1	2	1
7369	5	Aluminum / Vinyl	1	1949	1018	1	3	2
7370	5	Brick	1	1961	2238	2	5	3
7371	5	Brick	1.5	1952	2050	2	5	2
7372	5	Aluminum / Vinyl	1.5	1951	1510	2	4	2
7373	5	Brick	1	1956	1480	1	3	1
7374	5	Brick	1	1957	1335	1	3	1
7375	5	Aluminum / Vinyl	1	1956	1292	1	3	1
7376	5	Brick	1	1968	1290	1	3	1
7377	5	Frame	1	1971	1204	1	4	2
7378	5	Brick	1	1957	1102	1	2	1
7379	5	Masonry / Frame	1	1954	1065	1	3	1
7380	5	Aluminum / Vinyl	1	1955	1064	1	3	2
7381	5	Aluminum / Vinyl	1	1957	1060	1	3	1
7382	5	Aluminum / Vinyl	1	1956	1055	1	3	2

7383	5	Brick	1	1956	1020	1	3	1
7384	5	Aluminum / Vinyl	1	1956	1019	1	3	1
7385	5	Brick	1	1950	1009	1	3	1
7386	5	Aluminum / Vinyl	1	1954	1390	1	3	2
7387	5	Aluminum / Vinyl	1	1949	998	1	3	1
7388	5	Stone	2	1937	1568	1	3	1
7389	6	Aluminum / Vinyl	2	1922	2436	2	4	2
7390	6	Stucco	1.5	1904	1737	2	4	2
7391	6	Aluminum / Vinyl	1.5	1890	1736	2	4	2
7392	6	Aluminum / Vinyl	2	1894	2064	1	4	1
7393	6	Frame	2	1912	2960	3	6	3
7394	7	Stone	1.5	1941	2029	1	3	2
7395	7	Brick	1	1947	1501	1	3	1
7396	7	Aluminum / Vinyl	1	1945	1054	1	3	1
7397	7	Brick	2	1934	2240	1	4	1
7398	7	Stone	1	1950	1262	1	2	1
7399	7	Aluminum / Vinyl	1	1932	1359	1	3	3
7400	8	Stucco	1	1910	600	1	2	1
7401	8	Aluminum / Vinyl	1.5	1907	1969	2	4	2
7402	8	Frame	1.5	1900	1426	2	3	2
7403	8	Aluminum / Vinyl	1.5	1908	1760	1	5	2
7404	8	Brick	1	1920	1644	1	4	2
7405	8	Aluminum / Vinyl	1	1918	1544	1	4	1
7406	9	Aluminum / Vinyl	1	1974	1450	1	3	2
7407	9	Aluminum / Vinyl	2	2010	2044	1	4	2
7408	9	Aluminum / Vinyl	1	1970	1460	1	3	1
7409	9	Aluminum / Vinyl	1	1960	1117	1	3	2
7410	9	Aluminum / Vinyl	1	1968	1110	1	3	1
7411	9	Brick	1	1957	1050	1	3	1
7412	9	Aluminum / Vinyl	2	1970	2423	2	6	2
7413	10	Stone	1	1947	2310	1	3	3
7414	10	Stone	1.5	1936	1663	1	3	1
7415	10	Stone	1	1946	1549	1	3	2
7416	10	Aluminum / Vinyl	1.5	1948	1380	1	4	1
7417	10	Aluminum / Vinyl	1.5	1953	1338	1	3	2
7418	10	Brick	1	1938	1307	1	3	1
7419	10	Aluminum / Vinyl	1	1952	1277	1	4	1
7420	10	Stone	2	1940	2152	1	3	1
7421	10	Masonry / Frame	2	1946	1570	1	3	1
7422	10	Aluminum / Vinyl	2	1925	3714	2	5	2
7423	10	Aluminum / Vinyl	2	1926	2816	2	4	2
7424	10	Brick	2	1929	2771	2	5	2
7425	10	Aluminum / Vinyl	2	1918	2503	2	4	2

7426	10	Aluminum / Vinyl	2	1924	1924	2	4	2
7427	10	Stone	2	1945	2544	2	4	2
7428	10	Masonry / Frame	2	1947	2302	2	4	2
7429	10	Aluminum / Vinyl	1.5	1885	1607	2	4	2
7430	10	Brick	1	1920	2286	1	5	1
7431	10	Frame	1.5	1931	1904	1	3	2
7432	10	Brick	1	1926	1401	1	2	1
7433	10	Aluminum / Vinyl	1	1925	1384	1	3	1
7434	10	Aluminum / Vinyl	1	1954	1232	1	3	1
7435	10	Stucco	1.5	1915	2003	1	4	2
7436	10	Stone	1.5	1934	1992	1	3	1
7437	10	Aluminum / Vinyl	1	1926	1981	1	3	2
7438	10	Brick	1.5	1926	1258	1	2	1
7439	10	Aluminum / Vinyl	1	1929	1132	1	3	1
7440	10	Frame	1	1924	888	1	2	1
7441	10	Stone	1.5	1937	1796	1	3	1
7442	10	Brick	1.5	1930	1618	1	3	1
7443	11	Aluminum / Vinyl	1	1942	1208	1	4	1
7444	11	Brick	1	1940	1186	1	3	1
7445	11	Aluminum / Vinyl	1	1948	998	1	3	1
7446	11	Stone	2	1937	1652	1	3	1
7447	11	Aluminum / Vinyl	2	1974	1345	1	4	1
7448	11	Aluminum / Vinyl	2	1942	1288	1	3	1
7449	11	Brick	1	1954	2350	2	5	2
7450	11	Frame	1.5	1904	1706	2	3	2
7451	11	Stone	1	1949	1363	1	2	1
7452	11	Aluminum / Vinyl	1	1958	1172	1	3	1
7453	11	Aluminum / Vinyl	1	1959	1142	1	3	1
7454	11	Frame	1	1956	1090	1	3	1
7455	11	Aluminum / Vinyl	1	1956	1073	1	3	2
7456	11	Aluminum / Vinyl	1	1953	1064	1	3	2
7457	11	Brick	1	1958	1037	1	3	1
7458	11	Brick	1	1954	999	1	3	2
7459	11	Aluminum / Vinyl	1	1957	971	1	2	1
7460	11	Brick	1	1951	896	1	2	1
7461	11	Aluminum / Vinyl	1	1954	869	1	3	1
7462	11	Aluminum / Vinyl	1	1956	864	1	3	1
7463	11	Aluminum / Vinyl	1	1942	734	1	2	1
7464	11	Aluminum / Vinyl	1	1948	720	1	2	1
7465	11	Brick	2	1958	2768	3	6	3
7466	12	Aluminum / Vinyl	2	1914	2248	2	6	2
7467	13	Brick	1	1950	1503	1	4	2
7468	13	Aluminum / Vinyl	1	1958	1468	1	4	2

7469	13	Aluminum / Vinyl	1	1946	1165	1	3	1
7470	13	Brick	1	1949	1155	1	3	1
7471	13	Stone	2	1939	1749	1	3	1
7472	13	Aluminum / Vinyl	1	1913	1662	1	4	1
7473	13	Brick	1	1968	1748	1	3	1
7474	13	Aluminum / Vinyl	1	1974	1584	1	3	1
7475	13	Brick	1	1960	1284	1	3	1
7476	13	Brick	1	1969	1266	1	3	1
7477	13	Brick	1	1967	1248	1	3	1
7478	13	Aluminum / Vinyl	1	1964	1112	1	3	1
7479	13	Aluminum / Vinyl	1	1952	1001	1	3	1
7480	13	Aluminum / Vinyl	1	1959	1000	1	3	1
7481	13	Aluminum / Vinyl	1	1963	980	1	3	1
7482	13	Aluminum / Vinyl	1	1934	953	1	2	1
7483	13	Aluminum / Vinyl	1	1959	877	1	3	1
7484	13	Aluminum / Vinyl	1	1942	760	1	2	1
7485	13	Aluminum / Vinyl	2	1925	869	1	2	1
7486	14	Aluminum / Vinyl	1.5	1949	1422	1	4	2
7487	14	Aluminum / Vinyl	1	1943	1158	1	3	1
7488	14	Brick	1	1953	1063	1	3	1
7489	14	Aluminum / Vinyl	1	1944	1004	1	3	1
7490	14	Aluminum / Vinyl	1	1947	854	1	2	1
7491	14	Aluminum / Vinyl	2	1940	1426	1	4	2
7492	14	Aluminum / Vinyl	1	1890	1570	1	2	2
7493	14	Aluminum / Vinyl	1	1900	915	1	3	1
7494	14	Aluminum / Vinyl	2	1929	2660	2	5	2
7495	14	Brick	1.5	1946	1450	2	4	2
7496	14	Aluminum / Vinyl	2	1907	1976	2	4	2
7497	14	Frame	1	1908	1805	2	6	2
7498	14	Aluminum / Vinyl	1.5	1928	1741	1	4	1
7499	14	Aluminum / Vinyl	1	1928	1452	1	3	2
7500	14	Aluminum / Vinyl	1	1924	1320	1	4	1
7501	14	Aluminum / Vinyl	1	1928	1230	1	3	2
7502	14	Aluminum / Vinyl	1	1928	1229	1	3	1
7503	14	Aluminum / Vinyl	1	1929	1021	1	2	1
7504	14	Frame	1	1955	1134	1	3	1
7505	14	Aluminum / Vinyl	1	1952	1012	1	3	1
7506	14	Aluminum / Vinyl	1	1949	725	1	2	1
7507	14	Aluminum / Vinyl	1.5	1916	1694	1	4	1
7508	14	Aluminum / Vinyl	1.5	1927	1548	1	4	1
7509	14	Aluminum / Vinyl	1.5	1880	1444	1	3	1
7510	14	Aluminum / Vinyl	1	1913	1433	1	3	2
7511	14	Aluminum / Vinyl	1	1918	1276	1	2	1

7512	14	Aluminum / Vinyl	1	1900	1255	1	2	2
7513	14	Aluminum / Vinyl	1	1883	1218	1	3	1
7514	14	Aluminum / Vinyl	1	1905	1059	1	3	1
7515	14	Frame	1	1890	1052	1	2	1
7516	14	Aluminum / Vinyl	1	1929	1014	1	2	1
7517	14	Aluminum / Vinyl	1	1918	952	1	2	1
7518	15	Fiber-Cement	2	2011	2000	1	3	2
7519	15	Aluminum / Vinyl	2	2013	1854	1	3	2
7520	15	Aluminum / Vinyl	2	1915	2706	2	6	2
7521	15	Frame	2	1912	2172	2	4	2
7522	15	Brick	1	1919	1981	1	4	2
7523	15	Aluminum / Vinyl	1	1919	1699	1	4	2
7524	1	Brick	1	1953	1467	1	4	1
7525	1	Block	2	1945	1662	2	4	2
7526	2	Aluminum / Vinyl	1	1953	1152	1	3	1
7527	2	Aluminum / Vinyl	1	1955	1118	1	3	1
7528	2	Aluminum / Vinyl	1	1955	1114	1	4	1
7529	2	Aluminum / Vinyl	1.5	1963	2258	2	5	2
7530	2	Aluminum / Vinyl	1	1963	1253	1	4	1
7531	2	Brick	1	1957	1232	1	3	1
7532	2	Brick	1	1953	1223	1	3	1
7533	2	Brick	1	1962	1199	1	3	1
7534	2	Frame	1	1970	1120	1	4	1
7535	2	Aluminum / Vinyl	1	1957	909	1	3	1
7536	2	Aluminum / Vinyl	1	1955	1414	1	3	1
7537	3	Aluminum / Vinyl	2	1930	2748	2	6	2
7538	3	Aluminum / Vinyl	2	1925	2685	2	4	2
7539	3	Aluminum / Vinyl	1.5	1924	1890	2	5	2
7540	3	Frame	2	1961	1800	2	4	2
7541	3	Aluminum / Vinyl	2	1914	2382	2	4	2
7542	3	Aluminum / Vinyl	2	1890	2220	2	4	2
7543	3	Aluminum / Vinyl	2	1898	2188	2	4	2
7544	3	Aluminum / Vinyl	1.5	1904	2020	2	4	2
7545	3	Aluminum / Vinyl	1.5	1906	1495	2	4	2
7546	3	Brick	2	1908	3878	1	6	3
7547	3	Brick	2	1915	3666	1	5	3
7548	3	Frame	2	1901	2592	1	3	1
7549	3	Stucco	2	1920	2314	1	3	2
7550	3	Masonry / Frame	2	1908	2195	1	5	2
7551	3	Frame	1.5	1901	2121	1	3	3
7553	3	Frame	1.5	1890	1990	1	4	1
7554	3	Fiber-Cement	2	1890	1674	1	3	1
7555	5	Brick	1	1951	2000	1	3	2

7556	5	Brick	1	1951	1635	1	5	1
7557	5	Aluminum / Vinyl	1.5	1950	1453	1	4	2
7558	5	Brick	1	1950	1421	1	3	1
7559	5	Brick	1.5	1937	1413	1	2	1
7560	5	Brick	1	1948	1392	1	4	1
7561	5	Aluminum / Vinyl	1.5	1940	1351	1	2	1
7562	5	Brick	1	1949	1322	1	3	1
7563	5	Aluminum / Vinyl	1	1955	1316	1	4	1
7564	5	Brick	1	1951	1189	1	2	1
7565	5	Stone	1.5	1947	1188	1	3	1
7566	5	Brick	1	1953	1167	1	2	1
7567	5	Brick	1	1948	1149	1	3	1
7568	5	Brick	1	1952	1125	1	3	1
7569	5	Brick	1	1947	1124	1	3	1
7570	5	Aluminum / Vinyl	1	1952	1080	1	4	2
7571	5	Aluminum / Vinyl	1	1949	1036	1	3	1
7572	5	Aluminum / Vinyl	1	1949	1004	1	3	1
7573	5	Aluminum / Vinyl	1	1953	1003	1	4	2
7574	5	Aluminum / Vinyl	1	1950	1000	1	3	1
7575	5	Aluminum / Vinyl	1	1950	921	1	3	1
7576	5	Aluminum / Vinyl	2	2012	3379	1	4	3
7577	5	Aluminum / Vinyl	1	1952	1486	1	3	1
7578	5	Brick	1	1955	1246	1	3	2
7579	5	Brick	1	1957	1224	1	3	1
7580	5	Aluminum / Vinyl	1	1954	1220	1	2	1
7581	5	Aluminum / Vinyl	1	1960	1202	1	3	1
7582	5	Brick	1	1957	1164	1	3	2
7583	5	Brick	1	1958	1138	1	3	1
7584	5	Aluminum / Vinyl	1	1958	1040	1	3	1
7585	5	Aluminum / Vinyl	1	1950	1032	1	3	1
7586	5	Brick	1	1952	1014	1	3	1
7587	5	Aluminum / Vinyl	1	1955	1008	1	3	1
7588	5	Aluminum / Vinyl	1	1952	998	1	3	1
7589	5	Aluminum / Vinyl	1	1951	992	1	3	1
7590	5	Brick	1	1945	990	1	2	2
7591	5	Aluminum / Vinyl	1	1954	984	1	3	1
7592	5	Aluminum / Vinyl	1	1957	963	1	3	2
7593	5	Aluminum / Vinyl	1	1956	948	1	2	1
7594	5	Aluminum / Vinyl	1	1958	919	1	3	1
7595	5	Frame	1	1948	916	1	2	1
7596	5	Aluminum / Vinyl	1	1950	912	1	3	1
7597	5	Aluminum / Vinyl	1	1950	768	1	2	1
7598	5	Aluminum / Vinyl	1	1950	687	1	2	1

7599	5 Aluminum / Vinyl	1	1950	672	1	2	1
7600	6 Aluminum / Vinyl	1.5	1923	1982	2	4	2
7601	6 Aluminum / Vinyl	1.5	1926	1858	2	4	2
7602	6 Aluminum / Vinyl	1.5	1903	1688	2	4	2
7603	6 Aluminum / Vinyl	1	1926	1315	1	3	1
7604	6 Brick	2	1890	2850	1	3	3
7605	7 Aluminum / Vinyl	1	1940	1198	1	3	1
7606	7 Brick	1.5	1946	1075	1	2	1
7607	7 Aluminum / Vinyl	1	1938	817	1	3	1
7608	8 Brick	2	1913	2150	1	4	1
7609	8 Aluminum / Vinyl	1	1900	1151	1	3	1
7610	8 Aluminum / Vinyl	1.5	1926	1875	2	5	3
7611	8 Aluminum / Vinyl	1.5	1927	1805	2	4	2
7612	8 Aluminum / Vinyl	1	1922	1288	1	4	1
7613	8 Frame	2	1904	2168	1	4	2
7614	8 Frame	2	1913	2024	1	4	1
7615	8 Aluminum / Vinyl	1.5	1914	1481	1	3	1
7616	8 Aluminum / Vinyl	1	1924	1341	1	3	2
7617	8 Aluminum / Vinyl	1	1903	1222	1	3	1
7618	9 Aluminum / Vinyl	2	1969	1791	1	4	2
7619	9 Aluminum / Vinyl	1	2006	1888	1	4	2
7620	9 Aluminum / Vinyl	1	1966	1421	1	3	1
7621	9 Aluminum / Vinyl	1	1963	1205	1	4	2
7622	9 Frame	1	1968	1063	1	3	1
7623	9 Brick	1	1957	1050	1	3	1
7624	9 Aluminum / Vinyl	1	1975	908	1	3	1
7625	10 Stone	1.5	1937	1874	1	4	1
7626	10 Aluminum / Vinyl	1	1942	1591	1	4	1
7627	10 Brick	1.5	1935	1571	1	3	1
7628	10 Stone	1	1935	1490	1	2	1
7629	10 Brick	1	1946	1038	1	3	1
7630	10 Aluminum / Vinyl	1	1953	1015	1	4	1
7631	10 Stone	2	1937	1960	1	4	2
7632	10 Masonry / Frame	2	1937	1951	1	3	1
7633	10 Brick	2	1940	1417	1	3	1
7634	10 Aluminum / Vinyl	2	1951	1396	1	3	1
7635	10 Aluminum / Vinyl	1	1924	700	1	1	1
7636	10 Aluminum / Vinyl	2	1913	2596	2	6	2
7637	10 Aluminum / Vinyl	2	1924	2427	2	4	2
7638	10 Aluminum / Vinyl	2	1921	2328	2	6	2
7639	10 Frame	1.5	1917	1977	2	4	2
7640	10 Aluminum / Vinyl	1	1920	1763	1	4	2
7641	10 Aluminum / Vinyl	1	1920	1746	1	4	2

7642	10	Aluminum / Vinyl	1	1926	1729	1	3	2
7643	10	Aluminum / Vinyl	1	1920	1727	1	4	1
7644	10	Aluminum / Vinyl	1	1925	1683	1	4	2
7645	10	Frame	1	1916	1617	1	4	2
7646	10	Brick	1	1924	1580	1	2	1
7647	10	Aluminum / Vinyl	1	1930	1491	1	3	1
7648	10	Aluminum / Vinyl	1	1930	1491	1	3	1
7649	10	Frame	1	1928	1336	1	3	2
7650	10	Aluminum / Vinyl	1.5	1919	1329	1	3	1
7651	10	Frame	1	1956	1155	1	3	2
7652	10	Aluminum / Vinyl	1	1953	972	1	3	1
7653	10	Frame	1	1949	914	1	1	1
7654	10	Brick	2	1927	1876	1	2	1
7655	10	Stucco	1	1921	1299	1	3	2
7656	10	Frame	1	1910	977	1	3	1
7657	10	Aluminum / Vinyl	1	1926	932	1	3	1
7658	10	Frame	1	1922	812	1	2	1
7659	10	Aluminum / Vinyl	1	1926	697	1	2	1
7660	11	Fiber-Cement	1	2004	1969	1	3	2
7661	11	Stone	1	1940	1645	1	4	1
7662	11	Stone	1.5	1937	1548	1	4	1
7663	11	Brick	1	1947	1476	1	3	2
7664	11	Brick	1	1954	1437	1	4	1
7665	11	Aluminum / Vinyl	1.5	1940	1223	1	3	1
7666	11	Aluminum / Vinyl	1	1949	1086	1	3	2
7667	11	Aluminum / Vinyl	1.5	1963	1960	2	5	3
7668	11	Prem Wood	1	1968	1873	1	3	1
7669	11	Brick	1	1965	1407	1	3	1
7670	11	Aluminum / Vinyl	1	1954	1396	1	2	2
7671	11	Stone	1	1955	1299	1	3	1
7672	11	Aluminum / Vinyl	1	1959	1266	1	3	1
7673	11	Aluminum / Vinyl	1	1963	1150	1	3	1
7674	11	Aluminum / Vinyl	1	1949	1126	1	2	1
7676	11	Brick	1	1963	1124	1	3	1
7677	11	Brick	1	1955	1069	1	3	1
7678	11	Brick	1	1954	1053	1	3	1
7679	11	Stone	1	1947	1042	1	2	1
7680	11	Brick	1	1958	1041	1	3	1
7681	11	Brick	1	1958	1037	1	3	1
7682	11	Aluminum / Vinyl	1	1958	1035	1	3	1
7683	11	Aluminum / Vinyl	1	1964	1028	1	3	1
7684	11	Aluminum / Vinyl	1	1957	994	1	3	2
7685	11	Brick	1	1956	994	1	3	2

7686	11 Aluminum / Vinyl	1	1954	957	1	3	1
7687	11 Aluminum / Vinyl	1	1955	948	1	3	2
7688	11 Aluminum / Vinyl	1	1953	864	1	3	1
7689	11 Brick	1	1954	838	1	2	1
7690	11 Aluminum / Vinyl	1	1950	638	1	2	1
7691	11 Aluminum / Vinyl	2	1968	2172	2	6	2
7692	12 Aluminum / Vinyl	1	1925	1122	1	3	1
7693	12 Aluminum / Vinyl	1.5	1870	1679	1	4	1
7694	13 Aluminum / Vinyl	1	1976	1850	1	4	2
7695	13 Brick	1	1950	1470	1	3	1
7696	13 Aluminum / Vinyl	1	1958	1464	1	5	2
7697	13 Aluminum / Vinyl	1	1951	1407	1	3	1
7698	13 Aluminum / Vinyl	1	1951	1369	1	3	1
7699	13 Frame	1	1940	1251	1	3	2
7700	13 Brick	1	1951	1166	1	3	1
7701	13 Brick	1	1947	1162	1	3	2
7702	13 Brick	1	1950	1134	1	3	1
7703	13 Brick	1	1952	988	1	3	1
7704	13 Stone	2	1938	1433	1	2	1
7705	13 Aluminum / Vinyl	1.5	1928	1888	2	5	2
7706	13 Frame	1	1928	1511	1	5	1
7707	13 Brick	1	1926	1499	1	3	1
7708	13 Stucco	1	1922	1459	1	4	2
7709	13 Aluminum / Vinyl	1	1961	1223	1	3	1
7710	13 Aluminum / Vinyl	1	1961	1201	1	3	2
7711	13 Brick	1	1952	1108	1	2	2
7712	13 Brick	1	1956	1093	1	2	1
7713	13 Aluminum / Vinyl	1	1970	1080	1	4	1
7714	13 Aluminum / Vinyl	1	1959	1067	1	3	1
7715	13 Aluminum / Vinyl	1	1960	1046	1	3	1
7716	13 Aluminum / Vinyl	1	1959	896	1	3	1
7717	13 Aluminum / Vinyl	1	1944	719	1	2	1
7718	13 Aluminum / Vinyl	1	1943	608	1	1	1
7719	14 Brick	1	1952	1262	1	3	1
7720	14 Aluminum / Vinyl	1	1947	1235	1	3	1
7721	14 Aluminum / Vinyl	1	1950	1148	1	3	1
7722	14 Aluminum / Vinyl	1	1942	979	1	3	2
7723	14 Aluminum / Vinyl	2	1948	1378	1	3	1
7724	14 Aluminum / Vinyl	2	1964	1298	1	3	1
7725	14 Aluminum / Vinyl	2	1941	1213	1	2	1
7726	14 Aluminum / Vinyl	2	1945	990	1	2	1
7727	14 Aluminum / Vinyl	1	1898	998	1	2	1
7728	14 Aluminum / Vinyl	2	1927	2320	2	4	2

7729	14	Aluminum / Vinyl	2	1928	2108	2	4	2
7730	14	Brick	2	1958	2306	2	6	2
7731	14	Brick	1.5	1957	2039	2	5	2
7732	14	Aluminum / Vinyl	2	1906	3183	2	6	2
7733	14	Aluminum / Vinyl	2	1890	2703	2	5	3
7734	14	Frame	2	1894	2321	2	4	2
7735	14	Aluminum / Vinyl	1.5	1925	1860	1	4	2
7736	14	Aluminum / Vinyl	1	1926	1849	1	4	2
7737	14	Brick	1	1928	1791	1	3	2
7738	14	Aluminum / Vinyl	1.5	1915	1715	1	3	2
7739	14	Aluminum / Vinyl	1	1923	1617	1	3	2
7740	14	Aluminum / Vinyl	1	1927	1072	1	3	1
7741	14	Aluminum / Vinyl	2	1924	2096	1	4	3
7742	14	Aluminum / Vinyl	1.5	1917	1665	1	3	2
7743	14	Aluminum / Vinyl	2	1901	1450	1	4	2
7744	14	Aluminum / Vinyl	1	1888	1419	1	4	1
7745	14	Aluminum / Vinyl	1	1910	1352	1	3	2
7746	14	Aluminum / Vinyl	2	1905	1342	1	3	1
7747	14	Aluminum / Vinyl	1	1890	1275	1	2	1
7748	14	Frame	1	1886	1200	1	4	1
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7565	5625	15887	175000	FALSE	FALSE
7566	6500	15887	100000	FALSE	FALSE
7567	5120	15887	103000	FALSE	FALSE
7568	5610	15887	122500	FALSE	FALSE
7569	5632	15887	155000	FALSE	FALSE
7570	5000	15887	128500	FALSE	FALSE
7571	4800	15887	115000	FALSE	FALSE
7572	5120	15887	102000	FALSE	FALSE
7573	5060	15887	140000	FALSE	FALSE
7574	5000	15887	129000	FALSE	FALSE
7575	4800	15887	97000	FALSE	FALSE
7576	16099	15887	398900	FALSE	FALSE
7577	7800	15887	162000	FALSE	FALSE
7578	5080	15887	128500	FALSE	FALSE
7579	6480	15887	83500	FALSE	FALSE
7580	5500	15887	120000	FALSE	FALSE
7581	10752	15887	95000	FALSE	FALSE
7582	7095	15887	123500	FALSE	FALSE
7583	7714	15887	122500	FALSE	FALSE
7584	5248	15887	73000	FALSE	FALSE
7585	5000	15887	109000	FALSE	FALSE
7586	5280	15887	75000	FALSE	FALSE
7587	5000	15887	97000	FALSE	FALSE
7588	6750	15887	91500	FALSE	FALSE
7589	5400	15887	105500	FALSE	FALSE
7590	6016	15887	96000	FALSE	FALSE
7591	6000	15887	120000	FALSE	FALSE
7592	7370	15887	127000	FALSE	FALSE
7593	8352	15887	75000	FALSE	FALSE
7594	7686	15887	94000	FALSE	FALSE
7595	4995	15887	120000	FALSE	FALSE
7596	5000	15887	110000	FALSE	FALSE
7597	5280	15887	87000	FALSE	FALSE
7598	5000	15887	95000	FALSE	FALSE
7599	5000	15887	92900	FALSE	FALSE
7600	9000	15887	26000	FALSE	FALSE
7601	3600	15887	29000	FALSE	FALSE
7602	4800	15887	26000	FALSE	FALSE

7603	5868	15887	45000	FALSE	FALSE
7604	7550	15887	280000	FALSE	FALSE
7605	4720	15887	63000	FALSE	FALSE
7606	4920	15887	58500	FALSE	FALSE
7607	6300	15887	30000	FALSE	FALSE
7608	4360	15887	65000	FALSE	FALSE
7609	4590	15887	75000	FALSE	FALSE
7610	3300	15887	85000	FALSE	FALSE
7611	4500	15887	95200	FALSE	FALSE
7612	4480	15887	72000	FALSE	FALSE
7613	3600	15887	70000	FALSE	FALSE
7614	4760	15887	50000	FALSE	FALSE
7615	4800	15887	85500	FALSE	FALSE
7616	5400	15887	93000	FALSE	FALSE
7617	3600	15887	19900	FALSE	FALSE
7618	9000	15887	158500	FALSE	FALSE
7619	11072	15887	153500	FALSE	FALSE
7620	9440	15887	128000	FALSE	FALSE
7621	6000	15887	123000	FALSE	FALSE
7622	7200	15887	89900	FALSE	FALSE
7623	7200	15887	94000	FALSE	FALSE
7624	7245	15887	95000	FALSE	FALSE
7625	5782	15887	232000	FALSE	FALSE
7626	5500	15887	135000	FALSE	FALSE
7627	5200	15887	167500	FALSE	FALSE
7628	4800	15887	105000	FALSE	FALSE
7629	4320	15887	160900	FALSE	FALSE
7630	5560	15887	129900	FALSE	FALSE
7631	6336	15887	209000	FALSE	FALSE
7632	5000	15887	229000	FALSE	FALSE
7633	5116	15887	160000	FALSE	FALSE
7634	4800	15887	78000	FALSE	FALSE
7635	8400	15887	45000	FALSE	FALSE
7636	4800	15887	133000	FALSE	FALSE
7637	4700	15887	102000	FALSE	FALSE
7638	4520	15887	146000	FALSE	FALSE
7639	4800	15887	94000	FALSE	FALSE
7640	5355	15887	160000	FALSE	FALSE
7641	4800	15887	159900	FALSE	FALSE
7642	6280	15887	143900	FALSE	FALSE
7643	4520	15887	144000	FALSE	FALSE
7644	6250	15887	197000	FALSE	FALSE
7645	4800	15887	120000	FALSE	FALSE

7646	6750	15887	183385	FALSE	FALSE
7647	6375	15887	90000	FALSE	FALSE
7648	6375	15887	90000	FALSE	FALSE
7649	5805	15887	110000	FALSE	FALSE
7650	4284	15887	95000	FALSE	FALSE
7651	5460	15887	79500	FALSE	FALSE
7652	7938	15887	115000	FALSE	FALSE
7653	5360	15887	89000	FALSE	FALSE
7654	6000	15887	193900	FALSE	FALSE
7655	5880	15887	134000	FALSE	FALSE
7656	3700	15887	21000	FALSE	FALSE
7657	3720	15887	74000	FALSE	FALSE
7658	4880	15887	65000	FALSE	FALSE
7659	3870	15887	86000	FALSE	FALSE
7660	6002	15887	280000	FALSE	FALSE
7661	4800	15887	146500	FALSE	FALSE
7662	7200	15887	150000	FALSE	FALSE
7663	11440	15887	173400	FALSE	FALSE
7664	5280	15887	119900	FALSE	FALSE
7665	7095	15887	157000	FALSE	FALSE
7666	5160	15887	124000	FALSE	FALSE
7667	5400	15887	148000	FALSE	FALSE
7668	10000	15887	185000	FALSE	FALSE
7669	7200	15887	160000	FALSE	FALSE
7670	6360	15887	140000	FALSE	FALSE
7671	8308	15887	165000	FALSE	FALSE
7672	5942	15887	120000	FALSE	FALSE
7673	6500	15887	70500	FALSE	FALSE
7674	5808	15887	87900	FALSE	FALSE
7676	7920	15887	145000	FALSE	FALSE
7677	4944	15887	126000	FALSE	FALSE
7678	7198	15887	168500	FALSE	FALSE
7679	5040	15887	110000	FALSE	FALSE
7680	8083	15887	125000	FALSE	FALSE
7681	6555	15887	122000	FALSE	FALSE
7682	7560	15887	118500	FALSE	FALSE
7683	6384	15887	120000	FALSE	FALSE
7684	7560	15887	143000	FALSE	FALSE
7685	7259	15887	155000	FALSE	FALSE
7686	5500	15887	130000	FALSE	FALSE
7687	6700	15887	130000	FALSE	FALSE
7688	6350	15887	97500	FALSE	FALSE
7689	5350	15887	123900	FALSE	FALSE

7690	4800	15887	77000	FALSE	FALSE
7691	7200	15887	177500	FALSE	FALSE
7692	3600	15887	86000	FALSE	FALSE
7693	3640	15887	38000	FALSE	FALSE
7694	12400	15887	217000	FALSE	FALSE
7695	8460	15887	152000	FALSE	FALSE
7696	7560	15887	154000	FALSE	FALSE
7697	6450	15887	135000	FALSE	FALSE
7698	5805	15887	114000	FALSE	FALSE
7699	7950	15887	135000	FALSE	FALSE
7700	6612	15887	133500	FALSE	FALSE
7701	4455	15887	152500	FALSE	FALSE
7702	5040	15887	134900	FALSE	FALSE
7703	7290	15887	144900	FALSE	FALSE
7704	16585	15887	147000	FALSE	FALSE
7705	4440	15887	147000	FALSE	FALSE
7706	4800	15887	123000	FALSE	FALSE
7707	4752	15887	107900	FALSE	FALSE
7708	7875	15887	117000	FALSE	FALSE
7709	6292	15887	147901	FALSE	FALSE
7710	6500	15887	150000	FALSE	FALSE
7711	11016	15887	139000	FALSE	FALSE
7712	4589	15887	105000	FALSE	FALSE
7713	7504	15887	128000	FALSE	FALSE
7714	7881	15887	131000	FALSE	FALSE
7715	6500	15887	120000	FALSE	FALSE
7716	8103	15887	100000	FALSE	FALSE
7717	4880	15887	75000	FALSE	FALSE
7718	4680	15887	67000	FALSE	FALSE
7719	6300	15887	99000	FALSE	FALSE
7720	6534	15887	136000	FALSE	FALSE
7721	5074	15887	150000	FALSE	FALSE
7722	8996	15887	150000	FALSE	FALSE
7723	5520	15887	166900	FALSE	FALSE
7724	3690	15887	155000	FALSE	FALSE
7725	5828	15887	156000	FALSE	FALSE
7726	5280	15887	127500	FALSE	FALSE
7727	3700	15887	190000	FALSE	TRUE
7728	4920	15887	176000	FALSE	FALSE
7729	3600	15887	238000	FALSE	TRUE
7730	6500	15887	168500	FALSE	FALSE
7731	5130	15887	163000	FALSE	FALSE
7732	2400	15887	171000	FALSE	FALSE

```

7733    3600    15887    152000 FALSE FALSE
7734    4000    15887    219500 FALSE TRUE
7735    4560    15887    242000 FALSE FALSE
7736    5200    15887    224500 FALSE FALSE
7737    4920    15887    230500 FALSE FALSE
7738    3900    15887    253500 FALSE FALSE
7739    4680    15887    233500 FALSE FALSE
7740    3750    15887    174500 FALSE TRUE
7741    4080    15887    299000 FALSE FALSE
7742    3000    15887    206000 FALSE FALSE
7743    5616    15887    210000 FALSE FALSE
7744    3045    15887    165000 FALSE FALSE
7745    18480   15887    210000 FALSE FALSE
7746    3270    15887    285000 FALSE TRUE
7747    6400    15887    120000 FALSE FALSE
7748    3399    15887    120000 FALSE FALSE
7749    3600    15887    94900 FALSE FALSE
[ reached 'max' / getOption("max.print") -- omitted 16751 rows ]

```

```

model2=lm(sqrt(Sale_price)~District + Extwall + Stories + Year_Built+ District*Year_Built+
          Fbath + log(Lotsize) + Sale_date +District* log(Lotsize),df_clean4)
# model2=lm(Sale_price^(0.4)~,df_clean3)

summ2=summary(model2); summ2

```

Call:

```

lm(formula = sqrt(Sale_price) ~ District + Extwall + Stories +
    Year_Built + District * Year_Built + Fin_sqft + Units + Bdrms +
    Fbath + log(Lotsize) + Sale_date + District * log(Lotsize),
    data = df_clean4)

```

Residuals:

Min	1Q	Median	3Q	Max
-547.36	-35.61	5.89	41.47	474.14

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	1.396e+03	9.630e+01	14.494	< 2e-16 ***
District	-2.441e+02	9.158e+00	-26.656	< 2e-16 ***
ExtwallBlock	-6.108e+00	6.044e+00	-1.011	0.312259

ExtwallBrick	1.146e+01	1.183e+00	9.684 < 2e-16 ***
ExtwallFiber-Cement	2.442e+01	6.115e+00	3.993 6.55e-05 ***
ExtwallFrame	-1.069e+01	1.599e+00	-6.682 2.41e-11 ***
ExtwallMasonry / Frame	8.342e+00	2.797e+00	2.983 0.002858 **
ExtwallPrem Wood	1.492e+01	9.195e+00	1.622 0.104761
ExtwallStone	9.094e+00	2.497e+00	3.641 0.000272 ***
ExtwallStucco	1.537e+01	3.511e+00	4.378 1.20e-05 ***
Stories1	4.059e+01	1.680e+01	2.416 0.015681 *
Stories1.5	5.480e+01	1.677e+01	3.268 0.001084 **
Stories2	6.143e+01	1.670e+01	3.678 0.000236 ***
Year_Built	-9.488e-01	5.316e-02	-17.847 < 2e-16 ***
Fin_sqft	9.479e-02	1.565e-03	60.560 < 2e-16 ***
Units1	1.238e+02	1.200e+01	10.312 < 2e-16 ***
Units2	2.178e+01	1.201e+01	1.813 0.069845 .
Units3	-2.191e+01	1.293e+01	-1.695 0.090108 .
Bdrms0	1.493e+02	3.025e+01	4.936 8.03e-07 ***
Bdrms1	1.229e+02	1.648e+01	7.455 9.28e-14 ***
Bdrms2	1.344e+02	1.472e+01	9.133 < 2e-16 ***
Bdrms3	1.393e+02	1.462e+01	9.524 < 2e-16 ***
Bdrms4	1.213e+02	1.456e+01	8.327 < 2e-16 ***
Bdrms5	1.187e+02	1.456e+01	8.151 3.78e-16 ***
Bdrms6	9.863e+01	1.459e+01	6.762 1.39e-11 ***
Bdrms7	6.771e+01	1.555e+01	4.353 1.35e-05 ***
Bdrms8	9.538e+01	1.636e+01	5.829 5.65e-09 ***
Fbath0	-6.106e+01	2.227e+01	-2.742 0.006118 **
Fbath1	-3.703e+01	1.553e+01	-2.385 0.017096 *
Fbath2	-1.015e+01	1.543e+01	-0.658 0.510580
Fbath3	3.187e+01	1.532e+01	2.080 0.037538 *
Fbath4	6.184e+01	1.643e+01	3.764 0.000168 ***
log(Lotsize)	3.120e+01	3.416e+00	9.133 < 2e-16 ***
Sale_date	5.995e-03	4.263e-04	14.064 < 2e-16 ***
District:Year_Built	1.315e-01	5.309e-03	24.762 < 2e-16 ***
District:log(Lotsize)	-8.262e-01	3.469e-01	-2.382 0.017230 *

Signif. codes:	0 '***'	0.001 '**'	0.01 '*' 0.05 '.' 0.1 ' '

Residual standard error: 71.77 on 24407 degrees of freedom

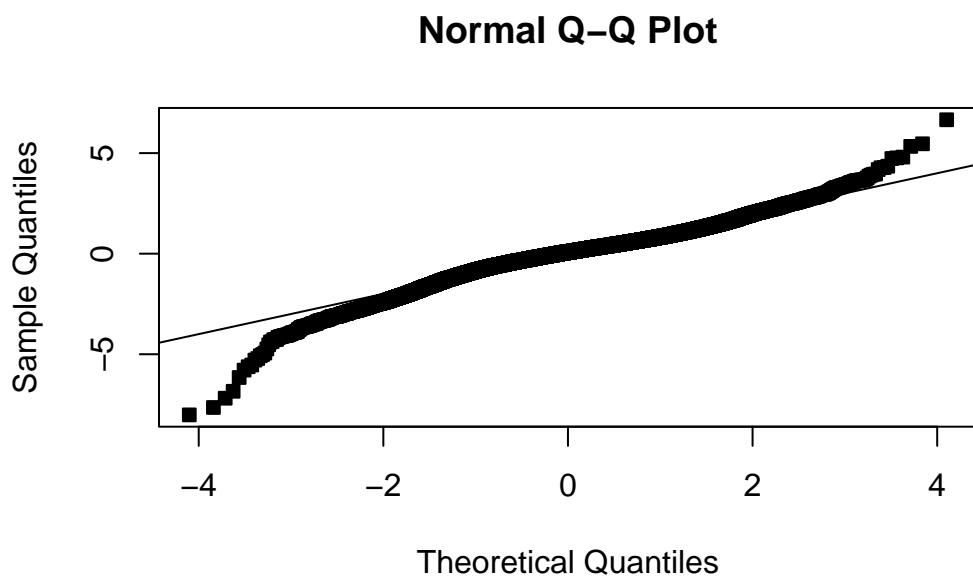
Multiple R-squared: 0.4635, Adjusted R-squared: 0.4627

F-statistic: 602.4 on 35 and 24407 DF, p-value: < 2.2e-16

```
summ2$adj.r.squared
```

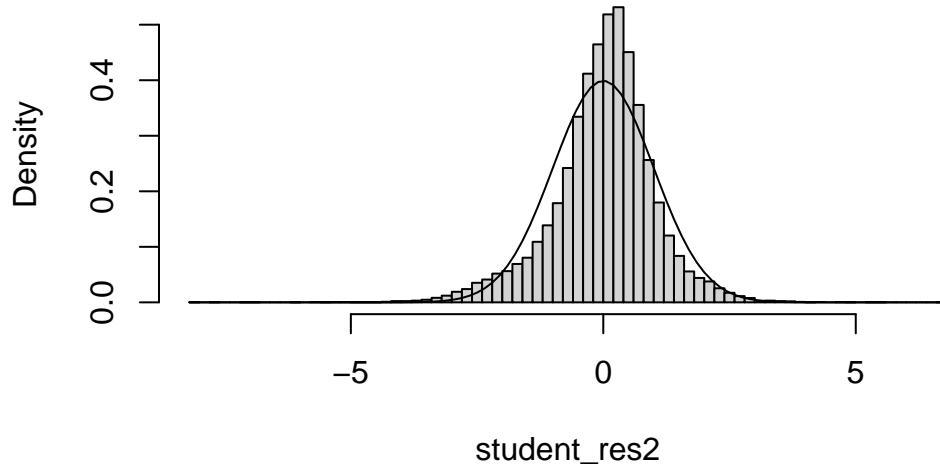
```
[1] 0.4626948
```

```
student_res2=rstudent(model2)
MSE2=summ2$sigma^2
qqnorm(student_res2,pch=22, bg=1)
abline(0,1)
```



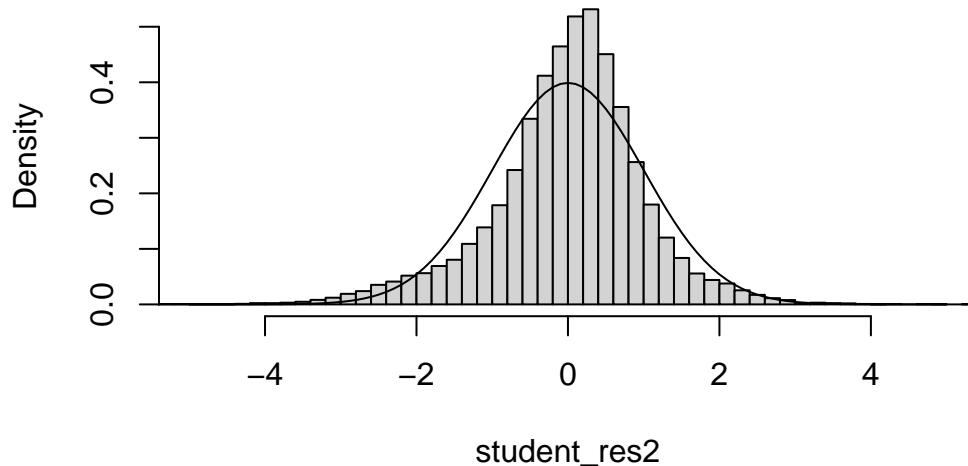
```
hist(student_res2,freq=F,breaks=100)
curve(dnorm(x,0,1),add=T)
```

Histogram of student_res2



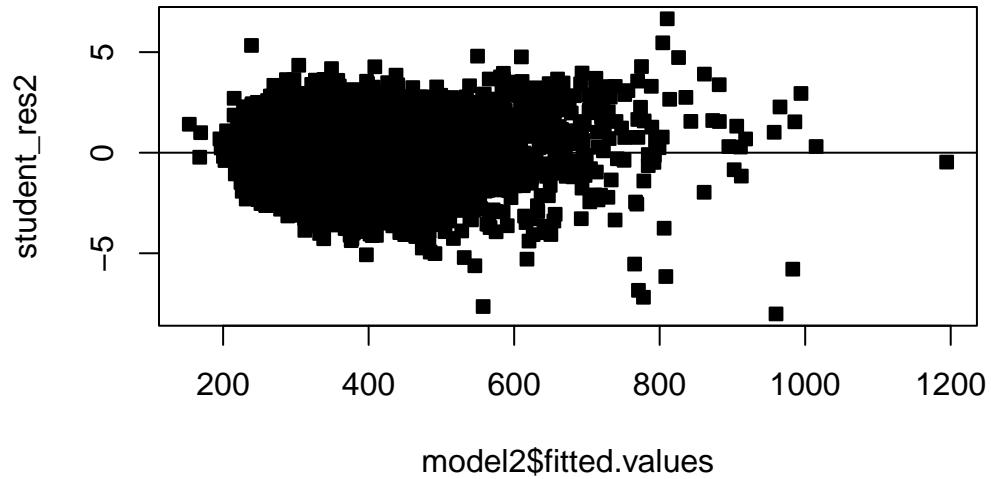
```
hist(student_res2,freq=F,xlim=c(-5,5),breaks=100)
curve(dnorm(x,0,1),add=T)
```

Histogram of student_res2

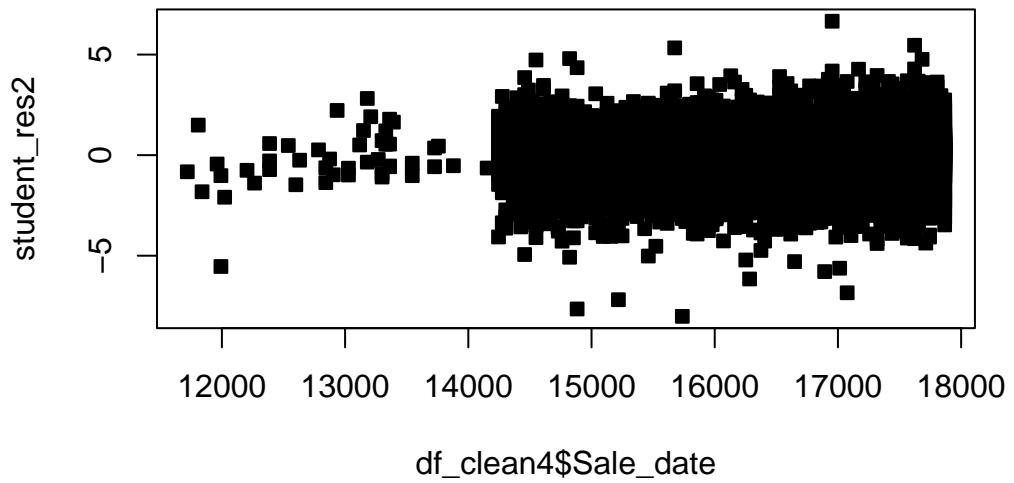


student_res2

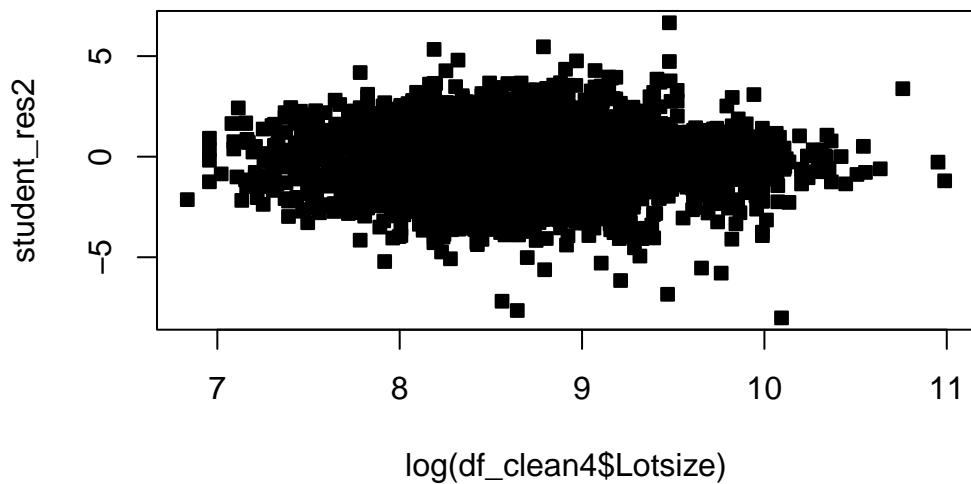
```
plot(model2$fitted.values,student_res2,pch=22, bg=1)
abline(h=0)
```



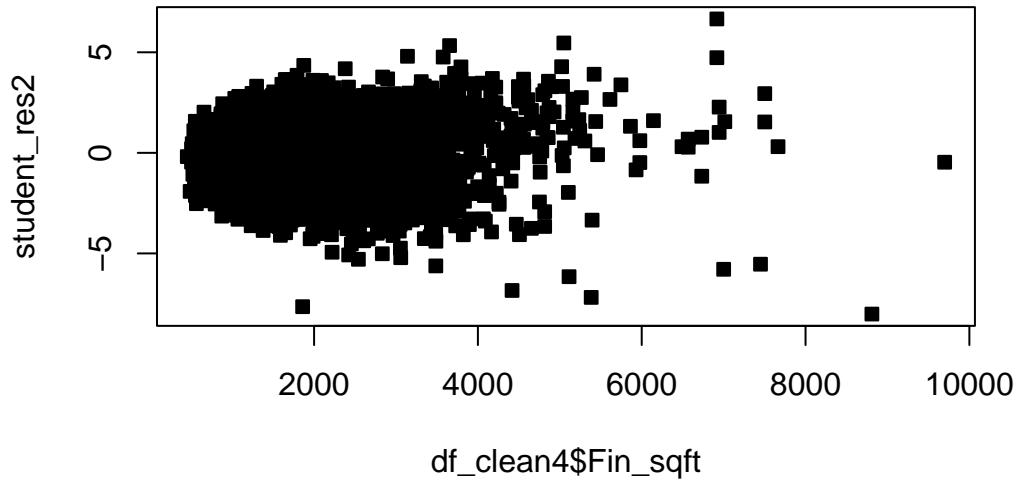
```
plot(df_clean4$Sale_date ,student_res2,pch=22, bg=1)
```



```
plot(log(df_clean4$Lotsize) ,student_res2,pch=22,bg=1)
```

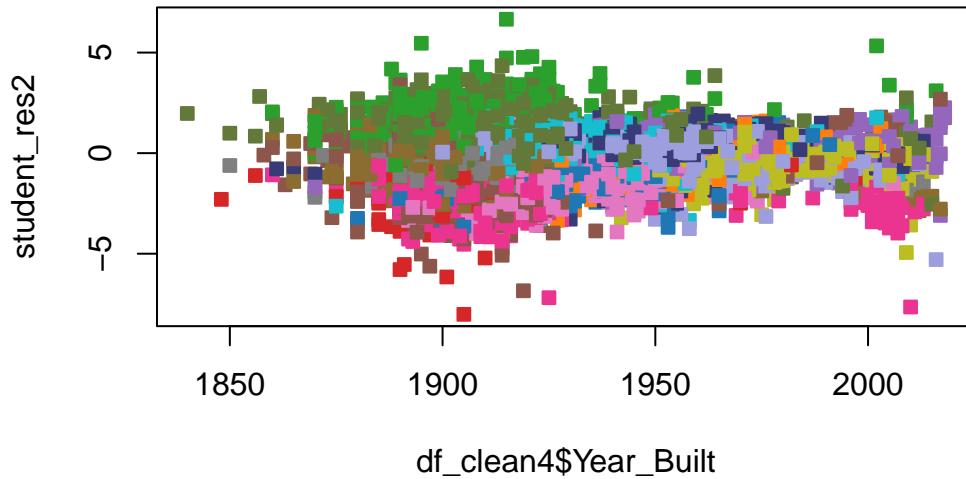


```
plot(df_clean4$Fin_sqft ,student_res2,pch=22, bg=1)
```



```
#Year built is probably nonlinear...
```

```
plot(df_clean4$Year_Built ,student_res2,pch=22, bg=custom_palette[df_clean4$District], col=cus
```



6.4.1 Homework questions

Exercise 6.2. Consider a ML regression model for bread quality against bake time and 3 types of yeast (A, B and C). Write out the dummy variables for the variable yeast type. What is the interpretation of the coefficient of each of the dummy variables, in this context?

Exercise 6.3. Suppose we regress real estate price against number of bathrooms. What is the difference in interpretation between representing number of bedrooms with dummy variables versus a continuous variable?

Exercise 6.4. Consider a ML regression model for bread quality against bake time and 3 types of yeast (A, B and C). Write out the regression equation that includes an interaction between yeast and bake time. What is the interpretation of the coefficient for each of the interaction effects? Compare and contrast the regression model in Exercise 6.2 to this one.

Complete the Chapter 8 questions.

7 Leverage and Influence

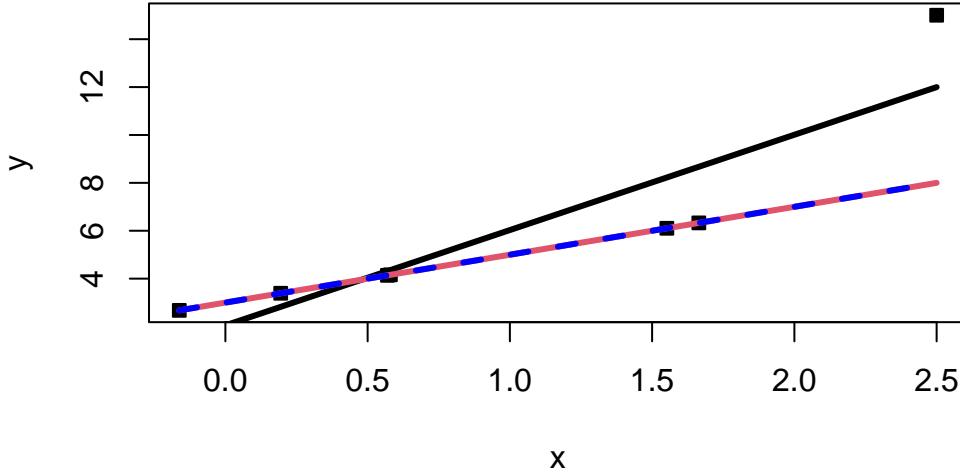
7.0.1 Influential observations and leverage

Recall that violations of model assumptions are more likely at remote points, and these violations may be hard to detect from inspection of the ordinary residuals because their residuals will usually be smaller. Points that are outlying in the x -direction are known as **leverage points**. **Influential points** are not only remote in terms of the specific values for the regressors, but the observed response is not consistent with the values that would be predicted based on only the other data points. It is important to find these influential points and assess their impact on the model.

Below gives an example of an influential point. The seventh point in the data set is outlying in the x -direction, and its response value is not consistent with the regression line based on the other six observations:

```
set.seed(330)
x=c(rnorm(6),2.5)
y=x*2+3
y[7]=y[7]+7
plot(x,y,pch=22,bg=1)
a=lm(y~x)
curve(a$coefficients[1]+x*a$coefficients[2],add=T,lwd=3)
curve(x*2+3,add=T,col=2,lwd=3)

a2=lm(y[-7]~x[-7])
curve(a2$coefficients[1]+x*a2$coefficients[2],add=T,lwd=3,col='blue',lty=2)
```



```
a$coefficients
```

(Intercept)	x
2.048937	3.979977

Sometimes we find that a regression coefficient may have a sign that does not make engineering or scientific sense, a regressor known to be important may be statistically insignificant, or a model that fits the data well and that is logical from an application – environment perspective may produce poor predictions. These situations may be the result of one or, perhaps, a few influential observations.

Recall the hat matrix $H = X(X^\top X)^{-1}X^\top$, as well as that it holds that $\text{Var}[\hat{\epsilon}] = \sigma^2(I - H)$ and $\text{Var}[\hat{Y}] = \sigma^2H$. Note that h_{ij} can be interpreted as the amount of leverage exerted by the i th observation y_i on the j th fitted value \hat{y}_j . We usually focus attention on the diagonal elements h_{ii} of the hat matrix H , which may be written as

$$h_{ii} = x_i^\top (X^\top X)^{-1} x_i,$$

where X_i^\top is the i th row of X . The hat matrix diagonal is a standardized measure of the distance of the i th observation from the center (or centroid) of the x -space. Therefore, large values of h_{ii} implies that x_i is potentially influential. Furthermore, note that $\text{rank}(H) = p$ since the trace of an idempotent matrix equals its rank, which means that $\bar{h} = p/n$. It follows that values well above p/n , say $h_{ii} > 2p/n$, can be called leverage points.

```
X=as.matrix(cbind(rep(1,length(x)),x))
# or

X=model.matrix(a)
hat=X%*%solve(t(X)%*%X)%*%t(X)

diag(hat)
```

```
1           2           3           4           5           6           7
0.2027453  0.2288737  0.2596869  0.1751432  0.1735495  0.3887329  0.5712686
```

```
p=2
n=7
diag(hat)>2*p/n
```

```
1           2           3           4           5           6           7
FALSE      FALSE      FALSE      FALSE      FALSE      FALSE      FALSE
```

7.1 Cook's Distance

Cook's Distance is one way to incorporate both the X and Y values into an outlyingness measure:

$$D_i(X^\top X, p, MSE) \equiv D_i = \frac{(\hat{\beta}_{(i)} - \hat{\beta})^\top X^\top X (\hat{\beta}_{(i)} - \hat{\beta})}{pMSE}, \quad i = \in [n],$$

where $\hat{\beta}_{(i)}$ is the OLS estimator with the i th point removed. Large values of Cook's distance signal a leverage point.

What do we mean by a large value? We can compare D_i to the 50th percentile of the $F_{p,n-p}$ distribution. This gives the interpretation that deleting the i th point moves the estimate to the boundary of a 50% confidence interval. $F_{p,n-p} \approx 1$, and so usually take $D_i \geq 1$ to be large.

Observe that

$$D_i = \frac{r_i^2}{p} \frac{\text{Var}(\hat{Y}_i)}{\text{Var}(\hat{\epsilon}_i)} = \frac{r_i^2}{p} \frac{h_{ii}}{1-h_{ii}}, \quad i = 1, 2, \dots, n,$$

where it is important to recall that r_i is the studentized residual. Now, the quantity $\frac{h_{ii}}{1-h_{ii}}$ can be shown to be the distance from the vector x_i to the centroid of the remaining data.

Therefore, D_i is the product of outlyingness in both the X and Y directions. We may also write D_i as

$$D_i = \frac{\|\hat{y}_{(i)} - \hat{y}\|^2}{pMSE},$$

which allows for the interpretation: The Cook's distance of the i th point is the normalized distance between the fitted value with and without point i .

```
#cut off
cooks.distance(a)
```

```
1           2           3           4           5           6
0.1708029420 0.2516095165 0.0180669722 0.0009569213 0.0011772793 0.2002829110
7
3.3311562309
```

```
cooks.distance(a)>1
```

```
1       2       3       4       5       6       7
FALSE FALSE FALSE FALSE FALSE FALSE TRUE
```

```
df=data.frame(cbind(y,x))
df[cooks.distance(a)>1,]
```

```
y      x
7 15 2.5
```

7.1.1 Data depth functions

A more modern approach and nonparametric approach to outlier detection is through data depth. A data depth function gives meaning to centrality, order and outlyingness in spaces beyond \mathbb{R} . A data depth function is a function which takes a sample and a point, and returns how central the point is, with respect to the sample. Depth functions can be written as $D: \mathbb{R}^d \times \text{Sample} \rightarrow \mathbb{R}^+$. There are different definitions of depth, so I will give a few.

Let $S^{d-1} = \{x \in \mathbb{R}^d : \|x\| = 1\}$ be the set of unit vectors in \mathbb{R}^d , let $\mathbb{X}_n = \{(Y_1, X_{1,1}, \dots, X_{1,p-1}), \dots, (Y_n, X_{n,1}, \dots, X_{n,p-1})\}$ be the sample, let $\mathbb{X}_n^\top u$ be \mathbb{X}_n projected onto $u \in S^{d-1}$ and let \widehat{F}_u be the empirical CDF with respect to $\mathbb{X}_n^\top u$. The halfspace depth D_H of a point $x \in \mathbb{R}^d$ with respect to a distribution F over \mathbb{R}^d is

$$D_H(x; F) = \inf_{u \in S^{d-1}} \widehat{F}_u(x^\top u) \wedge (1 - \widehat{F}_u(x^\top u)) = \inf_{u \in S^{d-1}} F_u(x^\top u).$$

...:

Given a translation and scale equivariant location estimate μ and a translation and scale invariant scale estimate σ , the outlyingness at $x \in \mathbb{R}^d$ is defined as

$$O(x) = \sup_{u \in S^{d-1}} \frac{|x^\top u - \mu(\mathbb{X}_n^\top u)|}{\sigma(\mathbb{X}_n^\top u)}.$$

Define projection depth as

$$D_p(x) = (1 + O(x))^{-1}.$$

In order to detect outliers, we look for observations that have low depth. See, continuing our toy example:

```
# install.packages('ddalpha')
depths=ddalpha::depth.projection(cbind(x,y), cbind(x,y))
depths
```

```
[1] 0.276409011 0.255272074 0.500000000 0.973754328 0.973046927 0.338954415
[7] 0.002071928
```

```
depths<0.015
```

```
[1] FALSE FALSE FALSE FALSE FALSE FALSE TRUE
```

Example 7.1. Recall example Example 6.6. Check for leverage and influential points in the proposed models. Compute all three measures of leverage/influence/outlyingness introduced in this lesson.

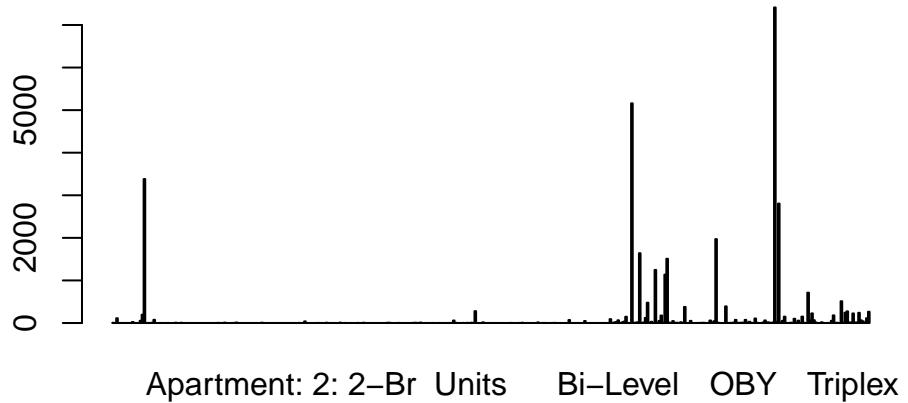
I will load in the data below:



Attaching package: 'lubridate'

The following objects are masked from 'package:base':

date, intersect, setdiff, union



```
[1] "PropType"
[1] Commercial
Levels: Commercial Condominium Lg Apartment Residential Vacant Land
[1] "District"
[1] 6
[1] "Extwall"
[1]
10 Levels: Aluminum / Vinyl Block Brick Fiber-Cement Frame ... Stucco
[1] "Stories"
[1] 2
[1] "Year_Built"
[1] 1880
[1] "Nr_of_rms"
[1] 0
[1] "Fin_sqft"
[1] 1840
[1] "Units"
[1] 1
[1] "Bdrms"
[1] 0
[1] "Fbath"
[1] 0
[1] "Lotsize"
```

```

[1] 12750
[1] "Sale_date"
[1] 11688
[1] "Sale_price"
[1] 15900
[1] "PropType"
[1] Residential
Levels: Commercial Condominium Lg Apartment Residential Vacant Land
[1] "factor"
[1] "District"
[1] 7
[1] "integer"
[1] "Extwall"
[1] Frame
10 Levels: Aluminum / Vinyl Block Brick Fiber-Cement Frame ... Stucco
[1] "factor"
[1] "Stories"
[1] 2
[1] "double"
[1] "Year_Built"
[1] 1913
[1] "integer"
[1] "Nr_of_rms"
[1] 0
[1] "integer"
[1] "Fin_sqft"
[1] 3476
[1] "integer"
[1] "Units"
[1] 4
[1] "integer"
[1] "Bdrms"
[1] 9
[1] "integer"
[1] "Fbath"
[1] 1
[1] "integer"
[1] "Lotsize"
[1] 5040
[1] "integer"
[1] "Sale_date"
[1] 11719
[1] "integer"

```

```

[1] "Sale_price"
[1] 42000
[1] "integer"
[1] "PropType"
[1] Residential
Levels: Commercial Condominium Lg Apartment Residential Vacant Land
[1] "factor"
[1] "District"
[1] 7
Levels: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
[1] "factor"
[1] "Extwall"
[1] Frame
10 Levels: Aluminum / Vinyl Block Brick Fiber-Cement Frame ... Stucco
[1] "factor"
[1] "Stories"
[1] 2
Levels: 1 1.5 2 2.5 3 3.5
[1] "factor"
[1] "Year_Built"
[1] 1913
[1] "integer"
[1] "Nr_of_rms"
[1] 0
Levels: 0
[1] "factor"
[1] "Fin_sqft"
[1] 3476
[1] "integer"
[1] "Units"
[1] 4
Levels: 0 1 2 3 4 6 7 8 13
[1] "factor"
[1] "Bdrms"
[1] 9
Levels: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 2031
[1] "factor"
[1] "Fbath"
[1] 1
Levels: 0 1 2 3 4 5 6 10
[1] "factor"
[1] "Lotsize"
[1] 5040

```

```

[1] "integer"
[1] "Sale_date"
[1] 11719
[1] "integer"
[1] "Sale_price"
[1] 42000
[1] "integer"
[1] "PropType"
[1] Residential
Levels: Commercial Condominium Lg Apartment Residential Vacant Land
[1] "factor"
[1] "District"
[1] 7
Levels: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
[1] "factor"
[1] "Extwall"
[1] Frame
10 Levels: Aluminum / Vinyl Block Brick Fiber-Cement Frame ... Stucco
[1] "factor"
[1] "Stories"
[1] 2
Levels: 1 1.5 2 2.5 3 3.5
[1] "factor"
[1] "Year_Built"
[1] 1913
[1] "integer"
[1] "Nr_of_rms"
[1] 0
Levels: 0
[1] "factor"
[1] "Fin_sqft"
[1] 3476
[1] "integer"
[1] "Units"
[1] 4
Levels: 0 1 2 3 4 6 7 8 13
[1] "factor"
[1] "Bdrms"
[1] 9
Levels: 0 1 2 3 4 5 6 7 8 9 10 11 12 13
[1] "factor"
[1] "Fbath"
[1] 1

```

Levels: 0 1 2 3 4 5 6 10

```
[1] "factor"
[1] "Lotsize"
[1] 5040
[1] "integer"
[1] "Sale_date"
[1] 11719
[1] "integer"
[1] "Sale_price"
[1] 42000
[1] "integer"
[1] "PropType"
```

	Commercial	Condominium	Lg Apartment	Residential	Vacant Land	
0	0	0	0	0	24623	0

```
[1] "District"
```

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1009	1410	1585	166	3762	703	1033	838	1146	2740	3658	470	2754	2813	536

```
[1] "Extwall"
```

	Aluminum / Vinyl	Block	Brick
0	13931	147	5684
Fiber-Cement	Frame Masonry / Frame	Prem Wood	
149	2527	760	63
Stone	Stucco		
915	447		

```
[1] "Stories"
```

1	1.5	2	2.5	3	3.5
15647	3441	5516	9	9	1

```
[1] "Nr_of_rms"
```

0
24623

```
[1] "Units"
```

0	1	2	3	4	6	7	8	13
1	20048	4304	230	31	3	3	2	1

```
[1] "Bdrms"
```

0	1	2	3	4	5	6	7	8	9	10	11	12
8	111	3280	12646	5770	1356	1228	123	74	20	3	1	1

```

13
2
[1] "Fbath"

0    1    2    3    4    5    6    10
25 14543 9006   916   108    21    3    1
[1] "District"

1    2    3    4    5    6    7    8    9    10   11   12   13   14   15
1009 1410 1585  166 3762   703 1033   838 1146 2740 3658  470 2754 2813 536
[1] "Extwall"

          Aluminum / Vinyl           Block           Brick
          0                  13931            147            5684
Fiber-Cement           Frame  Masonry / Frame       Prem Wood
          149                  2527            760            63
          Stone             Stucco
          915                  447

[1] "Stories"

1    1.5    2    2.5    3    3.5
15647 3441 5516     9     9     1
[1] "Units"

0    1    2    3    4    6    7    8    13
1 20048 4304   230   31    3    3    2    1
[1] "Bdrms"

0    1    2    3    4    5    6    7    8    9    10   11   12
8 111 3280 12646 5770 1356 1228 123   74   20   3    1    1
13
2
[1] "Fbath"

0    1    2    3    4    5    6    10
25 14543 9006   916   108    21    3    1
[1] "District"

1    2    3    4    5    6    7    8    9    10   11   12   13   14   15
1009 1410 1585  166 3762   703 1033   838 1146 2740 3658  470 2754 2813 535
[1] "Extwall"

Aluminum / Vinyl           Block           Brick           Fiber-Cement

```

```

13930           147           5684           149
Frame  Masonry / Frame      Prem Wood      Stone
2527           760           63            915
Stucco
447
[1] "Stories"

1   1.5   2   >2
15647 3441 5515   19
[1] "Units"

0   1   2   3   >3
0 20048 4304 230   40
[1] "Bdrms"

0   1   2   3   4   5   6   7   8   >8
8   111 3280 12645 5770 1356 1228 123   74   27
[1] "Fbath"

0   1   2   3   4   >4
25 14543 9005 916 108   25

```

We can now analyze the data:

```

# df_clean4=df_clean4[df_clean4$Lotsize<70000,]

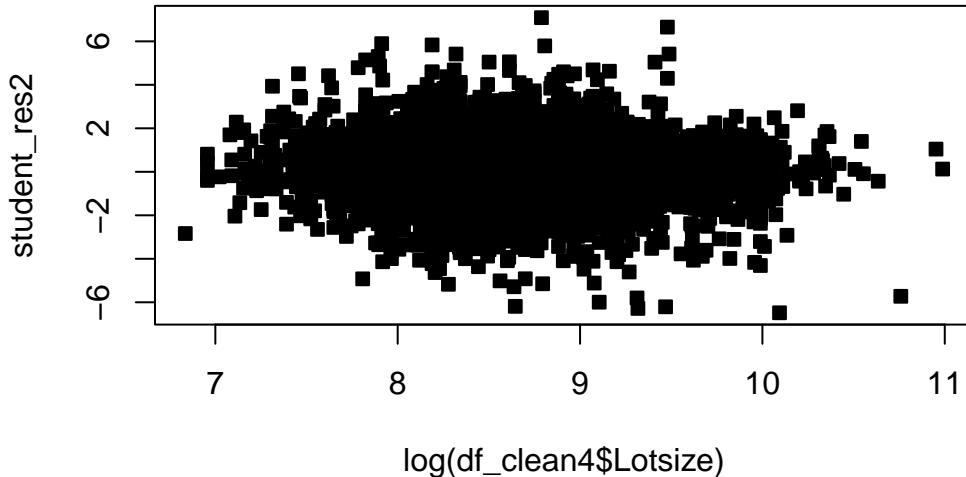
custom_palette <- c(
  "#1f77b4", "#ff7f0e", "#2ca02c", "#d62728",
  "#9467bd", "#8c564b", "#e377c2", "#7f7f7f",
  "#bcbd22", "#17becf", "#393b79",
  "#8c6d31", "#9c9ede", "#637939", "#eb348f"
)

# Our model from the previous lecture
df_clean4$d_3=df_clean4$District==3

model2=lm(sqrt(Sale_price)~ District + Extwall +
  Stories + Year_Built + Fin_sqft +
  Units + Bdrms +
  Fbath + log(Lotsize) + Sale_date +d_3*Lotsize-d_3,df_clean4)

```

```
# Compute residuals
student_res2=rstudent(model2)
plot(log(df_clean4$Lotsize) ,student_res2,pch=22, bg=1)
```



```
summ2=summary(model2); summ2
```

Call:

```
lm(formula = sqrt(Sale_price) ~ District + Extwall + Stories +
  Year_Built + Fin_sqft + Units + Bdrms + Fbath + log(Lotsize) +
  Sale_date + d_3 * Lotsize - d_3, data = df_clean4)
```

Residuals:

Min	1Q	Median	3Q	Max
-321.26	-28.88	1.83	30.31	360.39

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-9.602e+02	4.736e+01	-20.277	< 2e-16 ***
District2	3.198e+01	2.135e+00	14.979	< 2e-16 ***
District3	1.447e+02	3.708e+00	39.019	< 2e-16 ***
District4	-3.250e+01	4.478e+00	-7.257	4.07e-13 ***

District5	9.059e+01	1.838e+00	49.282	< 2e-16	***
District6	1.232e+01	2.678e+00	4.600	4.25e-06	***
District7	-5.148e+00	2.296e+00	-2.242	0.024989	*
District8	4.163e+01	2.544e+00	16.366	< 2e-16	***
District9	6.322e+01	2.301e+00	27.477	< 2e-16	***
District10	9.744e+01	1.918e+00	50.793	< 2e-16	***
District11	1.112e+02	1.839e+00	60.490	< 2e-16	***
District12	2.754e+01	3.110e+00	8.857	< 2e-16	***
District13	1.095e+02	1.900e+00	57.613	< 2e-16	***
District14	1.497e+02	1.946e+00	76.906	< 2e-16	***
District15	-4.216e+01	2.849e+00	-14.797	< 2e-16	***
ExtwallBlock	-8.222e+00	4.315e+00	-1.906	0.056705	.
ExtwallBrick	8.448e+00	8.578e-01	9.848	< 2e-16	***
ExtwallFiber-Cement	4.270e+01	4.408e+00	9.688	< 2e-16	***
ExtwallFrame	-5.459e+00	1.145e+00	-4.768	1.87e-06	***
ExtwallMasonry / Frame	4.695e+00	2.007e+00	2.339	0.019322	*
ExtwallPrem Wood	2.015e+01	6.586e+00	3.060	0.002219	**
ExtwallStone	1.967e+01	1.804e+00	10.906	< 2e-16	***
ExtwallStucco	6.901e+00	2.513e+00	2.746	0.006043	**
Stories1.5	1.511e+01	1.160e+00	13.024	< 2e-16	***
Stories2	1.940e+01	1.221e+00	15.882	< 2e-16	***
Stories>2	4.922e+00	1.203e+01	0.409	0.682581	
Year_Built	3.606e-01	2.152e-02	16.759	< 2e-16	***
Fin_sqft	7.881e-02	1.181e-03	66.744	< 2e-16	***
Units2	-8.159e+01	1.302e+00	-62.658	< 2e-16	***
Units3	-1.100e+02	4.035e+00	-27.264	< 2e-16	***
Units>3	-4.615e+01	8.626e+00	-5.350	8.89e-08	***
Bdrms1	-5.372e+01	1.982e+01	-2.710	0.006725	**
Bdrms2	-3.891e+01	1.918e+01	-2.029	0.042483	*
Bdrms3	-2.700e+01	1.916e+01	-1.409	0.158741	
Bdrms4	-3.564e+01	1.916e+01	-1.860	0.062899	.
Bdrms5	-3.845e+01	1.921e+01	-2.002	0.045339	*
Bdrms6	-5.450e+01	1.922e+01	-2.835	0.004587	**
Bdrms7	-7.387e+01	1.974e+01	-3.743	0.000182	***
Bdrms8	-6.713e+01	2.013e+01	-3.335	0.000855	***
Bdrms>8	-1.135e+02	2.161e+01	-5.256	1.49e-07	***
Fbath1	6.170e+00	1.149e+01	0.537	0.591397	
Fbath2	2.863e+01	1.150e+01	2.489	0.012803	*
Fbath3	4.760e+01	1.168e+01	4.076	4.60e-05	***
Fbath4	6.076e+01	1.268e+01	4.791	1.67e-06	***
Fbath>4	-5.056e+00	1.597e+01	-0.317	0.751598	
log(Lotsize)	3.931e+01	2.734e+00	14.382	< 2e-16	***
Sale_date	6.616e-03	3.045e-04	21.729	< 2e-16	***

```

Lotsize          -2.250e-03  3.217e-04  -6.996  2.70e-12 ***
d_3TRUE:Lotsize  1.144e-02  6.042e-04   18.936  < 2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 51.21 on 24394 degrees of freedom
Multiple R-squared:  0.727, Adjusted R-squared:  0.7264
F-statistic: 1353 on 48 and 24394 DF,  p-value: < 2.2e-16

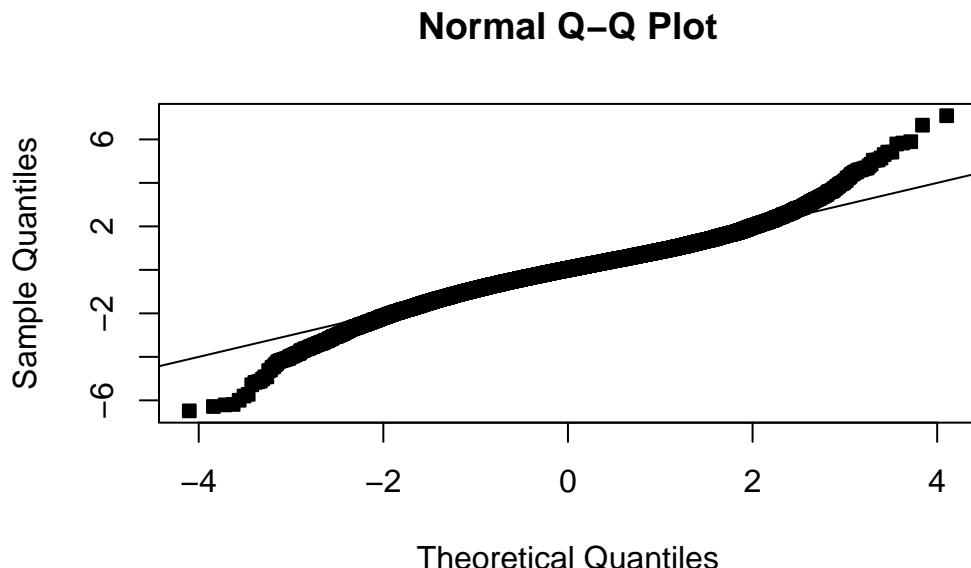
```

```
summ2$adj.r.squared
```

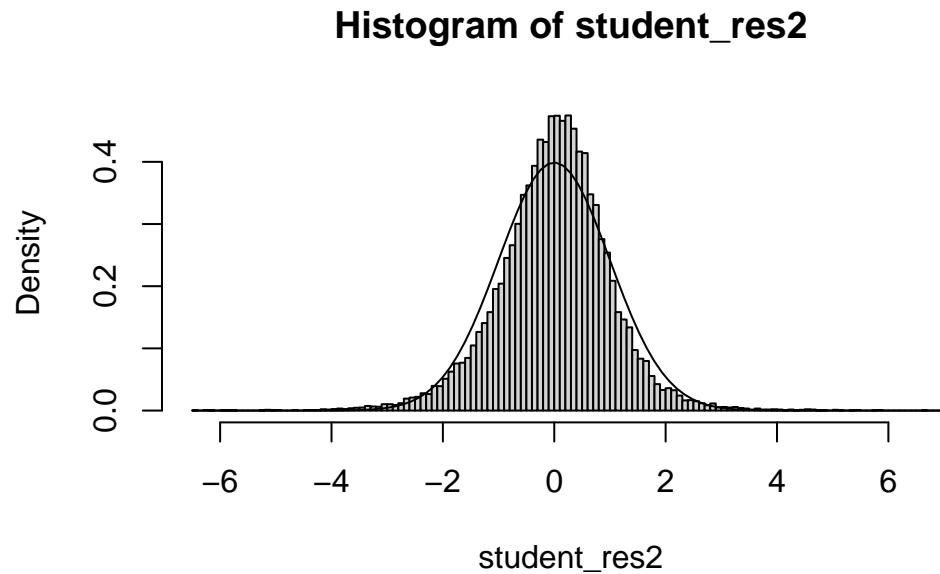
```
[1] 0.7264436
```

```
# Compute residual analysis

MSE2=summ2$sigma^2
qqnorm(student_res2,pch=22,bg=1)
abline(0,1)
```

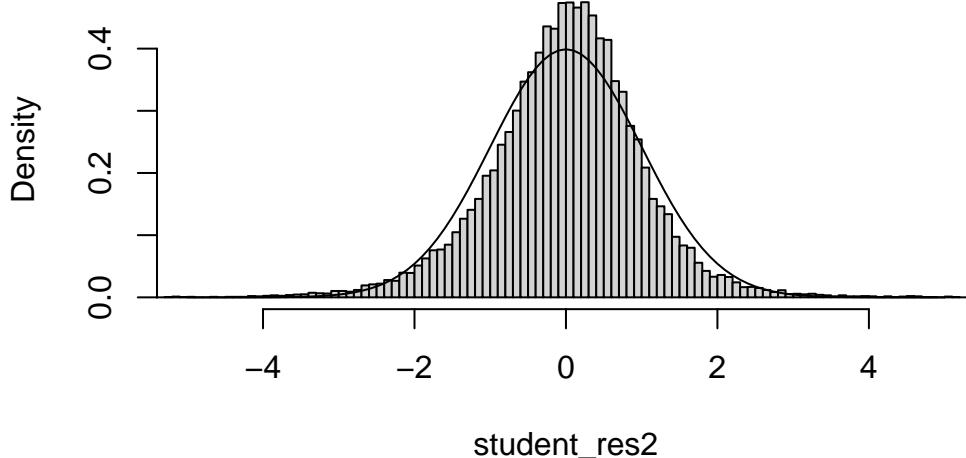


```
hist(student_res2,freq=F,breaks=100)
curve(dnorm(x,0,1),add=T)
```

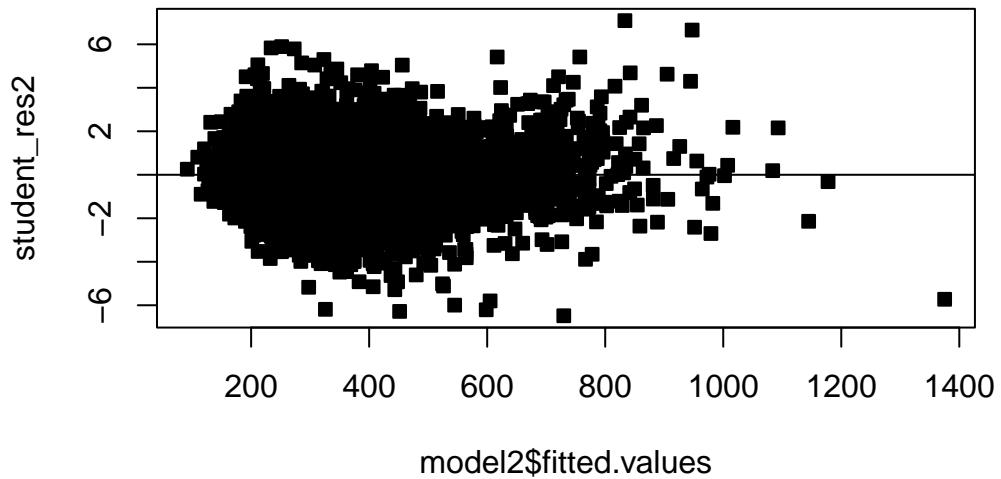


```
hist(student_res2,freq=F,xlim=c(-5,5),breaks=100)
curve(dnorm(x,0,1),add=T)
```

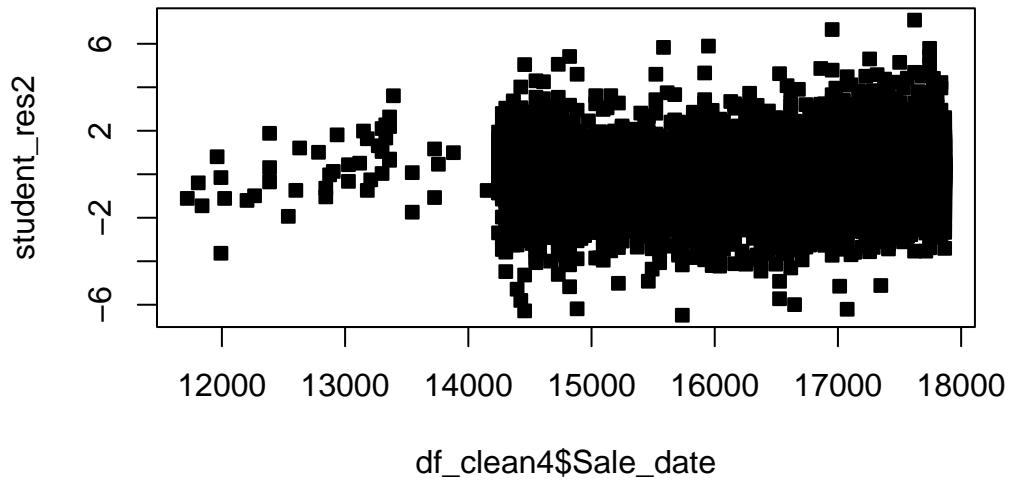
Histogram of student_res2



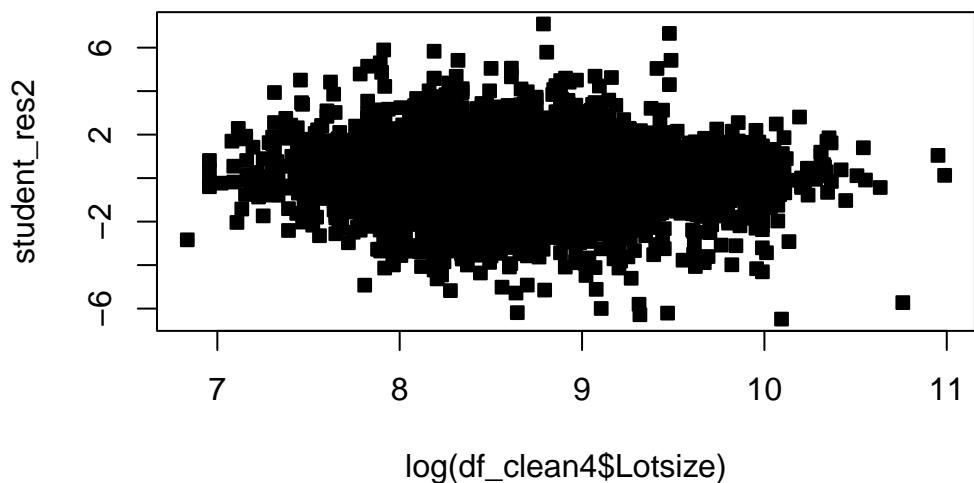
```
plot(model2$fitted.values,student_res2,pch=22,bg=1)
abline(h=0)
```



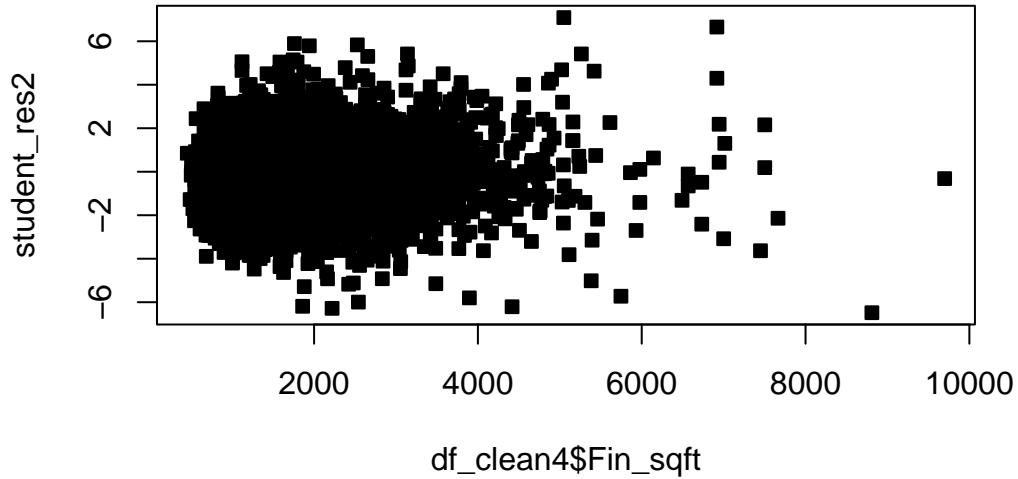
```
plot(df_clean4$Sale_date ,student_res2,pch=22, bg=1)
```



```
plot(log(df_clean4$Lotsize) ,student_res2,pch=22, bg=1)
```



```
plot(df_clean4$Fin_sqft ,student_res2,pch=22, bg=1)
```



```
# First measure
```

```
X=model.matrix(model2)
hat=X%*%solve(t(X)%*%X)%*%t(X)

diag(hat)
```

11	52	68	117	135	136
0.0587339625	0.0295145399	0.1556160654	0.0315216949	0.1028377289	0.0044551683
151	240	272	358	359	360
0.0326230879	0.0010939509	0.0017896473	0.0315019452	0.0020856518	0.0012539924
466	520	550	663	722	723
0.0385376794	0.0024790012	0.0318974665	0.0592687694	0.0314237251	0.1546721030
760	788	829	937	938	1034
0.0394042287	0.0317796185	0.0292264982	0.0425718717	0.0296641506	0.0358588038
1071	1099	1100	1128	1176	1212
0.0406206789	0.0313685108	0.0359937724	0.0307920711	0.0029713347	0.0172253877
1213	1214	1244	1245	1275	1276
0.0586042133	0.0018991119	0.0296587360	0.0596742668	0.0317188873	0.0172686142
1277	1278	1304	1436	1437	1577

0.0297384158	0.0293478451	0.0318575574	0.0289482767	0.0360103155	0.0359906430
1578	1601	1698	1815	1850	1851
0.0019758889	0.0356536401	0.0186855767	0.0015300782	0.0024331296	0.0013031775
1852	1853	1854	1855	1856	1857
0.0012847158	0.0013002460	0.0023230971	0.0033426500	0.0064331624	0.0010760725
1858	1859	1860	1861	1862	1863
0.0020385672	0.0010292435	0.0010498078	0.0010566090	0.0010670814	0.0012414415
1864	1865	1866	1867	1868	1869
0.0015938678	0.0013071962	0.0009499589	0.0564506522	0.0014633853	0.0014106534
1870	1871	1872	1873	1874	1875
0.0016836643	0.0014428476	0.0014422208	0.0006005816	0.0005911054	0.0008480163
1876	1877	1878	1879	1880	1881
0.0008777253	0.0007712608	0.0005529891	0.0017629236	0.0025061205	0.0016498415
1882	1883	1884	1885	1886	1888
0.0006302378	0.0023118379	0.0026516175	0.0021986744	0.0018454795	0.0019595974
1889	1890	1891	1892	1893	1894
0.0015326164	0.0014060373	0.0013283320	0.0006904048	0.0012691929	0.0012274427
1895	1896	1897	1898	1899	1900
0.0010376762	0.0006993933	0.0013369232	0.0012511944	0.0013289366	0.0008492535
1901	1902	1903	1904	1905	1906
0.0013643654	0.0012621477	0.0007188639	0.0005764739	0.0008151797	0.0008170618
1907	1908	1909	1910	1911	1912
0.0008487505	0.0007540181	0.0009614640	0.0013033946	0.0006612488	0.0009911847
1913	1914	1915	1916	1917	1918
0.0007357156	0.0006607300	0.0007183909	0.0012685167	0.0010738741	0.0009389252
1920	1921	1940	1941	1942	1943
0.0014737077	0.0092363182	0.0019697550	0.0021425587	0.0019224831	0.0014233811
1944	1945	1946	1947	1948	1949
0.0010677642	0.0009715704	0.0013912391	0.0017668024	0.0013301128	0.0019049632
1950	1951	1952	1953	1954	1955
0.0021856370	0.0024025948	0.0027874009	0.0011470070	0.0018249811	0.0015430280
1956	1957	1958	1959	1960	1961
0.0005309931	0.0008072413	0.0009787603	0.0012898983	0.0005715770	0.0005536905
1962	1963	1964	1965	1966	1967
0.0005715150	0.0005164300	0.0069518378	0.0027416471	0.0030132655	0.0023223699
1968	1969	1970	1971	1972	1973
0.0016568359	0.0013210662	0.0015751795	0.0020304871	0.0017156199	0.0022658827
1974	1975	1976	1977	1978	1979
0.0019940386	0.0012835177	0.0016641348	0.0011183352	0.0011393484	0.0014949883
1980	1981	1982	1983	1984	1985
0.0008423985	0.0013542623	0.0017560570	0.0552901039	0.0015997954	0.0010302195
1986	1987	1988	1989	1990	1991
0.0007687041	0.0031722284	0.0020092789	0.0019900463	0.0009850651	0.0005780400

1992	1993	1994	1995	1996	1997
0.0006677643	0.0014853020	0.0011379533	0.0006005726	0.0013388187	0.0012058668
1998	1999	2000	2001	2002	2003
0.0035902739	0.0028263931	0.0008508944	0.0006906109	0.0007458495	0.0010034935
2004	2005	2006	2007	2008	2009
0.0007850428	0.0007177663	0.0006546781	0.0008360800	0.0511354750	0.0010614822
2010	2011	2012	2013	2014	2015
0.0011612626	0.0012601103	0.0034001941	0.0013862973	0.0016798003	0.0171013100
2016	2017	2018	2020	2021	2049
0.0087134561	0.0008719870	0.0028117880	0.0025752191	0.0025786455	0.0016021755
2050	2051	2052	2053	2054	2055
0.0019123883	0.0018646789	0.0010681754	0.0022320873	0.0009508865	0.0019526514
2056	2057	2058	2059	2060	2061
0.0029014274	0.0018255829	0.0033596963	0.0014359881	0.0007571262	0.0013019826
2062	2063	2064	2065	2066	2067
0.0007001804	0.0005435962	0.0007932457	0.0007647708	0.0011460306	0.0026298190
2068	2069	2070	2071	2072	2073
0.0018346202	0.0010320277	0.0008109538	0.0005694534	0.0005978583	0.0005930098
2074	2075	2076	2077	2078	2079
0.0005103470	0.0005165658	0.0006024358	0.0005374251	0.0005160188	0.0011454792
2080	2081	2082	2083	2084	2085
0.0013886880	0.0014626278	0.0020786451	0.0021195438	0.0024680188	0.0021951979
2086	2087	2088	2089	2090	2091
0.0023459540	0.0023459540	0.0141810378	0.0028963736	0.0016822816	0.0020709594
2092	2093	2094	2095	2096	2097
0.0022960295	0.0023968724	0.0042121795	0.0029054776	0.0023163440	0.0017685247
2098	2099	2100	2101	2102	2103
0.0023443844	0.0015927162	0.0016926384	0.0019295239	0.0013293167	0.0010025171
2104	2105	2106	2107	2108	2109
0.0010612192	0.0012566185	0.0009169414	0.0012089478	0.0009390437	0.0009979064
2110	2111	2112	2113	2114	2115
0.0006554265	0.0006889720	0.0009385862	0.0005698931	0.0007556736	0.0017377700
2116	2117	2118	2119	2120	2121
0.0009205686	0.0005322880	0.0008136542	0.0007478681	0.0035365811	0.0030882045
2122	2123	2124	2125	2126	2127
0.0027469628	0.0021500646	0.0017505586	0.0023345877	0.0008739687	0.0014022776
2128	2129	2130	2131	2132	2133
0.0006223390	0.0006616929	0.0016330386	0.0013121507	0.0012229759	0.0009557038
2134	2135	2136	2137	2138	2139
0.0009392678	0.0009130880	0.0006546573	0.0006370678	0.0006279830	0.0008665064
2140	2141	2142	2143	2144	2145
0.0027263526	0.0021174002	0.0008867329	0.0025678882	0.0019878329	0.0019446218
2146	2147	2148	2149	2150	2151

0.0012681109	0.0010004099	0.0007546102	0.0077439809	0.0011621909	0.0014052301
2152	2153	2154	2155	2191	2192
0.0009491506	0.0028653118	0.0029517864	0.0065999303	0.0024965679	0.0017277960
2193	2194	2195	2196	2197	2198
0.0017277960	0.0022194795	0.0014789342	0.0012661291	0.0016150827	0.0009452937
2199	2200	2201	2202	2203	2204
0.0010077101	0.0013680236	0.0028689923	0.0017580850	0.0009570511	0.0010018186
2205	2206	2207	2208	2209	2210
0.0018673340	0.0009495574	0.0017172381	0.0016953939	0.0024566891	0.0121063517
2211	2212	2213	2214	2215	2216
0.0017087924	0.0017890891	0.0015800412	0.0006080575	0.0005308440	0.0005073010
2217	2218	2219	2220	2221	2222
0.0009801699	0.0013754606	0.0005203100	0.0008216496	0.0008191370	0.0022545808
2223	2224	2225	2226	2227	2228
0.0010443407	0.0010962651	0.0009447652	0.0015499836	0.0024926249	0.0011832015
2229	2230	2231	2232	2233	2234
0.0012641495	0.0019709050	0.0005198336	0.0006134873	0.0008646681	0.0005692399
2235	2236	2237	2238	2239	2240
0.0008670121	0.0005071295	0.0007337879	0.0024794408	0.0028073207	0.0022355944
2241	2242	2243	2244	2245	2246
0.0023462511	0.0018328987	0.0014156198	0.0041573933	0.0017946970	0.0026355294
2247	2248	2249	2251	2252	2253
0.0016543130	0.0021897704	0.0024980901	0.0014439148	0.0015445493	0.0012902455
2254	2255	2256	2257	2258	2259
0.0025806382	0.0010607884	0.0010894417	0.0022754353	0.0008591421	0.0034000721
2260	2261	2262	2263	2264	2265
0.0009861195	0.0010633251	0.0008962339	0.0009121732	0.0007648939	0.0009541195
2266	2267	2268	2269	2270	2271
0.0017510074	0.0017275118	0.0011410695	0.0012386189	0.0010206554	0.0011831200
2272	2273	2274	2275	2276	2277
0.0011146031	0.0007646737	0.0005892381	0.0007576395	0.0005679937	0.0011218373
2278	2279	2280	2281	2282	2283
0.0008403676	0.0174128521	0.0009682191	0.0014491151	0.0015015670	0.0020312595
2284	2285	2286	2287	2288	2289
0.0010216607	0.0011761345	0.0005350156	0.0008146041	0.0005266223	0.0005130930
2290	2291	2292	2293	2294	2295
0.0005195730	0.0011340179	0.0005312977	0.0005337333	0.0011423008	0.0007477315
2296	2297	2298	2299	2300	2301
0.0014027427	0.0008860177	0.0019041687	0.0118753823	0.0011048250	0.0024395706
2302	2303	2304	2305	2306	2307
0.0007079865	0.0007441686	0.0015386410	0.0007006585	0.0006518456	0.0010618645
2308	2309	2310	2311	2312	2313
0.0006442057	0.0009196139	0.0006301843	0.0006163467	0.0006425598	0.0006725231

2314	2315	2316	2317	2318	2319
0.0006792701	0.0008401677	0.0077751400	0.0012200037	0.0012630187	0.0009818969
2320	2321	2322	2323	2324	2325
0.0012128555	0.0010421971	0.0010154874	0.0009361664	0.0007977207	0.0008284416
2326	2327	2328	2329	2367	2368
0.0013134239	0.0033989689	0.0010108766	0.0012101969	0.0017436640	0.0018820079
2369	2370	2371	2372	2373	2374
0.0015778906	0.0012717222	0.0014461977	0.0024551997	0.0019084907	0.0016290136
2375	2376	2377	2378	2379	2380
0.0013289723	0.0185312528	0.0017201826	0.0012522441	0.0020249699	0.0012160478
2381	2382	2383	2384	2385	2386
0.0012160478	0.0012160478	0.0012160478	0.0009755767	0.0011841953	0.0017623922
2387	2388	2389	2390	2391	2392
0.0018727727	0.0021515191	0.0021515191	0.0031386559	0.0114926301	0.0133453637
2393	2394	2395	2396	2397	2398
0.0015836270	0.0037044238	0.0025278135	0.0026219233	0.0030565637	0.0016677636
2399	2400	2401	2402	2403	2404
0.0027774798	0.0019103802	0.0024307104	0.0011762916	0.0030729537	0.0018067958
2405	2406	2407	2408	2409	2410
0.0008787322	0.0005935494	0.0008200474	0.0010087274	0.0007687186	0.0007376965
2411	2412	2413	2414	2415	2416
0.0011148975	0.0005853010	0.0005264584	0.0005262380	0.0005281215	0.0005046124
2417	2418	2419	2420	2421	2422
0.0005205791	0.0005155036	0.0005146944	0.0007329489	0.0007473800	0.0008348288
2423	2424	2425	2426	2427	2428
0.0007642253	0.0016736803	0.0019412064	0.0009324436	0.0019816606	0.0015756938
2429	2430	2431	2432	2433	2434
0.0007576019	0.0008021465	0.0006141865	0.0008992568	0.0006484533	0.0005677640
2435	2436	2437	2438	2439	2440
0.0008187190	0.0006957759	0.0005179543	0.0008872843	0.0005992716	0.0008366418
2441	2442	2443	2444	2445	2446
0.0005403950	0.0017855740	0.0008954003	0.0032850894	0.0022531455	0.0021385922
2447	2448	2449	2450	2451	2452
0.0021139902	0.0082759147	0.0021075405	0.0014779631	0.0026504561	0.0026641279
2453	2454	2455	2456	2457	2458
0.0013642807	0.0025989609	0.0032775153	0.0022982108	0.0025622417	0.0023937956
2459	2460	2461	2462	2463	2464
0.0021826265	0.0015505511	0.0015655035	0.0215150364	0.0011639909	0.0013410489
2465	2466	2467	2468	2469	2470
0.0015146466	0.0019680687	0.0024695137	0.0007099971	0.0007770515	0.0006649354
2471	2472	2473	2474	2475	2476
0.0008865732	0.0009050362	0.0009955683	0.0052592176	0.0021115752	0.0009959834
2477	2478	2479	2480	2481	2482

0.0011874237	0.0006831995	0.0008399879	0.0115656386	0.0009339217	0.0008746639
2483	2484	2485	2486	2487	2488
0.0008871852	0.0012205155	0.0017380269	0.0018599176	0.0007616399	0.0006328162
2490	2491	2492	2493	2494	2495
0.0009463904	0.0020707938	0.0010861219	0.0009443728	0.0005279636	0.0005454305
2496	2497	2498	2499	2500	2501
0.0006139664	0.0005622440	0.0005201644	0.0008489801	0.0005114444	0.0005863267
2502	2503	2504	2505	2506	2507
0.0005806547	0.0008060745	0.0010678241	0.0005884563	0.0005546982	0.0005279454
2508	2509	2510	2511	2512	2513
0.0008299411	0.0005203990	0.0005746670	0.0005224608	0.0011365137	0.0007434175
2514	2515	2516	2518	2519	2520
0.0027678000	0.0023261918	0.0010597831	0.0012077953	0.0015376523	0.0023817981
2521	2522	2523	2524	2525	2526
0.0009211839	0.0012268389	0.0008671599	0.0007806052	0.0008517491	0.0008784460
2527	2528	2529	2530	2531	2532
0.0006258637	0.0006500665	0.0006883039	0.0007100910	0.0009036264	0.0006973519
2533	2535	2536	2537	2538	2539
0.0006244615	0.0013011410	0.0019536853	0.0013137674	0.0010679625	0.0007031287
2540	2541	2542	2543	2544	2545
0.0007155664	0.0009901182	0.0012573363	0.0012870551	0.0017440381	0.0012039373
2546	2547	2548	2549	2550	2551
0.0010650426	0.0011010083	0.0010879919	0.0006942652	0.0006562689	0.0007175108
2552	2553	2554	2555	2556	2557
0.0009298335	0.0020141760	0.0013994033	0.0006957667	0.0007998406	0.0032266440
2614	2615	2616	2617	2618	2619
0.0100884027	0.0012715235	0.0013569927	0.0023343655	0.0021617021	0.0018712057
2620	2621	2622	2623	2624	2625
0.0016321663	0.0022614352	0.0029553649	0.0015002483	0.0018894187	0.0013231860
2626	2627	2628	2629	2630	2631
0.0021375940	0.0013876185	0.0016818507	0.0013127223	0.0009665197	0.0012843314
2632	2633	2634	2635	2636	2637
0.0010536565	0.0019453173	0.0013858621	0.0012785544	0.0010559079	0.0010153602
2638	2639	2640	2641	2642	2643
0.0010241400	0.0009204533	0.0009571309	0.0009195422	0.0009243944	0.0011716325
2644	2645	2646	2647	2648	2649
0.0021914831	0.0023177870	0.0015496119	0.0034463446	0.0033258668	0.0015494765
2651	2652	2653	2654	2655	2656
0.0041013445	0.0006161344	0.0006448706	0.0007378047	0.0005835777	0.0005710144
2657	2658	2659	2660	2661	2662
0.0005534220	0.0005242194	0.0005430412	0.0017247664	0.0008472122	0.0004997060
2663	2664	2665	2666	2667	2668
0.0008538947	0.0005104666	0.0011064021	0.0008124910	0.0017472691	0.0005074607

2669	2670	2671	2672	2673	2674
0.0004986593	0.0005181753	0.0075615410	0.0019696454	0.0010719753	0.0011361554
2675	2676	2677	2678	2679	2680
0.0008197716	0.0005806953	0.0008240641	0.0005213304	0.0005743376	0.0008049890
2681	2682	2683	2684	2685	2686
0.0011318122	0.0005245993	0.0006067091	0.0008995935	0.0007753595	0.0005185357
2687	2688	2689	2690	2691	2692
0.0007350529	0.0007571997	0.0005038976	0.0021869437	0.0030586869	0.0034403183
2693	2694	2696	2697	2698	2699
0.0023809461	0.0030560243	0.0029041245	0.0016898776	0.0013065255	0.0013005294
2700	2701	2702	2703	2704	2705
0.0018307596	0.0020783241	0.0018997107	0.0017845192	0.0018937648	0.0023666537
2706	2707	2708	2709	2710	2711
0.0111153851	0.0016842416	0.0016464632	0.0015930417	0.0019557722	0.0021181702
2712	2713	2714	2715	2716	2717
0.0070623380	0.0025616531	0.0018117345	0.0013491380	0.0019584236	0.0016226470
2718	2719	2720	2721	2722	2723
0.0011211050	0.0015756076	0.0013202756	0.0013713469	0.0012837672	0.0017028382
2724	2725	2726	2727	2728	2729
0.0011136306	0.0015187043	0.0011140648	0.0022706711	0.0017417585	0.0011958029
2730	2731	2732	2733	2734	2735
0.0008280279	0.0007812685	0.0013847604	0.0007779598	0.0007749691	0.0016593765
2736	2737	2738	2739	2740	2741
0.0006617651	0.0006673786	0.0009211408	0.0008793727	0.0013797315	0.0006688692
2742	2743	2744	2745	2746	2747
0.0008921855	0.0016152615	0.0010851655	0.0012727500	0.0015616321	0.0022772238
2748	2749	2750	2751	2752	2753
0.0028510992	0.0017782614	0.0013330006	0.0011618389	0.0007323955	0.0011800579
2754	2755	2756	2757	2758	2759
0.0007760563	0.0007733043	0.0008865478	0.0016164681	0.0009959290	0.0009253186
2760	2761	2762	2763	2764	2765
0.0007332786	0.0011887601	0.0005835750	0.0005178391	0.0007904808	0.0005512419
2766	2767	2768	2769	2770	2771
0.0007913031	0.0005504874	0.0022499816	0.0014995227	0.0016072134	0.0021392470
2772	2773	2774	2775	2776	2777
0.0009421033	0.0009320739	0.0017055304	0.0005253372	0.0007344840	0.0006145678
2778	2779	2780	2781	2782	2783
0.0008889734	0.0005212893	0.0005110218	0.0005775755	0.0005796063	0.0005916185
2784	2785	2786	2787	2788	2789
0.0005964545	0.0005104076	0.0005848982	0.0005137222	0.0008262549	0.0007458089
2790	2791	2792	2793	2794	2795
0.0170059531	0.0014448318	0.0013816619	0.0036695470	0.0028376650	0.0032864009
2796	2797	2798	2799	2800	2801

0.0032536448	0.0018320268	0.0008796282	0.0008985320	0.0014369411	0.0012336874
2802	2803	2804	2805	2806	2807
0.0033475719	0.0013245830	0.0009979185	0.0007231382	0.0006812836	0.0011566942
2808	2809	2810	2811	2812	2813
0.0006365264	0.0006304597	0.0006932531	0.0007481746	0.0006259176	0.0006971422
2814	2815	2816	2817	2818	2819
0.0007073970	0.0006092868	0.0007011600	0.0008581268	0.0012044653	0.0012458633
2820	2821	2822	2823	2824	2825
0.0029323073	0.0010740418	0.0010022820	0.0011780461	0.0012503743	0.0011104527
2826	2827	2828	2829	2830	2831
0.0019573307	0.0013468713	0.0033800360	0.0015730987	0.0010154790	0.0010826820
2832	2833	2834	2835	2836	2837
0.0010314488	0.0013815251	0.0010964326	0.0008895067	0.0010591706	0.0008815823
2838	2839	2840	2841	2842	2843
0.0014184148	0.0016137605	0.0009630276	0.0017394746	0.0011725636	0.0019845097
2844	2845	2846	2847	2848	2849
0.0010664442	0.0012741737	0.0030992502	0.0006715097	0.0008755141	0.0007228860
2850	2851	2852	2853	2854	2855
0.0010970976	0.0036720301	0.0030377868	0.0025854568	0.0033660302	0.0031303239
2947	2948	2949	2950	2951	2952
0.0012747437	0.0020163507	0.0029154423	0.0013173486	0.0017106336	0.0012555680
2953	2954	2955	2956	2957	2958
0.0012813361	0.0015219447	0.0011621962	0.0009601440	0.0012565903	0.0010041526
2959	2960	2961	2962	2963	2964
0.0010518425	0.0013238603	0.0009195303	0.0009162279	0.0009468925	0.0011859320
2965	2966	2967	2968	2969	2970
0.0009978185	0.0028927009	0.0016580916	0.0016011150	0.0022061817	0.0017383909
2971	2972	2973	2974	2975	2977
0.0021554971	0.0013756435	0.0012303576	0.0082352086	0.0014917212	0.0018911189
2978	2979	2980	2981	2982	2983
0.0008246033	0.0007562904	0.0009137209	0.0005619595	0.0005687951	0.0005050912
2984	2985	2986	2987	2988	2989
0.0011956783	0.0005298499	0.0030158381	0.0005200550	0.0004955199	0.0007468715
2990	2991	2992	2993	2994	2995
0.0005895640	0.0075096435	0.0005100166	0.0005008114	0.0008049960	0.0004976086
2996	2997	2998	2999	3000	3001
0.0005296185	0.0005234635	0.0005087955	0.0005031320	0.0005101987	0.0006043640
3002	3003	3004	3005	3006	3007
0.0007449333	0.0024522539	0.0024365151	0.0008378666	0.0010727500	0.0006872766
3008	3009	3010	3011	3012	3013
0.0005295939	0.0007582428	0.0005766131	0.0006013267	0.0022272534	0.0005402870
3014	3015	3016	3017	3018	3019
0.0007996245	0.0008150040	0.0004918978	0.0008783472	0.0008055433	0.0017720875

3020	3021	3022	3023	3024	3025
0.0006400933	0.0008984805	0.0007252271	0.0005089179	0.0009193722	0.0007437632
3026	3027	3028	3029	3030	3031
0.0007482610	0.0020600165	0.0028109787	0.0047160850	0.0027248718	0.0027664159
3032	3033	3034	3035	3036	3037
0.0021808280	0.0020706772	0.0075726650	0.0023268289	0.0026306426	0.0023251449
3038	3039	3040	3041	3042	3043
0.0030807390	0.0020894120	0.0015379195	0.0015879736	0.0017582004	0.0018730336
3044	3045	3046	3047	3048	3049
0.0020077883	0.0029700527	0.0018499682	0.0022725573	0.0017239875	0.0020875064
3050	3051	3052	3053	3054	3055
0.0016329904	0.0042397924	0.0016782079	0.0017817012	0.0018741041	0.0033251930
3056	3057	3058	3059	3060	3061
0.0014282028	0.0010865092	0.0019718720	0.0011077450	0.0012071825	0.0014492770
3062	3063	3064	3065	3066	3067
0.0011155517	0.0011084350	0.0013153850	0.0013318464	0.0014917816	0.0007705275
3068	3069	3070	3071	3072	3073
0.0007009855	0.0011227730	0.0009734854	0.0007157299	0.0010478801	0.0007157080
3074	3075	3076	3077	3078	3079
0.0006539621	0.0006748188	0.0014883917	0.0018903906	0.0023959386	0.0021579539
3080	3081	3082	3083	3084	3085
0.0011910101	0.0010609315	0.0011145983	0.0011565689	0.0010345812	0.0012332669
3086	3087	3088	3089	3090	3091
0.0011244050	0.0008710258	0.0011727954	0.0012676080	0.0012689352	0.0006380495
3092	3093	3094	3095	3096	3097
0.0007719888	0.0014664297	0.0007499894	0.0009545212	0.0010538245	0.0012112496
3098	3099	3100	3101	3102	3103
0.0016127109	0.0006699149	0.0015527890	0.0008555216	0.0007818553	0.0007445228
3104	3105	3106	3107	3108	3109
0.0005618215	0.0005193525	0.0005936384	0.0010817701	0.0042050212	0.0016433099
3110	3111	3112	3113	3114	3115
0.0007839267	0.0005656418	0.0005604199	0.0005341299	0.0076889206	0.0005822679
3116	3117	3118	3119	3120	3121
0.0005333625	0.0008023455	0.0005870952	0.0005749443	0.0016757925	0.0005122830
3122	3123	3124	3125	3126	3127
0.0005760384	0.0005630531	0.0016822571	0.0006025718	0.0005815989	0.0005824381
3128	3129	3130	3131	3132	3133
0.0005824381	0.0005039338	0.0005206587	0.0005326563	0.0005138714	0.0005170699
3134	3135	3136	3137	3138	3139
0.0008048927	0.0076097926	0.0008591344	0.0014568229	0.0026962794	0.0031655648
3140	3141	3142	3144	3145	3146
0.0034819886	0.0028624416	0.0028789188	0.0011769290	0.0017456285	0.0031854191
3147	3148	3149	3150	3151	3152

0.0010622179	0.0009142838	0.0013547478	0.0012510935	0.0010105663	0.0008623458
3153	3154	3155	3156	3157	3158
0.0007409492	0.0008875241	0.0009151834	0.0007019304	0.0006842117	0.0008974549
3159	3160	3161	3162	3163	3164
0.0007410942	0.0007545086	0.0006757741	0.0026602933	0.0006462461	0.0006299878
3165	3166	3167	3168	3169	3170
0.0006199485	0.0006205910	0.0009125485	0.0012326033	0.0008386449	0.0013393570
3171	3172	3173	3174	3175	3176
0.0021394913	0.0007347154	0.0006845440	0.0007817396	0.0011142896	0.0006707752
3177	3178	3179	3180	3181	3182
0.0006727840	0.0011744774	0.0026871652	0.0026871652	0.0009405701	0.0010088701
3183	3184	3185	3186	3187	3188
0.0014045765	0.0015122954	0.0015197817	0.0026094887	0.0016295394	0.0013443375
3189	3190	3191	3192	3193	3194
0.0019144092	0.0017857253	0.0010776512	0.0009326622	0.0006829564	0.0010566738
3195	3196	3197	3198	3199	3200
0.0009470764	0.0007817540	0.0008461340	0.0543623517	0.0042777003	0.0008437259
3201	3202	3203	3204	3205	3206
0.0010655242	0.0131531235	0.0031886979	0.0065817510	0.0022794475	0.0027632599
3285	3286	3287	3288	3289	3290
0.0017902417	0.0036753171	0.0014351740	0.0015710026	0.0015845665	0.0015493407
3291	3292	3293	3294	3295	3296
0.0030405564	0.0012771000	0.0014194337	0.0015512282	0.0037221215	0.0021060735
3297	3298	3299	3300	3301	3302
0.0035759708	0.0021412526	0.0020574831	0.0009404077	0.0009876272	0.0010133962
3303	3304	3305	3306	3307	3308
0.0009227749	0.0009133629	0.0012752543	0.0009291043	0.0009351378	0.0009508040
3309	3310	3311	3312	3313	3314
0.0012206739	0.0013038786	0.0030482189	0.0015598033	0.0022489638	0.0022529558
3315	3316	3317	3318	3319	3320
0.0019128037	0.0007714267	0.0017933383	0.0005891423	0.0012803224	0.0006033765
3321	3322	3323	3324	3325	3326
0.0005226444	0.0007286082	0.0005655432	0.0005655432	0.0010706163	0.0011609544
3327	3328	3329	3330	3331	3332
0.0005164823	0.0008064717	0.0005662732	0.0004936391	0.0005828267	0.0005165258
3333	3334	3335	3336	3337	3338
0.0004937688	0.0005055313	0.0007676039	0.0005061589	0.0004933826	0.0007609732
3339	3340	3341	3342	3343	3344
0.0007271536	0.0086043870	0.0009334096	0.0023169878	0.0024495440	0.0017172427
3345	3346	3347	3348	3349	3350
0.0011696936	0.0018182585	0.0006058206	0.0005092347	0.0004996615	0.0006138291
3351	3352	3353	3354	3355	3356
0.0005756412	0.0006210130	0.0005717036	0.0007527473	0.0005963692	0.0004872371

3357	3358	3359	3360	3361	3362
0.0005965206	0.0005195324	0.0007379016	0.0005032023	0.0022587961	0.0021156617
3363	3364	3365	3366	3367	3368
0.0018591536	0.0031963590	0.0021167515	0.0015894904	0.0041514961	0.0015793396
3369	3370	3371	3372	3373	3374
0.0013320283	0.0028601067	0.0025391565	0.0023772695	0.0022972853	0.0016287899
3375	3376	3377	3378	3379	3380
0.0018370461	0.0163916369	0.0025899198	0.0023065805	0.0022863437	0.0017397503
3381	3382	3383	3384	3385	3386
0.0021120229	0.0019069200	0.0018688823	0.0016313692	0.0029431379	0.0033209950
3387	3388	3389	3390	3391	3392
0.0011470828	0.0010850655	0.0013084979	0.0019812422	0.0011035153	0.0013008212
3393	3394	3395	3396	3397	3398
0.0019738565	0.0011327045	0.0010000293	0.0007613526	0.0007555577	0.0017972177
3399	3400	3401	3402	3403	3404
0.0016256762	0.0008106636	0.0008241622	0.0009458632	0.0020864727	0.0012817541
3405	3406	3407	3408	3409	3410
0.0013528696	0.0012432389	0.0025997757	0.0026199035	0.0008921483	0.0017040089
3411	3412	3413	3414	3415	3416
0.0009521329	0.0006717717	0.0006650810	0.0008530487	0.0008477978	0.0009463138
3417	3418	3419	3420	3421	3422
0.0009102330	0.0008289049	0.0008401879	0.0009910113	0.0008010784	0.0008938691
3423	3424	3425	3426	3427	3428
0.0009284849	0.0007395439	0.0011796134	0.0006609155	0.0009865279	0.0008791825
3429	3430	3431	3432	3433	3434
0.0019337429	0.0019337429	0.0009585371	0.0019713569	0.0008136338	0.0018484873
3435	3436	3437	3438	3439	3440
0.0007739297	0.0022623550	0.0008072717	0.0007494787	0.0012635297	0.0005178362
3441	3442	3443	3444	3445	3446
0.0005296321	0.0007956847	0.0019548186	0.0008859872	0.0011786172	0.0016821906
3447	3448	3449	3450	3451	3452
0.0005991561	0.0007487718	0.0006192108	0.0005588260	0.0005661763	0.0005236662
3453	3454	3455	3456	3457	3458
0.0008449385	0.0005132538	0.0005781970	0.0006243740	0.0007802967	0.0005710467
3459	3460	3461	3462	3463	3464
0.0005179914	0.0005029032	0.0119968648	0.0005126670	0.0008926132	0.0005798801
3465	3466	3467	3468	3469	3470
0.0017843328	0.0005694238	0.0006243290	0.0008010025	0.0012596067	0.0005086296
3471	3472	3473	3474	3475	3476
0.0005063667	0.0006844532	0.0011565979	0.0005533775	0.0005113593	0.0007426511
3477	3478	3479	3480	3481	3482
0.0079049038	0.0007589421	0.0014759685	0.0045106903	0.0028528266	0.0026790768
3483	3484	3485	3486	3488	3489

0.0026472041	0.0030022326	0.0033777784	0.0049256288	0.0136187659	0.0023420802
3490	3491	3492	3493	3494	3495
0.0012033063	0.0009326306	0.0009366124	0.0009225407	0.0006734967	0.0017178679
3496	3497	3498	3499	3500	3501
0.0014023109	0.0006331929	0.0007373039	0.0008288663	0.0013761510	0.0021186114
3502	3503	3504	3505	3506	3507
0.0018303464	0.0023547897	0.0013413688	0.0025809824	0.0013743966	0.0007109965
3508	3509	3510	3511	3512	3513
0.0007025034	0.0006626176	0.0009065744	0.0006935128	0.0009150164	0.0006243933
3514	3515	3516	3517	3518	3519
0.0008204156	0.0008195901	0.0008284386	0.0012916227	0.0009191102	0.0011480089
3520	3521	3522	3523	3524	3525
0.0018812554	0.0012050761	0.0012587226	0.0007888293	0.0012262983	0.0015323842
3526	3527	3528	3529	3530	3531
0.0010205375	0.0011018175	0.0011279655	0.0080165530	0.0010398849	0.0012430930
3532	3533	3534	3535	3536	3537
0.0016385405	0.0009175459	0.0011115086	0.0007818215	0.0012923621	0.0007825100
3538	3539	3540	3541	3542	3543
0.0013179434	0.0008323215	0.0009102268	0.0008626563	0.0008953050	0.0139219867
3544	3545	3546	3547	3548	3549
0.0174216070	0.0010563733	0.0027695661	0.0013562636	0.0006387576	0.0006497559
3550	3551	3552	3553	3554	3555
0.0015553652	0.0009485111	0.0008651064	0.0013623635	0.0027901159	0.0025877511
3556	3557	3628	3629	3630	3631
0.0031669733	0.0044966839	0.0024660447	0.0013031383	0.0016178746	0.0023867442
3632	3633	3634	3635	3636	3637
0.0015484523	0.0010037655	0.0025063425	0.0016946030	0.0020621281	0.0010159645
3638	3639	3640	3641	3642	3643
0.0012927931	0.0010053505	0.0010094332	0.0010408425	0.0013772885	0.0009751326
3644	3645	3646	3647	3648	3649
0.0009152844	0.0012787729	0.0105770214	0.0017236972	0.0022232926	0.0018592052
3650	3651	3652	3653	3654	3655
0.0021339761	0.0013216995	0.0037130402	0.0046553331	0.0021631246	0.0019040059
3656	3657	3658	3659	3660	3661
0.0017078469	0.0052245990	0.0083420710	0.0009221283	0.0005760203	0.0005766852
3662	3663	3664	3665	3666	3667
0.0005363052	0.0005241774	0.0024915686	0.0008180062	0.0005803326	0.0005344447
3668	3669	3670	3671	3672	3673
0.0005023978	0.0005252252	0.0019331152	0.0020837211	0.0014549214	0.0025332021
3674	3675	3676	3677	3678	3679
0.0016377443	0.0036545165	0.0036591686	0.0070943111	0.0009469224	0.0006329188
3680	3681	3682	3683	3684	3685
0.0005651784	0.0007284230	0.0005858334	0.0007961267	0.0004821247	0.0004988361

3686	3687	3688	3689	3690	3691
0.0005946320	0.0007502155	0.0004986474	0.0010898443	0.0008454242	0.0010606393
3692	3693	3694	3695	3696	3697
0.0021430478	0.0020626991	0.0020714300	0.0029316391	0.0016047090	0.0014674632
3698	3699	3700	3701	3702	3703
0.0015366591	0.0025129988	0.0016473477	0.0016968688	0.0018221746	0.0015210732
3704	3705	3706	3707	3708	3709
0.0016600515	0.0015541196	0.0018414929	0.0022815989	0.0017616327	0.0045083894
3710	3711	3712	3713	3714	3715
0.0038868854	0.0026631464	0.0023521858	0.0018840071	0.0096982408	0.0013232630
3716	3717	3718	3719	3720	3721
0.0013492556	0.0010948258	0.0011203347	0.0012720594	0.0010852069	0.0010483966
3722	3723	3724	3725	3726	3727
0.0007916495	0.0017063539	0.0007265570	0.0008905321	0.0019465508	0.0010581060
3728	3729	3730	3731	3732	3733
0.0009819961	0.0010372978	0.0115491190	0.0016668204	0.0029753789	0.0010523788
3734	3735	3736	3737	3738	3739
0.0011410022	0.0013068246	0.0021051523	0.0021051523	0.0007201343	0.0006297242
3740	3741	3742	3743	3744	3745
0.0008043723	0.0018388318	0.0018346178	0.0008595370	0.0028207632	0.0009019596
3746	3747	3748	3749	3750	3751
0.0117558208	0.0063569151	0.0030509779	0.0011286748	0.0009296706	0.0009654848
3752	3753	3754	3755	3756	3757
0.0008025204	0.0008697324	0.0015206960	0.0005650557	0.0005932217	0.0005430313
3758	3759	3760	3761	3762	3763
0.0007585717	0.0005319960	0.0005272686	0.0004981832	0.0008324970	0.0007462716
3764	3765	3766	3767	3768	3769
0.0025673024	0.0011855488	0.0009709277	0.0020578207	0.0009569066	0.0011316642
3770	3771	3772	3773	3774	3775
0.0024738484	0.0016365845	0.0029337359	0.0011927711	0.0009923656	0.0006972889
3776	3777	3778	3779	3780	3781
0.0009211665	0.0005805063	0.0005644396	0.0005471074	0.0004931553	0.0005593807
3782	3783	3784	3785	3786	3787
0.0008466695	0.0005820683	0.0005553681	0.0005647337	0.0005277641	0.0007354476
3788	3789	3790	3791	3792	3793
0.0005820514	0.0007790827	0.0018456479	0.0010791752	0.0007544420	0.0005974957
3794	3795	3796	3797	3798	3799
0.0005103036	0.0007373205	0.0007397022	0.0008325212	0.0007154100	0.0015618028
3800	3801	3802	3803	3804	3805
0.0012014281	0.0031726228	0.0009375501	0.0009681210	0.0009553376	0.0078430225
3806	3807	3808	3809	3810	3811
0.0006348785	0.0006780221	0.0006007766	0.0009403456	0.0006463938	0.0030931014
3812	3813	3814	3815	3816	3817

0.0006055154	0.0028808107	0.0085612441	0.0010926058	0.0008078687	0.0011944400
3818	3819	3820	3821	3822	3823
0.0008017160	0.0011258533	0.0006657470	0.0006411494	0.0010173191	0.0006368095
3824	3825	3826	3827	3828	3829
0.0008963025	0.0008049400	0.0008308174	0.0008264592	0.0014618544	0.0007886896
3830	3831	3832	3833	3834	3835
0.0009410315	0.0006479391	0.0010894939	0.0009646441	0.0009886152	0.0177937113
3836	3837	3838	3839	3840	3841
0.0009603909	0.0011069694	0.0015713503	0.0012197408	0.0010044286	0.0012866932
3842	3843	3844	3845	3846	3847
0.0014554335	0.0010438109	0.0011274733	0.0017463349	0.0012397966	0.0013180593
3848	3849	3850	3851	3852	3853
0.0017964179	0.0008995958	0.0006907328	0.0007316704	0.0006244907	0.0008233890
3855	3856	3857	3858	3859	3860
0.0008062042	0.0008201459	0.0020373362	0.0009432604	0.0009514422	0.0012087993
3861	3862	3863	3864	3926	3927
0.0006245661	0.0009726013	0.0031467155	0.0025271849	0.0015790527	0.0015820850
3928	3929	3930	3931	3932	3933
0.0022308201	0.0015339375	0.0019563767	0.0018695656	0.0016973741	0.0019897365
3934	3935	3936	3937	3938	3939
0.0014698432	0.0013115706	0.0012731017	0.0012432524	0.0012582454	0.0014246064
3940	3941	3942	3943	3944	3945
0.0016967921	0.0015944535	0.0025140572	0.0012055741	0.0016511300	0.0010410428
3946	3947	3948	3949	3950	3951
0.0015497081	0.0015455694	0.0009699352	0.0009098943	0.0012519919	0.0012184950
3952	3953	3954	3955	3956	3957
0.0009094038	0.0012938838	0.0009316875	0.0009197597	0.0009146721	0.0011477917
3958	3959	3960	3961	3962	3963
0.0017977712	0.0016016419	0.0022512782	0.0015679421	0.0013392581	0.0022856682
3964	3965	3966	3967	3968	3969
0.0032570220	0.0034086458	0.0034086458	0.0033475553	0.0014307964	0.0075664586
3970	3971	3972	3973	3974	3975
0.0015104495	0.0005805739	0.0015311230	0.0005582865	0.0008089011	0.0007976477
3976	3977	3978	3979	3980	3981
0.0005101190	0.0007955124	0.0007955124	0.0007358833	0.0038371226	0.0017846813
3982	3983	3984	3985	3986	3987
0.0018517840	0.0007189499	0.0015320290	0.0018216046	0.0008228895	0.0010179232
3988	3989	3990	3991	3992	3993
0.0007477555	0.0005893520	0.0008179733	0.0005748345	0.0004840527	0.0007947938
3994	3995	3996	3997	3998	3999
0.0005867647	0.0004878691	0.0004811508	0.0007931599	0.0005697642	0.0005379866
4000	4001	4002	4003	4004	4005
0.0004802270	0.0017141401	0.0004975912	0.0017523648	0.0015991074	0.0007229225

4006	4007	4008	4009	4010	4011
0.0011612794	0.0015589979	0.0020863436	0.0022271687	0.0022489829	0.0020447481
4012	4013	4014	4015	4016	4017
0.0025189702	0.0021919453	0.0026917217	0.0021257854	0.0015458551	0.0016636798
4018	4019	4020	4021	4022	4023
0.0015014446	0.0012930480	0.0042465529	0.0015497587	0.0015611314	0.0016731533
4024	4025	4026	4027	4028	4029
0.0020521369	0.0024064461	0.0014029427	0.0013717624	0.0024361831	0.0018723863
4030	4031	4032	4033	4034	4035
0.0019815723	0.0045410825	0.0025147326	0.0026480644	0.0021282823	0.0039863365
4036	4037	4038	4039	4040	4041
0.0018465892	0.0017534291	0.0017331221	0.0037168501	0.0021306057	0.0018295561
4042	4044	4045	4046	4047	4048
0.0016870296	0.0027825772	0.0018034244	0.0014120023	0.0018866440	0.0013212494
4049	4050	4051	4052	4053	4054
0.0018512323	0.0012667016	0.0013164571	0.0011242732	0.0013040128	0.0014217772
4055	4056	4057	4058	4059	4060
0.0025554544	0.0011135753	0.0012206051	0.0010834464	0.0017823663	0.0011212337
4061	4062	4063	4064	4065	4066
0.0011212337	0.0013184632	0.0011241434	0.0015614798	0.0020423652	0.0010572475
4067	4068	4069	4070	4071	4072
0.0009287579	0.0006912937	0.0009925058	0.0027792960	0.0012560000	0.0035565358
4073	4074	4075	4076	4077	4078
0.0010426058	0.0010960114	0.0019431736	0.0010196878	0.0012148427	0.0010508609
4079	4080	4081	4082	4083	4084
0.0009636701	0.0006626079	0.0010216266	0.0007004241	0.0006627871	0.0010515668
4085	4086	4087	4088	4089	4090
0.0014256624	0.0008341797	0.0007315472	0.0008863690	0.0010273890	0.0008056440
4091	4092	4093	4094	4095	4096
0.0014801973	0.0010406745	0.0006865914	0.0010435406	0.0035170182	0.0006933698
4097	4098	4099	4100	4101	4102
0.0005495548	0.0007207325	0.0016626340	0.0008123123	0.0006087554	0.0005860646
4103	4104	4105	4106	4107	4108
0.0007815452	0.0007257624	0.0009833790	0.0023288968	0.0079707152	0.0012875831
4109	4110	4111	4112	4113	4114
0.0015274453	0.0015966384	0.0016442565	0.0008385680	0.0017977045	0.0007651336
4115	4116	4117	4118	4119	4120
0.0016974438	0.0005301456	0.0008769653	0.0005424958	0.0005617549	0.0005439299
4121	4122	4123	4124	4125	4126
0.0004966402	0.0005711590	0.0005702919	0.0005546704	0.0005262804	0.0005692746
4127	4128	4129	4130	4131	4132
0.0005126264	0.0005007024	0.0005382353	0.0008815188	0.0004920705	0.0006484749
4133	4134	4135	4136	4137	4138

0.0007803625	0.0007155582	0.0008993904	0.0007105260	0.0007347659	0.0007097535
4139	4140	4141	4142	4143	4144
0.0007415732	0.0007283613	0.0007626478	0.0014044142	0.0013062520	0.0028772312
4145	4146	4147	4148	4149	4150
0.0007919919	0.0007181850	0.0006692757	0.0005892139	0.0008226345	0.0008952454
4151	4152	4153	4154	4155	4156
0.0011097788	0.0015802622	0.0017955351	0.0015036877	0.0017947575	0.0013006110
4157	4158	4159	4160	4161	4162
0.0011085720	0.0006778682	0.0007288604	0.0006785591	0.0006141924	0.0009551405
4163	4164	4165	4166	4167	4168
0.0009987467	0.0007353579	0.0006118260	0.0006873030	0.0017897589	0.0008313771
4169	4170	4171	4172	4173	4174
0.0017332706	0.0009205565	0.0008849904	0.0009740954	0.0024651940	0.0010992980
4175	4176	4177	4178	4179	4180
0.0076683101	0.0007690350	0.0032043733	0.0006550125	0.0010906840	0.0008327704
4181	4182	4183	4184	4185	4186
0.0022483813	0.0011818215	0.0020918823	0.0009837905	0.0009716903	0.0012139344
4187	4188	4189	4190	4191	4192
0.0017951320	0.0018671790	0.0010730006	0.0009720735	0.0007742141	0.0006452020
4193	4194	4195	4196	4197	4198
0.0007066703	0.0008042983	0.0008411139	0.0012192376	0.0009665145	0.0021858843
4199	4200	4201	4202	4203	4204
0.0010938729	0.0009590340	0.0007466951	0.0009323262	0.0006289308	0.0008054859
4205	4206	4207	4267	4268	4269
0.0007678373	0.0059826161	0.0032180622	0.0018273748	0.0020402638	0.0022264053
4270	4271	4272	4273	4274	4275
0.0018569933	0.0015308336	0.0018025856	0.0012674183	0.0012381073	0.0013989346
4276	4277	4278	4279	4280	4281
0.0013989346	0.0013940962	0.0017667313	0.0012852013	0.0011845530	0.0010373890
4282	4283	4284	4285	4286	4287
0.0009068885	0.0011695391	0.0020192497	0.0009989988	0.0010377135	0.0012669359
4288	4289	4290	4291	4292	4293
0.0013359527	0.0010327363	0.0016145438	0.0012877243	0.0009934499	0.0009146480
4294	4295	4296	4297	4298	4299
0.0013266711	0.0013373480	0.0012669936	0.0009059781	0.0009059781	0.0010612843
4300	4301	4302	4303	4304	4305
0.0011777020	0.0012557354	0.0011774368	0.0009099046	0.0009031384	0.0009031384
4306	4307	4308	4309	4310	4311
0.0009094804	0.0011514987	0.0009908445	0.0011458180	0.0028542727	0.0108999264
4312	4313	4314	4315	4316	4317
0.0020615036	0.0020738911	0.0050395197	0.0017725437	0.0246934856	0.0032374053
4318	4319	4320	4321	4322	4323
0.0013988882	0.0013328112	0.0015181528	0.0068569340	0.0075757214	0.0074938370

4324	4325	4326	4327	4328	4329
0.0008895387	0.0009877906	0.0008244285	0.0018788931	0.0007791255	0.0006278289
4330	4331	4332	4333	4334	4335
0.0018921044	0.0015319327	0.0020115750	0.0006875211	0.0009172627	0.0005812489
4336	4337	4338	4339	4340	4341
0.0005110552	0.0007161770	0.0005029834	0.0005745708	0.0010621761	0.0004947853
4342	4343	4344	4345	4346	4347
0.0007606985	0.0004759278	0.0005005357	0.0007237148	0.0019510550	0.0014539378
4348	4349	4350	4351	4352	4353
0.0012418031	0.0010447057	0.0019582081	0.0007084846	0.0005974137	0.0006348822
4354	4355	4356	4357	4358	4359
0.0019143210	0.0005055165	0.0006751970	0.0005940954	0.0005019121	0.0005393889
4360	4361	4362	4363	4364	4365
0.0005426693	0.0011277512	0.0006740377	0.0005639454	0.0005078985	0.0008028857
4366	4367	4368	4369	4370	4371
0.0009063682	0.0006058460	0.0006020128	0.0004937016	0.0008167293	0.0008132091
4372	4373	4374	4375	4376	4377
0.0007188258	0.0007326705	0.0012601993	0.0024606590	0.0033845107	0.0025074714
4378	4379	4380	4381	4382	4383
0.0027243318	0.0020954630	0.0023921981	0.0027918128	0.0023105435	0.0023705975
4384	4385	4386	4387	4388	4389
0.0021534780	0.0038299108	0.0027766950	0.0023596496	0.0132941350	0.0016657172
4390	4391	4392	4393	4394	4395
0.0016207209	0.0018236726	0.0014393684	0.0016436489	0.0023117375	0.0026387626
4396	4397	4398	4399	4400	4401
0.0026393784	0.0017079719	0.0013942566	0.0012982507	0.0012982507	0.0013710775
4402	4403	4404	4405	4406	4407
0.0013765122	0.0015138751	0.0017583601	0.0016894860	0.0020780391	0.0023060705
4408	4409	4410	4411	4412	4413
0.0162109588	0.0021766546	0.0020807182	0.0021422384	0.0017191946	0.0017673045
4414	4415	4416	4417	4418	4419
0.0020142684	0.0022473582	0.0016890046	0.0018228811	0.0011146588	0.0014135731
4420	4421	4422	4423	4424	4425
0.0076810932	0.0019576015	0.0021905496	0.0013397027	0.0016702953	0.0010920743
4426	4427	4428	4429	4430	4431
0.0013045990	0.0010942063	0.0011258244	0.0011095152	0.0010960258	0.0015399794
4432	4433	4434	4435	4436	4437
0.0010747824	0.0013188676	0.0011187878	0.0027466063	0.0006520807	0.0007636741
4438	4439	4440	4441	4442	4443
0.0006849760	0.0021352649	0.0010203859	0.0008994748	0.0017196069	0.0033172159
4444	4445	4446	4447	4448	4449
0.0011511651	0.0021690752	0.0013912983	0.0013182567	0.0013848473	0.0012908883
4450	4451	4452	4453	4454	4455

0.0012691998	0.0010016334	0.0006808886	0.0009461067	0.0006574402	0.0008105892
4456	4457	4458	4459	4460	4461
0.0008727179	0.0008264082	0.0008846203	0.0012842413	0.0008593185	0.0009405294
4462	4463	4464	4465	4466	4467
0.0008901351	0.0015825771	0.0008376940	0.0009835489	0.0183206902	0.0018478738
4468	4469	4470	4471	4472	4473
0.0008759236	0.0006191437	0.0005702538	0.0007372251	0.0005347354	0.0008353399
4474	4475	4476	4477	4478	4479
0.0013663321	0.0015350941	0.0008200195	0.0009063317	0.0005444841	0.0008244313
4480	4481	4482	4483	4484	4485
0.0005712167	0.0005591841	0.0008924429	0.0007488206	0.0005570526	0.0008039157
4486	4487	4488	4489	4490	4491
0.0005450307	0.0005049557	0.0005450862	0.0007944131	0.0007021975	0.0007371922
4492	4493	4494	4495	4496	4497
0.0004844411	0.0005594445	0.0005637797	0.0008301430	0.0007713155	0.0004952816
4498	4499	4500	4501	4502	4503
0.0005715037	0.0006045215	0.0009400405	0.0005892123	0.0004953150	0.0007582377
4504	4505	4506	4507	4508	4509
0.0004940233	0.0004975620	0.0004979330	0.0009292425	0.0009325071	0.0038445131
4510	4511	4512	4513	4514	4516
0.0031048570	0.0030290834	0.0029724990	0.0029257373	0.0033652566	0.0010750538
4517	4518	4519	4520	4521	4522
0.0009825315	0.0007194081	0.0010810845	0.0007763204	0.0008495352	0.0009066048
4523	4524	4525	4526	4527	4528
0.0006824284	0.0008632496	0.0007976661	0.0014973180	0.0015977247	0.0023054289
4529	4530	4531	4532	4533	4534
0.0013855187	0.0014771726	0.0012846601	0.0005963940	0.0018487564	0.0007166194
4535	4536	4537	4538	4539	4540
0.0006748772	0.0006721226	0.0006830493	0.0018644715	0.0005949817	0.0006005355
4541	4542	4543	4544	4545	4546
0.0008312634	0.0008180206	0.0017111214	0.0007988791	0.0008160336	0.0013890635
4547	4548	4549	4550	4551	4552
0.0015160978	0.0009144487	0.0009837671	0.0011638466	0.0013285977	0.0007053631
4553	4554	4555	4556	4557	4558
0.0012646114	0.0009837512	0.0018361651	0.0016194179	0.0010309387	0.0013603420
4559	4560	4561	4562	4563	4564
0.0013469446	0.0010973551	0.0006188825	0.0009305066	0.0008467914	0.0008198046
4565	4566	4567	4568	4569	4570
0.0008205202	0.0019175863	0.0010217490	0.0012257712	0.0007843999	0.0008677064
4571	4573	4574	4575	4576	4577
0.0007591289	0.0012342999	0.0036067758	0.0168339126	0.0027869008	0.0027869008
4578	4579	4580	4581	4582	4646
0.0027642986	0.0029446406	0.0044338488	0.0026451605	0.0029885136	0.0016201991

4647	4648	4649	4650	4651	4652
0.0015472888	0.0014254935	0.0017991828	0.0017655902	0.0012455594	0.0015874046
4653	4654	4655	4656	4657	4658
0.0021713220	0.0014917539	0.0022080946	0.0012331328	0.0015915481	0.0012435950
4659	4660	4661	4662	4663	4664
0.0011310098	0.0012587201	0.0016309218	0.0016993981	0.0020813110	0.0017222724
4665	4666	4667	4668	4669	4670
0.0014878911	0.0015491237	0.0016597162	0.0011628254	0.0009989153	0.0010171881
4671	4672	4673	4674	4675	4676
0.0009104774	0.0013451311	0.0012636944	0.0009370133	0.0009408498	0.0009408498
4677	4678	4679	4680	4681	4682
0.0011985446	0.0009077523	0.0011654821	0.0015369911	0.0022390895	0.0030199395
4683	4684	4685	4686	4687	4688
0.0016919472	0.0017145574	0.0021661246	0.0021072100	0.0016353832	0.0017187087
4689	4691	4692	4693	4694	4695
0.0023786374	0.0082594333	0.0073024828	0.0073751988	0.0005641422	0.0007087599
4696	4697	4698	4699	4700	4701
0.0008639161	0.0012527989	0.0009397826	0.0022437210	0.0029470388	0.0019211822
4702	4703	4704	4705	4706	4707
0.0009968456	0.0005736545	0.0005736545	0.0008694706	0.0007918804	0.0008965370
4708	4709	4710	4711	4712	4713
0.0004889138	0.0007208356	0.0020178053	0.0022169872	0.0017175810	0.0022255639
4714	4715	4716	4717	4718	4719
0.0021276606	0.0016628511	0.0021000957	0.0016988929	0.0021074174	0.0014624429
4720	4721	4722	4723	4724	4725
0.0013082724	0.0017592824	0.0019445066	0.0017916872	0.0021985835	0.0022347297
4726	4727	4728	4729	4730	4731
0.0022347297	0.0025786035	0.0039811856	0.0023626193	0.0023417927	0.0020992237
4732	4733	4734	4735	4736	4737
0.0018333796	0.0025223893	0.0019531341	0.0026479561	0.0019828664	0.0020562769
4740	4741	4742	4743	4744	4745
0.0104231844	0.0023500227	0.0044344969	0.0013343447	0.0011889149	0.0011001353
4746	4747	4748	4749	4750	4751
0.0028127162	0.0011551324	0.0014420442	0.0014687165	0.0427951302	0.0019751162
4752	4753	4754	4755	4756	4757
0.0008109444	0.0015294505	0.0013560382	0.0010546117	0.0017245343	0.0012295870
4758	4759	4760	4761	4762	4763
0.0015229990	0.0009464594	0.0006437546	0.0006437546	0.0009119774	0.0006874381
4764	4765	4766	4767	4768	4769
0.0007155451	0.0008238265	0.0032851921	0.0008901430	0.0012395985	0.0011206661
4770	4771	4772	4773	4774	4775
0.0028621342	0.0015615436	0.0011111071	0.0008924916	0.0007130395	0.0005822592
4776	4777	4778	4779	4780	4781

0.0007918157	0.0005942908	0.0007366269	0.0007013472	0.0007112918	0.0034948798
4782	4783	4784	4785	4786	4787
0.0028895273	0.0073937207	0.0008479575	0.0007241764	0.0009090735	0.0012667577
4788	4789	4790	4791	4792	4793
0.0008950417	0.0020468514	0.0007126179	0.0012228834	0.0009299259	0.0034873727
4794	4795	4796	4797	4798	4799
0.0013158603	0.0013523039	0.0009034951	0.0017174687	0.0008863431	0.0007599581
4800	4801	4802	4803	4804	4805
0.0008944138	0.0030742722	0.0028900769	0.0010719987	0.0006512384	0.0029762642
4806	4807	4808	4809	4810	4811
0.0027516711	0.0030749788	0.0030749788	0.0024642965	0.0030014293	0.0024882017
4812	4847	4848	4849	4850	4851
0.0024809264	0.0033677360	0.0016627369	0.0172991696	0.0024300125	0.0447049066
4852	4853	4854	4855	4856	4857
0.0021062876	0.0033323845	0.0020387923	0.0028044658	0.0007339798	0.0004741387
4858	4859	4860	4861	4862	4863
0.0021307067	0.0005781510	0.0004807293	0.0037025748	0.0025864714	0.0023306519
4864	4865	4866	4867	4868	4869
0.0021008436	0.0015953041	0.0013325389	0.0019651241	0.0180553325	0.0010094756
4870	4871	4872	4873	4874	4875
0.0114770929	0.0011780655	0.0005822611	0.0007344457	0.0022713447	0.0014511987
4876	4877	4878	4879	4880	4881
0.0009191079	0.0016697683	0.0005351272	0.0005501287	0.0006958406	0.0004913952
4882	4883	4884	4885	4886	4887
0.0019006456	0.0007289561	0.0133485332	0.0035199550	0.0014366274	0.0009111186
4888	4889	4890	4891	4892	4893
0.0006357722	0.0009163458	0.0013390796	0.0006620152	0.0008311410	0.0014199227
4894	4895	4896	4897	4898	4913
0.0011510500	0.0021353249	0.0010065198	0.0010155386	0.0013713877	0.0017547400
4914	4915	4916	4917	4918	4919
0.0014169629	0.0034819746	0.0017435803	0.0020881751	0.0015140421	0.0037789284
4920	4921	4922	4923	4924	4925
0.0013809873	0.0101498322	0.0005834037	0.0004918922	0.0010507075	0.0007383570
4926	4927	4928	4929	4930	4931
0.0021189000	0.0016551576	0.0025540584	0.0009108233	0.0007332734	0.0007218260
4932	4933	4934	4935	4936	4937
0.0004696292	0.0004645421	0.0004973528	0.0005011160	0.0005760510	0.0026450093
4938	4939	4940	4941	4942	4943
0.0018931201	0.0018160776	0.0020312088	0.0027908309	0.0015114035	0.0015913585
4944	4945	4946	4947	4948	4949
0.0015193845	0.0025109701	0.0025250972	0.0018664106	0.0016361607	0.0021036242
4950	4951	4952	4953	4954	4955
0.0020891476	0.0017133763	0.0019206437	0.0010879168	0.0010089757	0.0015753786

4956	4957	4958	4959	4960	4961
0.0016204324	0.0010967346	0.0013353769	0.0019396638	0.0009083002	0.0009279641
4962	4963	4964	4965	4966	4967
0.0009953178	0.0009916901	0.0006356459	0.0008712329	0.0013119612	0.0007359007
4968	4969	4970	4971	4972	4973
0.0007676287	0.0015221941	0.0014820038	0.0005309638	0.0010972355	0.0004726132
4974	4975	4976	4977	4978	4979
0.0005049500	0.0007684552	0.0033301012	0.0020187798	0.0011021824	0.0010195906
4980	4981	4982	4983	4984	4985
0.0007603097	0.0005870735	0.0007947029	0.0008297979	0.0016498913	0.0008530395
4986	4987	4988	4989	4990	4991
0.0022791966	0.0006242506	0.0015089369	0.0010054450	0.0007270169	0.0050300093
4992	5014	5015	5016	5017	5018
0.0034374036	0.0026647416	0.0017935687	0.0014100482	0.0016368071	0.0016298912
5019	5020	5021	5022	5023	5024
0.0010097730	0.0122010527	0.0015442115	0.0012112343	0.0009042378	0.0011773023
5025	5026	5027	5028	5029	5030
0.0010023257	0.0012500855	0.0015350876	0.0011651225	0.0025704322	0.0015631851
5031	5032	5033	5034	5035	5036
0.0031263949	0.0011899213	0.0039028206	0.0014990496	0.0017312495	0.0012742939
5037	5038	5039	5040	5041	5042
0.0039946348	0.0037345786	0.0005876457	0.0008028688	0.0007677083	0.0012909727
5043	5044	5045	5046	5047	5048
0.0009032515	0.0005666030	0.0015054992	0.0004840105	0.0006805946	0.0008022468
5049	5050	5051	5052	5053	5054
0.0010606776	0.0009573073	0.0005298519	0.0005290035	0.0006022901	0.0005526069
5055	5056	5057	5058	5059	5060
0.0004961116	0.0005314151	0.0005106195	0.0004831367	0.0005054934	0.0021100135
5061	5062	5063	5064	5065	5066
0.0020077627	0.0020077627	0.0013444411	0.0012607569	0.0013660794	0.0015058218
5067	5068	5069	5070	5071	5072
0.0018629175	0.0018999156	0.0425889219	0.0033411030	0.0011066639	0.0011490870
5073	5074	5075	5076	5077	5078
0.0012688889	0.0011158668	0.0012725902	0.0033000964	0.0013034603	0.0012210156
5079	5080	5081	5082	5083	5084
0.0019728323	0.0079121284	0.0008307120	0.0012959942	0.0016399319	0.0011559739
5085	5086	5087	5088	5089	5090
0.0008950341	0.0008990454	0.0008783055	0.0014743673	0.0011422001	0.0009860743
5091	5092	5093	5094	5095	5096
0.0008783672	0.0030992499	0.0007266111	0.0005812296	0.0007481099	0.0005187940
5097	5098	5099	5100	5101	5102
0.0021025557	0.0018857815	0.0006214102	0.0007425047	0.0007658293	0.0005348844
5103	5104	5105	5106	5107	5108

0.0004758996	0.0004756450	0.0007085960	0.0004697709	0.0004865818	0.0008281375
5109	5110	5111	5112	5113	5114
0.0007278059	0.0007169307	0.0032707640	0.0035664797	0.0183587036	0.0012856660
5115	5116	5117	5118	5119	5120
0.0015297976	0.0029906602	0.0012640390	0.0017180437	0.0020195791	0.0006603940
5121	5122	5123	5124	5125	5126
0.0006214067	0.0005837853	0.0006017266	0.0007943566	0.0007535505	0.0011624263
5127	5128	5129	5130	5131	5132
0.0008942713	0.0009767331	0.0012007123	0.0021407584	0.0008159377	0.0009990213
5134	5135	5136	5137	5164	5165
0.0024280181	0.0030281750	0.0027413349	0.0032648162	0.0014071308	0.0012850333
5166	5167	5168	5169	5170	5171
0.0013831120	0.0016158337	0.0012426879	0.0012411160	0.0029145906	0.0123631216
5172	5173	5174	5175	5176	5177
0.0016815768	0.0012643274	0.0009310968	0.0018498897	0.0015517185	0.0009617855
5178	5179	5180	5181	5182	5183
0.0009793681	0.0020021393	0.0008977680	0.0009296372	0.0023449760	0.0010029151
5184	5185	5186	5187	5189	5190
0.0009166770	0.0008980614	0.0009985508	0.0008915085	0.0016317399	0.0031223419
5191	5192	5193	5194	5195	5196
0.0016528093	0.0152577840	0.0018508968	0.0028807259	0.0016763503	0.0023998087
5197	5198	5199	5200	5201	5202
0.0014184929	0.0121487336	0.0136476664	0.0008641852	0.0007678083	0.0007708041
5203	5204	5205	5206	5207	5208
0.0008806194	0.0009121875	0.0016240676	0.0005332064	0.0007874428	0.0004930554
5209	5210	5211	5212	5213	5214
0.0015181464	0.0007764806	0.0006959420	0.0012328315	0.0016916515	0.0027873358
5215	5216	5217	5218	5219	5220
0.0007184881	0.0011647441	0.0008552363	0.0005701578	0.0008167841	0.0008465160
5221	5222	5223	5224	5225	5226
0.0005116897	0.0004633054	0.0004904550	0.0004723094	0.0010636328	0.0010636328
5227	5228	5229	5230	5231	5232
0.0007083154	0.0007010622	0.0007359037	0.0006056587	0.0022763917	0.0022534804
5233	5234	5235	5236	5237	5238
0.0019657580	0.0018294609	0.0028801055	0.0012613277	0.0018813238	0.0013281342
5239	5240	5241	5242	5243	5244
0.0021189371	0.0026637212	0.0020166124	0.0017485959	0.0022275159	0.0022078749
5245	5246	5247	5248	5249	5250
0.0083383225	0.0020471491	0.0088098801	0.0015591035	0.0023152469	0.0018332678
5251	5252	5253	5254	5255	5256
0.0027128618	0.0022673921	0.0018251669	0.0016460022	0.0016420153	0.0015289441
5257	5258	5259	5260	5261	5262
0.0017420671	0.0012938433	0.0012670857	0.0010740765	0.0010792585	0.0010945136

5263	5264	5265	5266	5267	5268
0.0013567388	0.0017675477	0.0007353009	0.0007305281	0.0006179487	0.0006215496
5269	5270	5271	5272	5273	5274
0.0006747036	0.0014013538	0.0013807575	0.0019834499	0.0013880663	0.0010338248
5275	5276	5277	5278	5279	5280
0.0010088382	0.0021947672	0.0011452474	0.0015621046	0.0015907444	0.0012675207
5281	5282	5283	5284	5285	5286
0.0006951343	0.0006701491	0.0009042139	0.0006615403	0.0008570634	0.0007673722
5287	5288	5289	5290	5291	5292
0.0007008765	0.0008395261	0.0010538112	0.0029733646	0.0010855009	0.0008179548
5293	5294	5295	5296	5297	5298
0.0004783716	0.0005267527	0.0077754253	0.0021714866	0.0517360812	0.0008252510
5299	5300	5301	5302	5303	5304
0.0008510649	0.0016737056	0.0005396142	0.0007570565	0.0005278064	0.0008283994
5305	5306	5307	5308	5309	5310
0.0007500084	0.0005158706	0.0004814435	0.0004876403	0.0004840678	0.0004685153
5311	5312	5313	5314	5315	5316
0.0004687448	0.0004751320	0.0004748687	0.0004732784	0.0005102802	0.0007803734
5317	5318	5319	5320	5321	5322
0.0005091781	0.0004762011	0.0005330936	0.0004881428	0.0004803767	0.0004768999
5323	5324	5325	5326	5327	5328
0.0004839875	0.0006967183	0.0006964839	0.0007261861	0.0012980791	0.0008140103
5329	5330	5331	5332	5333	5334
0.0008000016	0.0014500257	0.0018885583	0.0031313360	0.0028451684	0.0030445485
5335	5336	5337	5338	5339	5340
0.0522656761	0.0026981322	0.0078867377	0.0008916611	0.0007907040	0.0006780937
5341	5342	5343	5344	5345	5346
0.0010700745	0.0005682973	0.0006037686	0.0012524690	0.0012303897	0.0013149996
5347	5348	5349	5350	5351	5352
0.0016467652	0.0009294752	0.0008678555	0.0006612900	0.0006662246	0.0008683028
5353	5354	5355	5356	5357	5358
0.0007839199	0.0008071381	0.0006180369	0.0008908273	0.0021150696	0.0010420886
5359	5360	5361	5362	5363	5364
0.0009077042	0.0009763861	0.0012117146	0.0011099433	0.0013317729	0.0017732575
5365	5366	5367	5368	5369	5370
0.0017697694	0.0012909838	0.0009258860	0.0007679103	0.0007933700	0.0013075194
5371	5372	5373	5374	5375	5376
0.0010745671	0.0009353518	0.0005906744	0.0020729364	0.0118074646	0.0027919997
5377	5378	5379	5438	5439	5440
0.0024902303	0.0029754137	0.0131567522	0.0024575862	0.0015157417	0.0015184322
5441	5442	5443	5444	5445	5446
0.0012224689	0.0015657525	0.0014081738	0.0018215489	0.0033351137	0.0028253836
5447	5448	5449	5450	5451	5452

0.0017118711	0.0016233145	0.0009623106	0.0009084950	0.0009875867	0.0011161783
5453	5454	5455	5456	5457	5458
0.0009426602	0.0012351372	0.0020294620	0.0017378618	0.0101438171	0.0013626665
5459	5460	5461	5462	5463	5464
0.0094926261	0.0011996557	0.0020177645	0.0015084346	0.0017602886	0.0009188781
5465	5466	5467	5468	5469	5470
0.0013054297	0.0005471827	0.0006650184	0.0004744333	0.0007291449	0.0008855636
5471	5472	5473	5474	5475	5476
0.0017198346	0.0014680679	0.0014680679	0.0011607956	0.0168825522	0.0006843574
5477	5478	5479	5480	5481	5482
0.0008654870	0.0008743338	0.0005293614	0.0006004142	0.0010037858	0.0008147445
5483	5484	5485	5486	5487	5488
0.0005390526	0.0004611532	0.0004938669	0.0005341372	0.0004754867	0.0004878117
5489	5490	5491	5492	5493	5494
0.0005272935	0.0026679227	0.0004546929	0.0004585075	0.0004559815	0.0005944683
5495	5496	5497	5498	5499	5500
0.0006239500	0.0004974729	0.0007275903	0.0005765152	0.0086739918	0.0132283178
5501	5502	5503	5504	5505	5506
0.0025142449	0.0033212230	0.0020964768	0.0020843561	0.0027781331	0.0020404780
5507	5508	5509	5510	5511	5512
0.0019843884	0.0023440065	0.0022728070	0.0017911063	0.0122479459	0.0022061704
5513	5514	5515	5516	5517	5518
0.0015574418	0.0015099496	0.0023586948	0.0022947097	0.0016778534	0.0018753578
5519	5520	5521	5522	5523	5524
0.0022110532	0.0018212611	0.0018212611	0.0019527791	0.0019527791	0.0081083768
5525	5526	5527	5528	5529	5530
0.0015273360	0.0012277317	0.0013895585	0.0016937097	0.0020606047	0.0019534623
5531	5532	5533	5534	5535	5536
0.0016207592	0.0008499111	0.0007326023	0.0008133995	0.0011580225	0.0079557509
5537	5538	5539	5540	5541	5542
0.0012503015	0.0007859608	0.0008949180	0.0020440943	0.0010682917	0.0008317549
5543	5544	5545	5546	5547	5548
0.0006101057	0.0009482468	0.0008064065	0.0009309554	0.0007141589	0.0006782115
5549	5550	5551	5552	5553	5554
0.0009952086	0.0012487279	0.0028513619	0.0012896618	0.0019441911	0.0010361767
5555	5556	5557	5558	5559	5560
0.0015151392	0.0006554205	0.0009659265	0.0207800873	0.0015310745	0.0010346422
5561	5562	5563	5564	5565	5566
0.0021704389	0.0008691299	0.0011890608	0.0004639761	0.0005092458	0.0004964976
5567	5568	5569	5570	5571	5572
0.0011242945	0.0012101053	0.0018242379	0.0014425311	0.0013840455	0.0022758878
5573	5574	5575	5576	5577	5578
0.0005420485	0.0007336194	0.0005455211	0.0014981888	0.0005815078	0.0004601331

5579	5580	5581	5582	5583	5584
0.0006255484	0.0004862233	0.0007037388	0.0004672765	0.0005750051	0.0013859811
5585	5586	5587	5588	5589	5591
0.0036646836	0.0041779868	0.0026586891	0.0113619261	0.0031290464	0.0008315813
5592	5593	5594	5595	5596	5597
0.0022153020	0.0017303235	0.0008578633	0.0006350384	0.0009891960	0.0009170067
5598	5599	5600	5601	5602	5603
0.0020183089	0.0019108421	0.0006040927	0.0009834959	0.0005939373	0.0007859177
5604	5605	5606	5607	5608	5609
0.0006607472	0.0008281661	0.0005804385	0.0005925917	0.0018543525	0.0007878132
5610	5611	5612	5613	5614	5615
0.0007933769	0.0011759202	0.0010290766	0.0032691591	0.0009049870	0.0010072296
5616	5617	5618	5619	5620	5621
0.0009481840	0.0007109353	0.0009071589	0.0016813281	0.0040957566	0.0011927908
5622	5623	5624	5625	5626	5627
0.0018687119	0.0016072770	0.0012986675	0.0016901571	0.0013624536	0.0009444005
5628	5629	5630	5631	5632	5633
0.0010019020	0.0011515871	0.0012376508	0.0011249472	0.0009658161	0.0012657089
5634	5635	5636	5637	5638	5639
0.0030900267	0.0007002846	0.0007002846	0.0009453136	0.0011071526	0.0008577655
5640	5641	5642	5643	5644	5645
0.0015427573	0.0011399337	0.0034809608	0.0571200632	0.0025112999	0.0025732921
5699	5700	5701	5702	5703	5704
0.0019043040	0.0022489213	0.0013566358	0.0013665655	0.0013665655	0.0015163239
5705	5706	5707	5708	5709	5710
0.0016636647	0.0017217619	0.0028934325	0.0019006285	0.0017926246	0.0021860309
5711	5712	5713	5714	5715	5716
0.0015848172	0.0015156090	0.0125059323	0.0013370871	0.0013127549	0.0008936538
5717	5718	5719	5720	5721	5722
0.0017331264	0.0011178002	0.0018267273	0.0009855191	0.0009589542	0.0015244781
5723	5724	5725	5726	5727	5728
0.0008856327	0.0008782627	0.0010214686	0.0009731884	0.0008745720	0.0008748325
5729	5730	5731	5732	5733	5734
0.0011396117	0.0008753414	0.0008794113	0.0018270141	0.0023650007	0.0015913908
5735	5736	5737	5738	5739	5740
0.0018503077	0.0018023588	0.0015759974	0.0014090876	0.0017995698	0.0015588644
5741	5742	5743	5744	5745	5746
0.0014560411	0.0037007706	0.0014085201	0.0094139609	0.0022467920	0.0011700563
5747	5748	5749	5750	5751	5752
0.0020358627	0.0008773479	0.0010195702	0.0005643985	0.0005591428	0.0004813176
5753	5754	5755	5756	5757	5758
0.0008039980	0.0008472275	0.0005829701	0.0088942928	0.0017446347	0.0009926049
5759	5760	5761	5762	5763	5764

0.0021082876	0.0014112628	0.0008310047	0.0005463981	0.0006995649	0.0006932607
5765	5766	5767	5768	5769	5770
0.0005240266	0.0005466314	0.0018102397	0.0004607373	0.0004999862	0.0004999862
5771	5772	5773	5774	5775	5776
0.0005186002	0.0004652581	0.0007052827	0.0004737978	0.0006103386	0.0016135803
5777	5779	5780	5781	5782	5783
0.0023090854	0.0035007718	0.0023217093	0.0019601356	0.0017969245	0.0018799754
5784	5785	5786	5787	5788	5789
0.0018976300	0.0012713193	0.0102379879	0.0017545900	0.0015055089	0.0015435421
5790	5791	5792	5793	5794	5795
0.0017537538	0.0022810168	0.0016718170	0.0185690429	0.0024411623	0.0017999069
5796	5797	5798	5799	5800	5801
0.0018520263	0.0020991425	0.0016798394	0.0016165674	0.0033281217	0.0016391699
5802	5803	5804	5805	5806	5807
0.0016042284	0.0011771834	0.0010694113	0.0010773210	0.0015070269	0.0018503701
5808	5809	5810	5811	5812	5813
0.0007315395	0.0009193408	0.0010388507	0.0021314122	0.0010031805	0.0007213364
5814	5815	5816	5817	5818	5819
0.0017046186	0.0019030857	0.0009546448	0.0008734516	0.0006159528	0.0011408268
5820	5821	5822	5823	5824	5825
0.0012241825	0.0010078289	0.0013121458	0.0010984185	0.0011462747	0.0018419090
5826	5827	5828	5829	5830	5831
0.0004718729	0.0008971009	0.0019411704	0.0019066799	0.0015571988	0.0015502120
5832	5833	5834	5835	5836	5837
0.0008525142	0.0018778027	0.0007477385	0.0005231777	0.0015253916	0.0006081153
5838	5839	5840	5841	5842	5843
0.0005514318	0.0008730560	0.0006757471	0.0008147311	0.0009477910	0.0004761355
5844	5845	5846	5847	5848	5849
0.0004740641	0.0008172211	0.0006744788	0.0020840846	0.0034047878	0.0137066073
5850	5851	5852	5853	5854	5855
0.0049652234	0.0027803226	0.0007935671	0.0023910234	0.0005930492	0.0007760794
5856	5857	5858	5859	5860	5861
0.0008165876	0.0009493509	0.0011351748	0.0039944166	0.0012831203	0.0006986575
5862	5863	5864	5865	5866	5867
0.0006842894	0.0006122220	0.0005704765	0.0005876031	0.0008142594	0.0006710721
5868	5869	5870	5871	5872	5873
0.0007631563	0.0012780442	0.0013760367	0.0012026793	0.0010990362	0.0009877514
5874	5875	5876	5877	5878	5879
0.0010730455	0.0019632300	0.0033922199	0.0011148358	0.0013764881	0.0010055364
5880	5881	5882	5883	5884	5885
0.0006304020	0.0009164688	0.0005970530	0.0117944753	0.0008756310	0.0008135385
5886	5887	5888	5889	5890	5891
0.0007744842	0.0008334407	0.0016569997	0.0015610748	0.0017687612	0.0026573468

5892	5893	5946	5947	5948	5949
0.0047989445	0.0030708022	0.0040380654	0.0024830596	0.0014502377	0.0014566003
5950	5951	5952	5953	5954	5955
0.0017215137	0.0010018681	0.0011056840	0.0022071523	0.0011560778	0.0009867893
5956	5957	5958	5959	5960	5961
0.0009090437	0.0008714096	0.0011326905	0.0011373059	0.0011450944	0.0017174802
5962	5963	5964	5965	5966	5967
0.0033389011	0.0020172151	0.0012812283	0.0023394205	0.0015699666	0.0068227387
5968	5969	5970	5971	5972	5973
0.0006418230	0.0004734163	0.0004778158	0.0011380669	0.0008824314	0.0020820759
5974	5975	5976	5977	5978	5979
0.0016286957	0.0008114638	0.0007800823	0.0006962025	0.0013895156	0.0021930320
5980	5981	5982	5983	5984	5985
0.0014486310	0.0014500748	0.0026312653	0.0025542380	0.0020076859	0.0012735742
5986	5987	5988	5989	5990	5991
0.0018271090	0.0019827043	0.0021731949	0.0022970927	0.0027710522	0.0020188810
5992	5993	5994	5995	5996	5997
0.0016725026	0.0520464695	0.0027875271	0.0019678829	0.0018236012	0.0017841163
5998	5999	6000	6001	6002	6003
0.0017682438	0.0012242712	0.0011101895	0.0010703184	0.0022174913	0.0011567218
6004	6005	6006	6007	6008	6009
0.0020158077	0.0022952898	0.0023684639	0.0011684209	0.0016805304	0.0009695456
6010	6011	6012	6013	6014	6015
0.0006051131	0.0018787486	0.0008654693	0.0008425134	0.0009033707	0.0012417899
6016	6017	6018	6019	6020	6021
0.0006084024	0.0006397694	0.0013137439	0.0005482808	0.0033256326	0.0014070792
6022	6023	6024	6025	6026	6027
0.0007228605	0.0006222479	0.0005817728	0.0006670423	0.0004640976	0.0004540645
6028	6029	6030	6031	6032	6033
0.0005758883	0.0010047685	0.0009531130	0.0006299843	0.0006602913	0.0005979717
6034	6035	6036	6037	6038	6039
0.0009399334	0.0014309942	0.0012258488	0.0010545556	0.0008083419	0.0008723120
6040	6041	6042	6043	6044	6045
0.0015465789	0.0061095335	0.0065221430	0.0010574610	0.0075391066	0.0009273891
6046	6047	6048	6049	6050	6051
0.0008225790	0.0037651882	0.0050010952	0.0015578105	0.0009859176	0.0011970740
6052	6053	6054	6055	6056	6057
0.0009642901	0.0005707845	0.0013118859	0.0013021530	0.0013063756	0.0007415173
6058	6059	6060	6061	6062	6063
0.0013432196	0.0009294239	0.0033504342	0.0028433492	0.0026792265	0.0024532997
6064	6093	6094	6095	6096	6097
0.0026874855	0.0022387493	0.0012252769	0.0013875842	0.0014430888	0.0013922090
6098	6099	6100	6101	6102	6103

0.0023669835	0.0023669835	0.0012005995	0.0028515519	0.0009864034	0.0008823572
6104	6105	6106	6107	6108	6109
0.0011458782	0.0012687020	0.0012440991	0.0016777629	0.0014284479	0.0055784043
6110	6111	6112	6113	6114	6115
0.0020404703	0.0012805528	0.0021346884	0.0020263690	0.0009327364	0.0006324976
6116	6117	6118	6119	6120	6121
0.0004594406	0.0006359869	0.0005415861	0.0004522447	0.0006958784	0.0029008171
6122	6123	6124	6125	6126	6127
0.0012420643	0.0015943600	0.0018922436	0.0016754132	0.0005070214	0.0005414002
6128	6129	6130	6131	6132	6133
0.0089047462	0.0035394839	0.0022363637	0.0020868911	0.0038576345	0.0015089251
6134	6135	6136	6137	6138	6139
0.0025984195	0.0021162450	0.0019791867	0.0014696288	0.0021200620	0.0017672592
6140	6141	6142	6143	6144	6145
0.0024430568	0.0020695240	0.0021303512	0.0016793803	0.0020882757	0.0016617450
6146	6147	6148	6149	6150	6151
0.0020128441	0.0044022585	0.0012590924	0.0011248238	0.0019795597	0.0008034570
6152	6153	6154	6155	6156	6157
0.0013105151	0.0020125559	0.0084513506	0.0009584588	0.0010040084	0.0011708926
6158	6159	6160	6161	6162	6163
0.0008023298	0.0006782991	0.0006196038	0.0009821682	0.0007458340	0.0018080244
6164	6165	6166	6167	6168	6169
0.0015293101	0.0005847566	0.0005782310	0.0020260749	0.0010788223	0.0011217708
6170	6171	6172	6173	6174	6175
0.0020004572	0.0020485108	0.0008571615	0.0018475831	0.0005419680	0.0005198447
6176	6177	6178	6179	6180	6181
0.0008555380	0.0004521860	0.0053800743	0.0025963569	0.0012787858	0.0009145667
6182	6183	6184	6185	6186	6187
0.0011841184	0.0006305495	0.0014953030	0.0009980258	0.0012174838	0.0012480700
6188	6189	6190	6191	6192	6193
0.0012836774	0.0006428177	0.0005823737	0.0010399895	0.0008519212	0.0011462252
6194	6195	6196	6197	6198	6199
0.0011724223	0.0010263639	0.0008448840	0.0008760195	0.0007646554	0.0009588850
6200	6201	6202	6203	6204	6205
0.0006255085	0.0008192319	0.0007969717	0.0010239064	0.0026835584	0.0027345316
6206	6207	6208	6241	6242	6243
0.0027986392	0.0032634007	0.0026315174	0.0013093785	0.0017082848	0.0016810374
6244	6245	6246	6247	6248	6249
0.0013821735	0.0012699631	0.0019923988	0.0009801445	0.0009103981	0.0021712217
6250	6251	6252	6253	6254	6255
0.0008781551	0.0016999227	0.0018801659	0.0013369089	0.0012579131	0.0012132220
6256	6257	6258	6259	6260	6261
0.0013885142	0.0008978950	0.0005182562	0.0007910996	0.0013457921	0.0010341198

6262	6263	6264	6265	6266	6267
0.0013924855	0.0009066015	0.0017209411	0.0010986233	0.0006644371	0.0010210437
6268	6269	6270	6271	6272	6273
0.0006887347	0.0005195378	0.0079490571	0.0004440189	0.0007538301	0.0007039160
6274	6275	6276	6277	6278	6279
0.0004643686	0.0007161876	0.0024301044	0.0028295606	0.0020311095	0.0032760240
6280	6281	6282	6283	6284	6285
0.0013077277	0.0123245020	0.0025140482	0.0025140482	0.0031337576	0.0019309829
6286	6287	6288	6289	6290	6291
0.0019652175	0.0025910283	0.0019153577	0.0015358852	0.0012208625	0.0012632572
6292	6293	6294	6295	6296	6297
0.0014749209	0.0012374871	0.0013730034	0.0010763627	0.0017642706	0.0008662888
6298	6299	6300	6301	6302	6303
0.0017599034	0.0012939440	0.0010773475	0.0006796572	0.0008083706	0.0013609953
6304	6305	6306	6307	6308	6309
0.0008227668	0.0008186326	0.0005758782	0.0011179523	0.0010099371	0.0007717329
6310	6311	6312	6313	6314	6315
0.0004769819	0.0018616136	0.0013268920	0.0010741380	0.0008714586	0.0005775975
6316	6317	6318	6319	6321	6322
0.0010505330	0.0019201266	0.0008407934	0.0005104386	0.0005262343	0.0013272934
6323	6324	6325	6326	6327	6328
0.0119446049	0.0027332688	0.0033343542	0.0034849653	0.0005728810	0.0005870789
6329	6330	6331	6332	6333	6334
0.0189676691	0.0011231855	0.0006521352	0.0008597739	0.0008060201	0.0007879946
6335	6336	6337	6338	6339	6340
0.0015855310	0.0010643260	0.0006597182	0.0008906346	0.0018295992	0.0010036222
6341	6342	6343	6344	6345	6346
0.0013029637	0.0011963258	0.0007643844	0.0035881753	0.0029268587	0.0135255796
6347	6348	6349	6350	6351	6386
0.0048675476	0.0027957980	0.0034801332	0.0026090285	0.0040875529	0.0013255957
6387	6388	6389	6390	6391	6392
0.0021338300	0.0019167295	0.0076242725	0.0012288378	0.0011855429	0.0013831200
6393	6394	6395	6396	6397	6398
0.0015644737	0.0010921684	0.0016715885	0.0009786741	0.0009347535	0.0009942550
6399	6400	6401	6402	6403	6404
0.0181260896	0.0044062393	0.0013032418	0.0014680817	0.0014767385	0.0007604403
6405	6406	6407	6408	6409	6410
0.0005335899	0.0005058971	0.0006650725	0.0007705486	0.0010664876	0.0025147129
6411	6412	6413	6414	6415	6416
0.0006254936	0.0005221824	0.0004431542	0.0004404048	0.0034065020	0.0019779141
6417	6418	6419	6420	6421	6422
0.0028429488	0.0032446567	0.0013215231	0.0012858705	0.0017950657	0.0017335195
6423	6424	6425	6426	6427	6428

0.0038252220	0.0020060424	0.0049078097	0.0017748014	0.0015150843	0.0011160756
6429	6430	6431	6432	6433	6434
0.0010667269	0.0016140794	0.0012845180	0.0083610661	0.0008038003	0.0013769531
6435	6436	6437	6438	6439	6440
0.0010526868	0.0008479591	0.0006899203	0.0008071361	0.0008306673	0.0008247051
6441	6442	6443	6444	6445	6446
0.0051258106	0.0008175292	0.0026269462	0.0005005416	0.0005556037	0.0007011487
6447	6448	6449	6450	6451	6452
0.0004457900	0.0009739059	0.0005524623	0.0005113110	0.0004671178	0.0005245804
6453	6454	6455	6456	6457	6458
0.0007233607	0.0004775485	0.0006770504	0.0007472349	0.0005272294	0.0027576625
6459	6460	6461	6462	6463	6464
0.0005529846	0.0004747591	0.0010264032	0.0006859289	0.0030326193	0.0008732525
6465	6466	6467	6468	6469	6470
0.0022492747	0.0020893168	0.0015151791	0.0008867051	0.0006257403	0.0007875989
6471	6472	6473	6474	6475	6476
0.0006566966	0.0008696423	0.0028385661	0.0017051655	0.0016478545	0.0017597986
6477	6478	6479	6480	6481	6482
0.0025301685	0.0013533316	0.0015459034	0.0014743291	0.0005837899	0.0006221547
6483	6484	6485	6486	6487	6488
0.0017929772	0.0008350133	0.0050241009	0.0028064870	0.0027917149	0.0026067725
6489	6490	6491	6520	6521	6522
0.0026346904	0.0025420274	0.0025817123	0.0012238732	0.0020033983	0.0014984969
6523	6524	6525	6526	6527	6528
0.0009809649	0.0010962675	0.0011849540	0.0008686035	0.0015511278	0.0019842456
6529	6530	6531	6532	6533	6534
0.0008947300	0.0051159170	0.0045411930	0.0022759743	0.0033195694	0.0008421031
6535	6536	6537	6538	6539	6540
0.0007955668	0.0010817185	0.0005320264	0.0021374844	0.0018703608	0.0019594393
6541	6542	6543	6544	6545	6546
0.0014407528	0.0009616454	0.0005659327	0.0007205563	0.0020053210	0.0033082212
6547	6548	6549	6550	6551	6552
0.0014773191	0.0019833267	0.0025556760	0.0026442139	0.0038638685	0.0022676086
6553	6554	6555	6556	6557	6558
0.0013071774	0.0021535945	0.0038948039	0.0023294663	0.0041044451	0.0010744204
6559	6560	6561	6562	6563	6564
0.0010829620	0.0014249323	0.0012461831	0.0010756999	0.0043805396	0.0008832970
6565	6566	6567	6568	6569	6570
0.0007034029	0.0010204410	0.0010855917	0.0015506861	0.0017131472	0.0037378062
6571	6572	6573	6574	6575	6576
0.0009505327	0.0008891852	0.0012127485	0.0010954736	0.0011965180	0.0010970955
6577	6578	6579	6580	6581	6582
0.0006860221	0.0004418021	0.0033010044	0.0032137707	0.0011301333	0.0009757720

6583	6584	6585	6586	6587	6588
0.0006670562	0.0006577422	0.0014693139	0.0011393145	0.0012785160	0.0007240595
6589	6590	6591	6592	6593	6594
0.0007348517	0.0005530988	0.0007743150	0.0011771250	0.0119028215	0.0018754079
6595	6596	6597	6598	6599	6600
0.0020096115	0.0010112873	0.0015518421	0.0010238640	0.0008834288	0.0006976500
6601	6602	6603	6604	6605	6635
0.0020804358	0.0033839797	0.0029640181	0.0025259173	0.0027249852	0.0020808275
6636	6637	6638	6639	6640	6641
0.0018004300	0.0028243837	0.0013385977	0.0012049667	0.0013602570	0.0015758155
6642	6643	6644	6645	6646	6647
0.0015758155	0.0038158048	0.0025443801	0.0038255136	0.0014691408	0.0015041179
6648	6649	6650	6651	6652	6653
0.0008829939	0.0009994608	0.0008812186	0.0009655885	0.0012144791	0.0122225423
6654	6655	6656	6657	6658	6659
0.0032174188	0.0015816220	0.0016944586	0.0022090588	0.0005110365	0.0004809895
6660	6661	6662	6663	6664	6665
0.0006765034	0.0016602002	0.0010936011	0.0168322962	0.0025410852	0.0004933749
6666	6667	6668	6669	6670	6671
0.0008257949	0.0006479603	0.0008614320	0.0021892979	0.0016543114	0.0016487655
6672	6673	6674	6675	6676	6677
0.0018538347	0.0023310513	0.0015701715	0.0014917786	0.0014658406	0.0014664660
6678	6680	6681	6682	6683	6684
0.0019483117	0.0012246187	0.0012280243	0.0013100284	0.0012222334	0.0012184354
6685	6686	6687	6688	6689	6690
0.0016253405	0.0010409053	0.0028183310	0.0020004183	0.0009854940	0.0017412636
6691	6692	6693	6694	6695	6696
0.0008608902	0.0029880994	0.0020816776	0.0009690661	0.0006000116	0.0006872873
6697	6698	6699	6700	6701	6702
0.0008311142	0.0008264018	0.0078006047	0.0016677373	0.0025878126	0.0004973900
6703	6704	6705	6706	6707	6708
0.0004469623	0.0005454323	0.0007659310	0.0004618534	0.0004562879	0.0036518265
6709	6710	6711	6712	6713	6714
0.0030682136	0.0029535691	0.0012844162	0.0009607534	0.0006722646	0.0010999303
6715	6716	6717	6718	6719	6720
0.0009727840	0.0006310680	0.0007064766	0.0007700533	0.0009356544	0.0011041425
6721	6722	6723	6724	6725	6726
0.0010360724	0.0006557460	0.0007426882	0.0008013357	0.0007174662	0.0009339759
6727	6728	6729	6730	6731	6732
0.0010209737	0.0010415232	0.0010342287	0.0021529420	0.0045159398	0.0030700703
6733	6769	6770	6771	6772	6773
0.0025537607	0.0016313722	0.0019400099	0.0019940659	0.0024161731	0.0019845045
6774	6775	6776	6777	6778	6779

0.0019222855	0.0008681509	0.0014274800	0.0059073876	0.0015490964	0.0005318421
6780	6781	6782	6783	6784	6785
0.0008530689	0.0006640956	0.0006214834	0.0007000715	0.0004462030	0.0004337092
6786	6787	6788	6789	6790	6791
0.0004563946	0.0004480660	0.0004512929	0.0013960174	0.0008212359	0.0008265759
6792	6793	6794	6795	6796	6797
0.0004558035	0.0006281117	0.0028030721	0.0019773599	0.0024843079	0.0012423821
6798	6799	6800	6801	6802	6803
0.0017590334	0.0021644562	0.0020469981	0.0019022493	0.0014939424	0.0017515583
6804	6805	6806	6807	6808	6809
0.0010411490	0.0009382554	0.0009768616	0.0011798129	0.0009501037	0.0015779858
6810	6811	6812	6813	6814	6815
0.0029626225	0.0008894997	0.0016813489	0.0007171441	0.0014697453	0.0004542279
6816	6817	6818	6819	6820	6821
0.0018827040	0.0012508395	0.0008642947	0.0004998974	0.0004922502	0.0167545536
6822	6823	6824	6825	6826	6827
0.0005153308	0.0005335662	0.0135282152	0.0031063479	0.0059679553	0.0008759476
6828	6829	6830	6831	6832	6833
0.0017604840	0.0009673245	0.0015630120	0.0015276581	0.0011623762	0.0015216737
6834	6835	6870	6871	6872	6873
0.0026124304	0.0032145189	0.0022297498	0.0012375164	0.0018583219	0.0011262011
6874	6875	6876	6877	6878	6879
0.0029992335	0.0033307930	0.0019143396	0.0020150923	0.0006708326	0.0007903281
6880	6881	6882	6883	6884	6885
0.0015180477	0.0010648275	0.0005500957	0.0004952510	0.0007714965	0.0012052658
6886	6887	6888	6889	6890	6891
0.0005513566	0.0013571075	0.0013712340	0.0016527296	0.0015553972	0.0018951075
6892	6893	6894	6895	6896	6897
0.0017142615	0.0013196840	0.0020129345	0.0010660701	0.0011838144	0.0017380679
6898	6899	6900	6901	6902	6903
0.0007020566	0.0007919351	0.0008008754	0.0004970652	0.0005164478	0.0004948645
6904	6905	6906	6907	6908	6909
0.0004354384	0.0007610203	0.0004419598	0.0031905186	0.0082574868	0.0009785996
6910	6911	6912	6913	6914	6915
0.0006081798	0.0008644278	0.0006249781	0.0077284451	0.0011051501	0.0011441157
6916	6917	6918	6919	6920	6946
0.0014654045	0.0008277449	0.0005923775	0.0024181573	0.0034590328	0.0017651930
6947	6948	6949	6950	6951	6952
0.0024703166	0.0017679243	0.0012010554	0.0012537721	0.0102373770	0.0017292819
6953	6954	6955	6956	6957	6958
0.0017292819	0.0017292819	0.0018440461	0.0023052815	0.0011291302	0.0009308536
6959	6960	6961	6962	6963	6964
0.0026680466	0.0012917937	0.0020850910	0.0035465343	0.0012363553	0.0007143977

6965	6966	6967	6968	6969	6970
0.0005000579	0.0004736617	0.0006451693	0.0004347091	0.0024763828	0.0008568999
6971	6972	6973	6974	6975	6976
0.0019954188	0.0004359095	0.0007169895	0.0007360258	0.0006706373	0.0021920938
6977	6978	6979	6980	6981	6982
0.0024469984	0.0019205283	0.0040915433	0.0026292473	0.0021235114	0.0027166836
6983	6984	6985	6986	6987	6988
0.0021947608	0.0016920955	0.0017544472	0.0016773251	0.0016706895	0.0017445866
6989	6990	6991	6992	6993	6994
0.0015212717	0.0022547871	0.0021009224	0.0013836987	0.0010812152	0.0012490809
6995	6996	6997	6998	6999	7000
0.0014778064	0.0009666158	0.0035020889	0.0009514361	0.0008578686	0.0008719570
7001	7002	7003	7004	7005	7006
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7007	7008	7009	7010	7011	7012
0.0005099408	0.0016435158	0.0005048648	0.0005263872	0.0008440381	0.0004731083
7013	7014	7015	7017	7018	7019
0.0013557741	0.0027826447	0.0028004882	0.0008652067	0.0019572003	0.0010334013
7020	7021	7022	7023	7024	7025
0.0009819938	0.0012026839	0.0007747465	0.0025850007	0.0011397149	0.0011325222
7026	7027	7028	7029	7030	7031
0.0020223881	0.0021556443	0.0013254074	0.0019537764	0.0013712146	0.0008406701
7032	7033	7034	7035	7036	7037
0.0006207499	0.0008829391	0.0010957724	0.0008273709	0.0012177818	0.0005861548
7038	7039	7082	7083	7084	7085
0.0026747424	0.0029862898	0.0028264175	0.0012382132	0.0037424564	0.0011059310
7086	7087	7088	7089	7090	7091
0.0009711756	0.0010555361	0.0008685681	0.0008666949	0.0062686260	0.0034569461
7092	7093	7094	7095	7096	7097
0.0025348954	0.0014158350	0.0021852448	0.0011408628	0.0006431024	0.0005158931
7098	7099	7100	7101	7102	7103
0.0006636423	0.0005232479	0.0006458466	0.0006811216	0.0009207525	0.0007130152
7104	7105	7106	7107	7108	7109
0.0004963266	0.0005286076	0.0010212905	0.0004418393	0.0006668866	0.0030211588
7110	7111	7112	7113	7114	7115
0.0024815934	0.0013106541	0.0023156321	0.0015745885	0.0016258251	0.0017202242
7116	7117	7118	7120	7121	7122
0.0020103568	0.0015025430	0.0015321834	0.0010274403	0.0011418453	0.0008179589
7123	7124	7125	7126	7127	7128
0.0075626990	0.0005866546	0.0007954675	0.0010674696	0.0013327010	0.0036439055
7129	7130	7131	7132	7133	7134
0.0008799816	0.0006360963	0.0010999597	0.0019085948	0.0008602108	0.0015476202
7135	7136	7137	7138	7139	7140

0.0017935221	0.0017908705	0.0015194454	0.0005218483	0.0005028863	0.0004834782
7141	7142	7143	7144	7145	7146
0.0004449143	0.0006546013	0.0004290004	0.0007654309	0.0005509742	0.0004257761
7147	7148	7149	7150	7151	7152
0.0005186528	0.0004387342	0.0008369571	0.0007461450	0.0026204004	0.0008770190
7153	7154	7155	7156	7157	7158
0.0007348009	0.0005507777	0.0019471640	0.0014084516	0.0008528673	0.0008079391
7159	7160	7161	7162	7163	7164
0.0006638096	0.0006701734	0.0005533532	0.0007592694	0.0007506212	0.0006679509
7165	7166	7167	7168	7169	7170
0.0010076303	0.0007699439	0.0008456550	0.0011080242	0.0014466042	0.0015241729
7171	7172	7173	7174	7175	7176
0.0007825480	0.0010352338	0.0005499514	0.0007011077	0.0010175054	0.0091316041
7177	7178	7179	7180	7182	7223
0.0006002973	0.0170308984	0.0010884018	0.0035880959	0.0028323630	0.0014713785
7224	7225	7226	7227	7228	7229
0.0014112817	0.0016625720	0.0015456531	0.0014293783	0.0023287887	0.0013593392
7230	7231	7232	7233	7234	7235
0.0019588329	0.0013816430	0.0012831941	0.0010743671	0.0015271437	0.0012966365
7236	7237	7238	7239	7240	7241
0.0009287382	0.0009544254	0.0010872512	0.0008440160	0.0008506896	0.0017774844
7242	7243	7244	7245	7246	7247
0.0016412503	0.0038077552	0.0016377752	0.0013967516	0.0024869221	0.0038397167
7248	7249	7250	7252	7253	7254
0.0049163385	0.0020282952	0.0014677534	0.0013098298	0.0007092420	0.0007218784
7255	7256	7257	7258	7259	7260
0.0004855006	0.0004454512	0.0004388244	0.0020089827	0.0008402821	0.0006834356
7261	7262	7263	7264	7265	7266
0.0004833567	0.0004855557	0.0007348478	0.0023951248	0.0004159901	0.0005251487
7267	7268	7269	7270	7271	7272
0.0023197334	0.1414798607	0.0021371168	0.0016061283	0.0016907761	0.0016775634
7273	7274	7275	7276	7277	7278
0.0023097501	0.0016060591	0.0014986567	0.0017216589	0.0016631251	0.0018422967
7279	7280	7281	7282	7283	7284
0.0011304131	0.0016934869	0.0031829928	0.0006226277	0.0006878246	0.0038314022
7285	7286	7287	7288	7289	7290
0.0034111128	0.0009072670	0.0010611536	0.0006075436	0.0006230945	0.0008681624
7291	7292	7293	7294	7295	7296
0.0008439678	0.0018916581	0.0017472754	0.0006646857	0.0027466270	0.0013540208
7297	7298	7299	7300	7301	7302
0.0026951970	0.0033318835	0.0008651315	0.0005256577	0.0007528260	0.0006653744
7303	7304	7305	7306	7307	7308
0.0004796495	0.0004702256	0.0005043602	0.0004286610	0.0004435021	0.0005234075

7309	7310	7311	7312	7313	7314
0.0004232557	0.0004284359	0.0004298522	0.0007282512	0.0004336402	0.0004585117
7315	7316	7317	7318	7319	7320
0.0009520079	0.0030200799	0.0006194262	0.0006065018	0.0006202558	0.0017929504
7321	7322	7323	7324	7325	7326
0.0005382260	0.0007611761	0.0013661448	0.0006207324	0.0012804405	0.0018764576
7327	7328	7329	7330	7331	7332
0.0010052703	0.0011684869	0.0017401752	0.0009859243	0.0012541453	0.0010524992
7333	7372	7373	7374	7375	7376
0.0024434093	0.0017142138	0.0016548163	0.0017747411	0.0023626280	0.0013931644
7377	7378	7379	7380	7381	7382
0.0021546677	0.0019429994	0.0010825114	0.0012565701	0.0008361527	0.0014752968
7383	7384	7385	7386	7387	7388
0.0026754465	0.0032648182	0.0019085521	0.0036081703	0.0121113296	0.0045225090
7389	7390	7391	7392	7393	7394
0.0015773323	0.0015596165	0.0061124281	0.0017235166	0.0005211766	0.0016401086
7395	7396	7397	7398	7399	7400
0.0010401345	0.0006704976	0.0007549230	0.0006497110	0.0007305555	0.0004264598
7401	7402	7403	7404	7405	7406
0.0012058837	0.0013675315	0.0024309390	0.0013910762	0.0007302906	0.0020033319
7407	7408	7409	7410	7411	7412
0.0007917208	0.0004798291	0.0005346021	0.0004226705	0.0005250984	0.0004709193
7413	7414	7415	7416	7417	7418
0.0007639977	0.0019930890	0.0004580109	0.0004420556	0.0004337258	0.0022415367
7419	7420	7421	7422	7423	7424
0.0024450514	0.0017570571	0.0017705209	0.0027464400	0.0024509253	0.0015689623
7425	7426	7427	7428	7429	7430
0.0017638838	0.0027282992	0.0025218667	0.0022665042	0.0017568934	0.0017591961
7431	7432	7433	7434	7435	7436
0.0026655749	0.0011692788	0.0012973152	0.0014878498	0.0025142363	0.0012241887
7437	7438	7439	7440	7441	7442
0.0011621701	0.0013729225	0.0012417813	0.0013721689	0.0018476139	0.0011830648
7443	7444	7445	7446	7447	7448
0.0008623023	0.0008960862	0.0005808787	0.0011103890	0.0010322508	0.0012904928
7449	7450	7451	7452	7453	7454
0.0012194472	0.0008487414	0.0005667797	0.0011236081	0.0017212279	0.0005884813
7455	7456	7457	7458	7459	7460
0.0009487079	0.0009691830	0.0010868590	0.0008261640	0.0004717388	0.0007725637
7461	7462	7463	7464	7465	7466
0.0004352365	0.0007217496	0.0021645243	0.0020209293	0.0013132758	0.0028510469
7467	7468	7469	7470	7471	7472
0.0013151131	0.0006528905	0.0005091619	0.0004396538	0.0007100906	0.0007579194
7473	7474	7475	7476	7477	7478

0.0007469534	0.0008450622	0.0004845910	0.0004963466	0.0019091431	0.0004441535
7479	7480	7481	7482	7483	7484
0.0004205174	0.0008149022	0.0005179867	0.0004370809	0.0010348739	0.0019683975
7485	7486	7487	7488	7489	7490
0.0007055798	0.0022031532	0.0010063584	0.0011405653	0.0008609451	0.0007826050
7491	7492	7493	7494	7495	7496
0.0007997156	0.0006045857	0.0005937652	0.0005400017	0.0005427913	0.0007325376
7497	7498	7499	7500	7501	7502
0.0007528176	0.0007545987	0.0007545987	0.0007593703	0.0008387634	0.0026446953
7503	7504	7505	7506	7507	7508
0.0132416531	0.0008044782	0.0022488355	0.0008724044	0.0007005125	0.0010229873
7509	7510	7511	7512	7513	7564
0.0013140734	0.0010669552	0.0007426682	0.0021773732	0.0029522124	0.0014774349
7565	7566	7567	7568	7569	7570
0.0018828278	0.0026372124	0.0016236561	0.0019010954	0.0014659480	0.0011668752
7571	7572	7573	7574	7575	7576
0.0008402949	0.0012974744	0.0011600384	0.0013981080	0.0009304161	0.0009494454
7577	7578	7579	7580	7581	7582
0.0010544749	0.0008708766	0.0019956017	0.0012838926	0.0012087207	0.0055451442
7583	7584	7585	7586	7587	7588
0.0033363585	0.0046162013	0.0015107680	0.0026379694	0.0022107412	0.0015063975
7589	7590	7591	7592	7593	7594
0.0004504806	0.0006580994	0.0015619614	0.0006869376	0.0009066629	0.0018275857
7595	7596	7597	7598	7599	7600
0.0017074633	0.0014799035	0.0007491431	0.0007742419	0.0011790286	0.0006142563
7601	7602	7603	7604	7605	7606
0.0005096010	0.0008080125	0.0004097563	0.0006758399	0.0006712455	0.0115991272
7607	7608	7609	7610	7611	7612
0.0021386552	0.0019428263	0.0014108900	0.0017785924	0.0014321927	0.0017190011
7613	7614	7615	7616	7617	7618
0.0016239158	0.0018605759	0.0017954201	0.0021630878	0.0022125854	0.0018511840
7619	7620	7621	7622	7623	7624
0.0020407015	0.0017336706	0.0017804811	0.0010455456	0.0021622678	0.0010488694
7625	7626	7627	7628	7629	7630
0.0009188370	0.0017619264	0.0007020419	0.0006861373	0.0005943126	0.0005778325
7631	7632	7633	7634	7635	7636
0.0007786617	0.0031221741	0.0018359402	0.0009711607	0.0014052835	0.0011962799
7637	7638	7639	7640	7641	7642
0.0011207312	0.0006533268	0.0006231366	0.0006231366	0.0008418689	0.0006781013
7643	7644	7645	7646	7647	7648
0.0007299405	0.0007545565	0.0012832283	0.0027846684	0.0010188225	0.0014828441
7649	7650	7651	7652	7653	7654
0.0004528087	0.0011957298	0.0011329875	0.0020420472	0.0004570714	0.0007198051

7655	7656	7657	7658	7659	7660
0.0004343900	0.0004892188	0.0006416595	0.0004615127	0.0005372372	0.0004327625
7661	7662	7663	7664	7665	7666
0.0005274789	0.0004257297	0.0045776962	0.0033616058	0.0028528971	0.0031251053
7667	7668	7669	7670	7671	7672
0.0021789284	0.0006080885	0.0006408521	0.0005252304	0.0017225351	0.0006236599
7673	7674	7675	7676	7677	7678
0.0008225619	0.0007988510	0.0014246847	0.0010885759	0.0030331197	0.0026204586
7679	7680	7681	7682	7683	7684
0.0006173114	0.0008247437	0.0007901119	0.0013968205	0.0015097581	0.0010093384
7685	7686	7687	7688	7727	7728
0.0013330050	0.0007195330	0.0013022259	0.0035553177	0.0012615617	0.0012866524
7729	7730	7731	7732	7733	7734
0.0013640937	0.0018410882	0.0015693633	0.0011436118	0.0012262929	0.0008314876
7735	7736	7737	7738	7739	7740
0.0008316277	0.0010854551	0.0035481360	0.0016582998	0.0022570502	0.0010387002
7741	7742	7743	7744	7745	7746
0.0053147571	0.0037324026	0.0069625739	0.0073164383	0.0020632106	0.0132800995
7747	7749	7750	7751	7752	7753
0.0018307413	0.0018687426	0.0037200445	0.0069649415	0.0006637412	0.0005285821
7754	7755	7756	7757	7758	7759
0.0009478859	0.0008415722	0.0005201991	0.0004872050	0.0006275296	0.0008804354
7760	7761	7762	7763	7764	7765
0.0006729926	0.0010260772	0.0020401757	0.0188338476	0.0006155108	0.0024178770
7766	7767	7768	7769	7770	7771
0.0014435102	0.0004373755	0.0005443492	0.0006648604	0.0021229349	0.0044413859
7772	7773	7774	7775	7776	7777
0.0609636906	0.0020616909	0.0025349163	0.0022972829	0.0018266073	0.0022978861
7778	7779	7780	7781	7782	7783
0.0013803739	0.0012628487	0.0015391455	0.0025074141	0.0019372318	0.0018367161
7784	7785	7786	7787	7788	7789
0.0018015358	0.0017626491	0.0016991195	0.0018084746	0.0013104765	0.0018155987
7790	7791	7792	7793	7794	7795
0.0014647385	0.0010660731	0.0010248345	0.0012096060	0.0012381641	0.0010768539
7796	7797	7798	7799	7800	7801
0.0010601494	0.0009794083	0.0008773026	0.0015579899	0.0013422672	0.0009592118
7802	7803	7804	7805	7806	7807
0.0029423741	0.0007734308	0.0008179248	0.0007188414	0.0008679517	0.0010376602
7808	7809	7810	7811	7812	7813
0.0008152624	0.0019871968	0.0030330530	0.0006644798	0.0005052647	0.0014897789
7814	7815	7816	7817	7818	7819
0.0007832913	0.0006180877	0.0006396650	0.0010904369	0.0020791629	0.0006579955
7820	7821	7822	7823	7824	7825

0.0007175707	0.0005399264	0.0018026733	0.0004745690	0.0004863247	0.0004781193
7826	7827	7828	7829	7830	7831
0.0004145853	0.0004334733	0.0005097421	0.0005053220	0.0008031532	0.0006577934
7832	7833	7834	7835	7836	7837
0.0006407567	0.0007733771	0.0008306442	0.0017327803	0.0011508823	0.0009716261
7838	7839	7840	7841	7842	7843
0.0022601658	0.0006387870	0.0006450709	0.0006025533	0.0012821378	0.0007482521
7844	7845	7846	7847	7848	7849
0.0006415378	0.0006626896	0.0008950953	0.0011215817	0.0012359158	0.0011036325
7850	7851	7852	7853	7854	7855
0.0011715358	0.0009520915	0.0009949485	0.0008386400	0.0005786934	0.0011134438
7856	7857	7858	7859	7860	7861
0.0006599685	0.0008165942	0.0009904399	0.0014507518	0.0013750316	0.0025769957
7862	7863	7864	7914	7915	7916
0.0007507786	0.0029851459	0.0048957036	0.0023813753	0.0178428921	0.0017924303
7917	7918	7919	7920	7921	7922
0.0014084889	0.0012955500	0.0013505996	0.0018864373	0.0010737401	0.0025130594
7923	7924	7925	7926	7927	7928
0.0011185220	0.0026971480	0.0051565854	0.0022799006	0.0032451788	0.0017778665
7929	7930	7931	7932	7933	7934
0.0032144494	0.0084468136	0.0015469860	0.0015743126	0.0012853995	0.0092196566
7935	7936	7937	7938	7939	7940
0.0078270856	0.0075277964	0.0067601724	0.0006804350	0.0010273828	0.0018273042
7941	7942	7943	7944	7945	7946
0.0004847654	0.0004281257	0.0005003802	0.0006191390	0.0006149851	0.0007254770
7947	7948	7949	7950	7951	7952
0.0030062251	0.0041162871	0.0011109815	0.0020456892	0.0007976583	0.0006433491
7953	7954	7955	7956	7957	7958
0.0016544661	0.0005211639	0.0010266893	0.0004198385	0.0004213217	0.0005529663
7959	7960	7961	7962	7963	7964
0.0006597931	0.0019548653	0.0019310829	0.0033688318	0.0012864386	0.0015651809
7965	7966	7967	7968	7969	7970
0.0023698468	0.0017449563	0.0032655296	0.0019571561	0.0020777354	0.0024876007
7971	7972	7974	7975	7976	7977
0.0015702824	0.0016294177	0.0013254172	0.0010236751	0.0010090153	0.0019911386
7978	7979	7980	7981	7982	7983
0.0007448130	0.0012142654	0.0012647824	0.0011652016	0.0130332909	0.0021571983
7984	7985	7986	7987	7988	7989
0.0018936374	0.0014048710	0.0007509948	0.0009131430	0.0007880553	0.0008155373
7990	7991	7992	7993	7994	7995
0.0007595002	0.0007960608	0.0004830107	0.0004224685	0.0014930263	0.0013726278
7996	7997	7998	7999	8000	8001
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8002	8003	8004	8005	8006	8007
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8008	8009	8010	8011	8012	8013
0.0019718362	0.0034150537	0.0011521534	0.0018779759	0.0006475582	0.0009342603
8014	8015	8016	8017	8018	8019
0.0008531829	0.0007433020	0.0013012365	0.0059508200	0.0006027034	0.0005919188
8020	8021	8022	8023	8024	8025
0.0014959281	0.0022677451	0.0021385445	0.0015376936	0.0015376936	0.0028063553
8026	8027	8028	8029	8030	8031
0.0015940039	0.0033479414	0.0022307166	0.0010853368	0.0005680174	0.0011245362
8032	8033	8034	8035	8036	8037
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8038	8039	8040	8093	8094	8095
0.0026697072	0.0032261057	0.0479580569	0.0024651942	0.0037019263	0.0017962647
8096	8097	8098	8099	8100	8101
0.0012186463	0.0011724587	0.0015240565	0.0016004767	0.0009234066	0.0009339711
8102	8103	8104	8105	8106	8107
0.0008318071	0.0009728513	0.0011841916	0.0012061975	0.0011586030	0.0016681408
8108	8109	8110	8111	8112	8113
0.0151661445	0.0020909963	0.0018313271	0.0023155182	0.0016846302	0.0074815738
8114	8115	8116	8117	8118	8119
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8120	8121	8122	8123	8124	8125
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8126	8127	8128	8129	8130	8131
0.0014488722	0.0016339964	0.0011438765	0.0014447342	0.0004940292	0.0004442361
8132	8133	8134	8135	8136	8137
0.0009598380	0.0004045743	0.0004343431	0.0004373114	0.0006437992	0.0006584271
8138	8139	8140	8141	8142	8143
0.0088848236	0.0019691679	0.0019882790	0.0013554524	0.0022030519	0.0012925253
8144	8145	8146	8147	8148	8149
0.0012763500	0.0016705106	0.0019396784	0.0018214693	0.0016730863	0.0014336328
8150	8151	8152	8153	8154	8155
0.0014047336	0.0427050850	0.0009390658	0.0009738684	0.0006694807	0.0035732591
8156	8157	8158	8159	8160	8161
0.0017402986	0.0006557952	0.0008290881	0.0007064623	0.0027626224	0.0004884266
8162	8163	8164	8165	8166	8167
0.0016433130	0.0004715464	0.0008384644	0.0010341505	0.0004714765	0.0005502370
8168	8169	8170	8171	8172	8173
0.0006977227	0.0004899760	0.0008003149	0.0004152544	0.0004322298	0.0005048866
8174	8175	8176	8177	8178	8179
0.0030571471	0.0016027818	0.0020336257	0.0013291870	0.0005875382	0.0007541168
8180	8181	8182	8183	8184	8185

0.0005899309	0.0007197314	0.0005850877	0.0005381667	0.0005746343	0.0007418512
8186	8187	8188	8189	8190	8191
0.0009389578	0.0018074902	0.0018095160	0.0014206753	0.0019683697	0.0008739764
8192	8193	8194	8195	8196	8197
0.0007726052	0.0012267930	0.0011400091	0.0016355726	0.0010093615	0.0012491032
8198	8199	8200	8201	8202	8203
0.0007583787	0.0011398357	0.0031240360	0.0024143555	0.0023919643	0.0028062801
8230	8231	8232	8233	8234	8235
0.0021450039	0.0014519330	0.0011956730	0.0008928295	0.0036124024	0.0012428088
8236	8237	8238	8239	8240	8241
0.0009598740	0.0009443686	0.0009587496	0.0019605220	0.0025558642	0.0014291879
8242	8243	8244	8245	8246	8247
0.0021680730	0.0016778296	0.0006338601	0.0007507802	0.0006427469	0.0004545483
8248	8249	8250	8251	8252	8253
0.0030100375	0.0008175549	0.0009560867	0.0014684837	0.0006466020	0.0006414720
8254	8255	8256	8257	8258	8260
0.0004935066	0.0009148642	0.0004033074	0.0024993432	0.0022436247	0.0023815876
8261	8262	8263	8264	8265	8266
0.0013577482	0.0083878599	0.0018374851	0.0015804620	0.0020358125	0.0017717182
8267	8268	8270	8271	8272	8273
0.0016177862	0.0040949467	0.0012997973	0.0018110212	0.0009751054	0.0012514132
8274	8275	8276	8277	8278	8279
0.0029371356	0.0024861842	0.0025828175	0.0024677208	0.0013295813	0.0011687261
8280	8281	8282	8283	8284	8285
0.0006100869	0.0006804251	0.0007337087	0.0009402649	0.0006523636	0.0011466009
8286	8287	8288	8289	8290	8291
0.0007040161	0.0014689339	0.0005140332	0.0010098376	0.0024152180	0.0017611498
8292	8293	8294	8295	8296	8297
0.0006902564	0.0004959039	0.0004526641	0.0006596194	0.0004285943	0.0005107004
8298	8299	8300	8301	8302	8303
0.0004854550	0.0077294618	0.0007099933	0.0006151422	0.0004955745	0.0004267612
8304	8305	8306	8307	8308	8309
0.0006285323	0.0006353121	0.0032982531	0.0029104992	0.0028259097	0.0010183956
8310	8311	8312	8313	8314	8315
0.0010368042	0.0006956130	0.0006112035	0.0005611701	0.0008443274	0.0007419375
8316	8317	8318	8319	8320	8321
0.0007326743	0.0009970174	0.0009932872	0.0008416047	0.0016652967	0.0005935549
8322	8323	8324	8325	8326	8327
0.0006453280	0.0007479188	0.0007580902	0.0030203748	0.0012784667	0.0009586086
8328	8329	8330	8331	8379	8380
0.0008278546	0.0008059553	0.0010172509	0.0026804471	0.0013815652	0.0013346112
8381	8382	8383	8384	8385	8386
0.0012037029	0.0018683921	0.0008549318	0.0027980318	0.0022960096	0.0009348528

8387	8388	8389	8390	8391	8392
0.0008410276	0.0008760524	0.0010979939	0.0017425179	0.0015433452	0.0015368489
8393	8394	8395	8396	8397	8398
0.0311143274	0.0195529775	0.0439057555	0.0025038712	0.0013980207	0.0023975599
8399	8400	8401	8402	8403	8404
0.0013856991	0.0014085647	0.0015522349	0.0052461717	0.0066649367	0.0009826209
8405	8406	8407	8408	8409	8410
0.0037278086	0.0007594288	0.0007985274	0.0035650308	0.0009697610	0.0023460568
8411	8412	8413	8414	8415	8416
0.0024878913	0.0006696014	0.0004824050	0.0004708804	0.0004888472	0.0006793443
8417	8418	8419	8420	8421	8422
0.0006954964	0.0019981625	0.0004008739	0.0013680268	0.0025173580	0.0019754748
8423	8424	8425	8426	8427	8428
0.0019719039	0.0020315558	0.0021326661	0.0068761353	0.0012132765	0.0016567225
8429	8430	8431	8432	8433	8434
0.0016774329	0.0025550855	0.0019644062	0.0018924495	0.0029623446	0.0015166164
8435	8436	8437	8438	8439	8440
0.0012403508	0.0010453399	0.0026366205	0.0011237063	0.0010466042	0.0009357667
8441	8442	8443	8444	8445	8446
0.0009369792	0.0014385715	0.0008336065	0.0027197646	0.0029022222	0.0116732832
8447	8448	8449	8450	8451	8452
0.0013237303	0.0006972269	0.0007111082	0.0007771474	0.0008778401	0.0005205588
8453	8454	8455	8456	8457	8458
0.0004836323	0.0004768168	0.0004027188	0.0004416837	0.0004056003	0.0005143358
8459	8460	8461	8462	8463	8464
0.0004098298	0.0007342360	0.0006306768	0.0006303991	0.0029931559	0.0008439904
8465	8466	8467	8468	8469	8470
0.0005076682	0.0012492093	0.0012175645	0.0008378082	0.0009215402	0.0005669816
8471	8472	8473	8474	8475	8476
0.0006474683	0.0005798228	0.0005435770	0.0005298299	0.0015319370	0.0011149639
8477	8478	8528	8529	8530	8531
0.0027160022	0.0028248768	0.0011611646	0.0016164619	0.0011462649	0.0011061001
8532	8533	8534	8535	8536	8537
0.0034079250	0.0010549789	0.0010418559	0.0011697591	0.0014627607	0.0022888605
8538	8539	8540	8541	8542	8543
0.0012131150	0.0017217178	0.0111295042	0.0016592010	0.0019298739	0.0020380748
8544	8545	8546	8547	8548	8549
0.0019966071	0.0014764804	0.0006499577	0.0008526273	0.0005059520	0.0006548083
8550	8551	8552	8553	8554	8555
0.0004366635	0.0007131616	0.0029159914	0.0027291924	0.0020160969	0.0039827220
8556	8557	8558	8559	8560	8561
0.0014627324	0.0025554606	0.0014473255	0.0016982607	0.0014842199	0.0016984584
8562	8563	8564	8565	8566	8567

0.0018561258	0.0034100018	0.0015746536	0.0007809329	0.0009629145	0.0015082968
8568	8569	8570	8571	8572	8573
0.0024681726	0.0008110185	0.0006308780	0.0011749526	0.0008844862	0.0013573828
8574	8575	8576	8577	8578	8579
0.0007861311	0.0007376316	0.0004554073	0.0022233605	0.0010030900	0.0010312541
8580	8581	8582	8583	8584	8585
0.0006999264	0.0016383335	0.0006522540	0.0048549589	0.0014687902	0.0006369929
8586	8587	8588	8589	8590	8591
0.0007453053	0.0027672766	0.0012430080	0.0015457452	0.0008734921	0.0005376799
8592	8593	8594	8595	8596	8597
0.0030161754	0.0009348127	0.0008611812	0.0007701645	0.0044826305	0.0011435348
8598	8599	8600	8601	8602	8621
0.0009134083	0.0008820167	0.0009447095	0.0009348534	0.0026714976	0.0028995729
8622	8623	8624	8625	8626	8627
0.0014049592	0.0008470792	0.0024941888	0.0062798312	0.0041682917	0.0576470909
8628	8629	8630	8631	8632	8633
0.0023509933	0.0031765423	0.0052893549	0.0016210849	0.0145010796	0.0006220161
8634	8635	8636	8637	8638	8639
0.0010643652	0.0009937544	0.0004331388	0.0007590247	0.0003987746	0.0007859672
8641	8642	8643	8644	8645	8646
0.0004812709	0.0004446195	0.0022697598	0.0022468420	0.0018515959	0.0019097483
8647	8648	8649	8650	8651	8652
0.0014167781	0.0012085805	0.0010294479	0.0009447020	0.0029976247	0.0009081730
8653	8654	8655	8656	8657	8658
0.0016979403	0.0009444219	0.0004908332	0.0004317136	0.0008107479	0.0011160267
8659	8660	8661	8662	8663	8664
0.0013179375	0.0075384170	0.0015924918	0.0012897139	0.0008343286	0.0012303522
8665	8666	8667	8668	8669	8670
0.0029358692	0.0005213783	0.0013055856	0.0006542099	0.0017488916	0.0019592682
8671	8672	8673	8674	8675	8708
0.0007902004	0.0008902978	0.0008351463	0.0123510519	0.0025912811	0.0013801764
8709	8710	8711	8712	8713	8714
0.0085241270	0.0036327604	0.0012239767	0.0011680848	0.0016560623	0.0014099158
8715	8716	8717	8718	8719	8720
0.0017381329	0.0017286540	0.0015112742	0.0005169912	0.0005508918	0.0007998720
8721	8722	8723	8724	8725	8726
0.0006282132	0.0007314989	0.0004804592	0.0009669222	0.0003976740	0.0015480515
8727	8728	8729	8730	8731	8732
0.0020237722	0.0010627737	0.0019726300	0.0007166348	0.0010319446	0.0009917457
8733	8734	8735	8736	8737	8738
0.0005749631	0.0005179093	0.0043294076	0.0188321953	0.0019924936	0.0015200523
8739	8740	8741	8742	8743	8744
0.0024725898	0.0016191899	0.0018413936	0.0017499668	0.0026481350	0.0020481761

8746	8747	8748	8749	8750	8751
0.0079331417	0.0012091743	0.0010282513	0.0013295772	0.0012827982	0.0007388940
8752	8753	8754	8755	8756	8757
0.0006834834	0.0019133379	0.0016426128	0.0017397321	0.0009233351	0.0007399540
8758	8759	8760	8761	8762	8763
0.0008980747	0.0006045236	0.0010450003	0.0007372185	0.0006587322	0.0007477174
8764	8765	8766	8767	8768	8769
0.0008283053	0.0004257504	0.0018616919	0.0021036941	0.0010157163	0.0009018629
8770	8771	8772	8773	8774	8775
0.0007934234	0.0005221432	0.0004865481	0.0006725523	0.0006859896	0.0004143978
8776	8777	8778	8779	8780	8781
0.0004755989	0.0004777365	0.0006541298	0.0010469592	0.0045022731	0.0032339765
8782	8783	8784	8785	8786	8787
0.0029241519	0.0008945181	0.0078139736	0.0006179631	0.0006811669	0.0005097638
8788	8789	8790	8791	8792	8793
0.0011530047	0.0010232722	0.0012440366	0.0009346850	0.0006578167	0.0005898113
8794	8795	8796	8797	8798	8799
0.0005209344	0.0083927300	0.0014630114	0.0005760070	0.0005805103	0.0177533565
8800	8801	8802	8803	8804	8805
0.0010759387	0.0014084229	0.0019109122	0.0008004930	0.0021036872	0.0015699520
8806	8807	8808	8809	8810	8849
0.0019166799	0.0032007184	0.0023644787	0.0023967399	0.0025866766	0.0024141969
8850	8851	8852	8853	8854	8855
0.0011795576	0.0012559706	0.0015975887	0.0012202216	0.0014749187	0.0008466383
8856	8857	8858	8859	8860	8861
0.0008256798	0.0126165672	0.0012014988	0.0027602708	0.0022733216	0.0012580156
8862	8863	8864	8865	8866	8867
0.0084890519	0.0025587267	0.0018346384	0.0066181399	0.0069401043	0.0008175180
8868	8869	8870	8871	8872	8873
0.0004712115	0.0010523903	0.0006712707	0.0004064756	0.0016467228	0.0004036375
8874	8875	8876	8877	8878	8879
0.0004116702	0.0008171767	0.0018558344	0.0036692359	0.0006937013	0.0006380441
8880	8881	8882	8883	8884	8885
0.0006498835	0.0015029931	0.0005054524	0.0003935842	0.0017658108	0.0007871589
8886	8887	8888	8889	8890	8891
0.0006657699	0.0004050923	0.0021100351	0.0015168738	0.0020200523	0.0012026484
8892	8893	8894	8895	8897	8898
0.0015227644	0.0020166881	0.0034418877	0.0018083348	0.0014594338	0.0016873648
8899	8900	8901	8902	8903	8904
0.0017861714	0.0017738504	0.0015491421	0.0012395827	0.0009822823	0.0015937040
8905	8906	8907	8908	8909	8910
0.0011514957	0.0011222615	0.0010473133	0.0008932073	0.0007165050	0.0006390539
8911	8912	8913	8914	8915	8916

0.0014088971	0.0013519592	0.0019517794	0.0009439661	0.0023235990	0.0009194650
8917	8918	8919	8920	8921	8922
0.0011856588	0.0011555599	0.0007337724	0.0005493988	0.0005395676	0.0008257736
8923	8924	8925	8926	8928	8929
0.0006148845	0.0018654112	0.0007980955	0.0005106351	0.0004019138	0.0003967369
8930	8931	8932	8933	8934	8935
0.0024927325	0.0020304682	0.0021022634	0.0010341129	0.0015405347	0.0005052501
8936	8937	8938	8939	8940	8941
0.0005226954	0.0007058455	0.0010034448	0.0005429488	0.0008228524	0.0003939884
8942	8943	8944	8945	8946	8947
0.0004924313	0.0004735735	0.0009890038	0.0045979664	0.0045702150	0.0030121013
8948	8949	8950	8951	8952	8953
0.0034809059	0.0025493976	0.0029806070	0.0006047892	0.0016165860	0.0005436650
8954	8955	8956	8957	8958	8959
0.0006363655	0.0009182965	0.0009370902	0.0010760833	0.0005940672	0.0005812204
8960	8961	8962	8963	8964	8965
0.0007278520	0.0019867122	0.0013450155	0.0056568463	0.0016940084	0.0006120264
8966	8967	8968	8969	8970	8971
0.0008344131	0.0550715425	0.0009305027	0.0011677398	0.0015880686	0.0007605397
8972	8973	8974	8975	8976	8977
0.0005616307	0.0008120765	0.0032408484	0.0016805394	0.0007444660	0.0009456063
8978	8979	8981	8982	9050	9051
0.0006959618	0.0011822949	0.0024494423	0.0096132162	0.0182929048	0.0016518681
9052	9053	9054	9055	9056	9057
0.0015765030	0.0009357100	0.0008428618	0.0017886880	0.0009715461	0.0008679037
9058	9059	9060	9061	9062	9063
0.0062849938	0.0017603545	0.0019622461	0.0060844401	0.0115828797	0.0023866936
9064	9065	9066	9067	9068	9069
0.0015947473	0.0012337282	0.0011656330	0.0203405397	0.0029260325	0.0037630945
9070	9071	9072	9073	9074	9075
0.0070130717	0.0008405432	0.0004636549	0.0007005329	0.0004474318	0.0074577619
9076	9077	9078	9079	9080	9081
0.0006778491	0.0004614368	0.0007568289	0.0006398767	0.0003940717	0.0004602169
9082	9083	9084	9085	9086	9087
0.0004843460	0.0004089080	0.0017938942	0.0008516954	0.0013773434	0.0014026824
9088	9089	9090	9091	9092	9093
0.0009216864	0.0006049917	0.0007379703	0.0005027968	0.0004331592	0.0006042541
9094	9095	9096	9097	9098	9099
0.0004118400	0.0006287092	0.0032745596	0.0019039065	0.0030643847	0.0020179985
9100	9101	9102	9103	9104	9105
0.0011760127	0.0021442440	0.0023906742	0.0012834974	0.0014547416	0.0019398729
9106	9107	9108	9109	9110	9111
0.0019281765	0.0017640896	0.0018593798	0.0014305279	0.0018312797	0.0018242434

9112	9113	9114	9115	9116	9117
0.0018021983	0.0010014177	0.0010011516	0.0011849097	0.0018299632	0.0010104325
9118	9119	9120	9121	9122	9123
0.0009044545	0.0006475606	0.0005947324	0.0005967966	0.0005962654	0.0018613682
9124	9125	9126	9127	9128	9129
0.0019328392	0.0009875612	0.0010044239	0.0018404685	0.0112758774	0.0030931539
9130	9131	9132	9133	9134	9135
0.0010820237	0.0008947067	0.0009084023	0.0006924342	0.0005863385	0.0006386606
9136	9137	9138	9139	9140	9141
0.0012275595	0.0010473714	0.0035903601	0.0010160842	0.0011306821	0.0007170544
9142	9143	9144	9145	9146	9147
0.0005174762	0.0004487788	0.0007178291	0.0005574196	0.0010020815	0.0008639010
9148	9149	9150	9151	9152	9153
0.0019817736	0.0011897274	0.0007767631	0.0004517429	0.0010643514	0.0004525343
9154	9155	9156	9157	9158	9159
0.0004182340	0.0004607329	0.0004285778	0.0006861450	0.0004116670	0.0008190217
9160	9161	9162	9163	9164	9165
0.0031839186	0.0006073553	0.0005790024	0.0006789374	0.0005250335	0.0030549821
9166	9167	9168	9169	9170	9171
0.0013714169	0.0016521358	0.0007069610	0.0022796813	0.0006544949	0.0008081947
9172	9173	9174	9175	9176	9177
0.0005254712	0.0007656761	0.0016643793	0.0008733318	0.0010595293	0.0035254827
9178	9179	9180	9181	9182	9183
0.0012487558	0.0006206107	0.0028198760	0.0014115492	0.0008903427	0.0008669425
9184	9185	9186	9187	9188	9189
0.0009772454	0.0029585909	0.0007160179	0.0005228498	0.0005232762	0.0005474861
9190	9191	9192	9193	9194	9195
0.0007147904	0.0007659435	0.0009979832	0.0010464419	0.0007663462	0.0007949604
9196	9197	9198	9199	9200	9201
0.0048951582	0.0011640566	0.0009750901	0.0007540964	0.0008251807	0.0008000915
9202	9203	9204	9205	9206	9207
0.0012971682	0.0031993267	0.0026894410	0.0026453439	0.0034080571	0.0023801746
9250	9251	9252	9253	9254	9255
0.0012939032	0.0013802304	0.0011473783	0.0011806397	0.0009679917	0.0008341413
9256	9257	9258	9259	9260	9261
0.0009513337	0.0035642129	0.0035909652	0.0019707738	0.0012389709	0.0049226678
9262	9263	9264	9265	9266	9267
0.0049805615	0.0015222599	0.0023883280	0.0023087160	0.0015650640	0.0019043674
9268	9269	9270	9271	9272	9273
0.0020351121	0.0013151663	0.0015695938	0.0438456618	0.0007619340	0.0006334388
9274	9275	9276	9277	9278	9279
0.0007260602	0.0004454442	0.0004547652	0.0008565390	0.0004997730	0.0004154860
9280	9281	9282	9283	9284	9285

0.0017584779	0.0004966285	0.0006674820	0.0043826271	0.0010982253	0.0023832183
9286	9287	9288	9289	9290	9291
0.0015839314	0.0032731422	0.0004802449	0.0004670198	0.0007568066	0.0004524820
9292	9293	9294	9295	9296	9297
0.0003897907	0.0006793872	0.0004013847	0.0005064744	0.0004338401	0.0010329307
9298	9299	9300	9301	9303	9304
0.0006339394	0.0022134788	0.0020151238	0.0029573611	0.0083061864	0.0025352159
9305	9306	9307	9308	9309	9310
0.0022563525	0.0017211404	0.0022102295	0.0017354030	0.0016864089	0.0016258259
9311	9312	9313	9314	9315	9316
0.0017222390	0.0010125121	0.0010058374	0.0010118838	0.0012244623	0.0013405274
9317	9318	9319	9320	9321	9322
0.0013466369	0.0010189487	0.0011955242	0.0011009290	0.0019034473	0.0005547458
9323	9324	9325	9326	9327	9328
0.0009882947	0.0014077827	0.0116589809	0.0010764512	0.0012823602	0.0007735404
9329	9330	9331	9332	9333	9334
0.0029133136	0.0007549271	0.0005814655	0.0009631269	0.0012809274	0.0007485730
9335	9336	9337	9338	9339	9340
0.0010923583	0.0009773021	0.0011012568	0.0010488387	0.0007458758	0.0006574633
9341	9342	9343	9344	9345	9346
0.0017901029	0.0009159609	0.0007337194	0.0008868331	0.0004195652	0.0004441467
9347	9348	9349	9350	9351	9352
0.0027701780	0.0010557762	0.0016509540	0.0015188606	0.0016897723	0.0015553871
9353	9354	9355	9356	9357	9358
0.0010751221	0.0011069093	0.0008778392	0.0007814005	0.0005150678	0.0004642761
9359	9360	9361	9362	9363	9364
0.0004282862	0.0004718631	0.0004729297	0.0004584752	0.0008904579	0.0003918537
9365	9366	9367	9368	9370	9372
0.0003909715	0.0006203929	0.0004149133	0.0112773701	0.0033835917	0.0008078914
9373	9374	9375	9376	9377	9378
0.0009605891	0.0005951154	0.0008587958	0.0005684144	0.0005319825	0.0015004341
9379	9380	9381	9382	9383	9384
0.0019879996	0.0011596658	0.0027419342	0.0021909167	0.0010679404	0.0010672997
9385	9386	9387	9388	9389	9390
0.0022071998	0.0029549642	0.0006894880	0.0009040145	0.0006237668	0.0007845310
9391	9392	9393	9394	9395	9397
0.0007378889	0.0006181552	0.0006956304	0.0005118200	0.0005146824	0.0018737826
9398	9399	9400	9401	9402	9403
0.0011673665	0.0012032904	0.0006325962	0.0007542719	0.0005992081	0.0005752160
9404	9405	9406	9407	9408	9409
0.0007541078	0.0009424570	0.0018308333	0.0009415754	0.0007957763	0.0007943302
9410	9412	9413	9414	9415	9416
0.0008151420	0.0005153252	0.0005759717	0.0009748904	0.0007523294	0.0015231023

9417	9418	9419	9420	9421	9422
0.0035168313	0.0008335991	0.0007197524	0.0027400762	0.0025757739	0.0044929454
9423	9489	9490	9491	9492	9493
0.0023800262	0.0012068709	0.0016832770	0.0036013266	0.0016272996	0.0031465159
9494	9495	9496	9497	9498	9499
0.0022789107	0.0010471584	0.0008089546	0.0011831348	0.0009507375	0.0037926553
9500	9501	9502	9503	9504	9505
0.0033922581	0.0018056639	0.0020192664	0.0036408788	0.0022950140	0.0022720050
9506	9507	9508	9509	9510	9511
0.0031470403	0.0013195772	0.0016385644	0.0025025025	0.0008034523	0.0004500409
9512	9513	9514	9515	9516	9517
0.0018142955	0.0010200689	0.0004930669	0.0004815626	0.0007869122	0.0003862434
9518	9519	9520	9521	9522	9523
0.0026488017	0.0004331937	0.0021763484	0.0020228030	0.0016459640	0.0011612909
9524	9525	9526	9527	9528	9529
0.0004535405	0.0004678597	0.0014428593	0.0007029082	0.0003844617	0.0004425607
9530	9531	9533	9534	9535	9536
0.0003858787	0.0006034757	0.0007040308	0.0007050353	0.0006296510	0.0022556459
9537	9538	9539	9540	9541	9542
0.0019475008	0.0019022962	0.0024668107	0.0522898713	0.0021078357	0.0012606915
9543	9544	9545	9546	9547	9548
0.0017790375	0.0016033865	0.0031247472	0.0019062195	0.0021679964	0.0018772402
9549	9550	9551	9552	9553	9554
0.0017565776	0.0013416850	0.0079547723	0.0017257862	0.0009758057	0.0009726700
9555	9556	9557	9558	9559	9560
0.0009845347	0.0013495057	0.0015543877	0.0013562670	0.0021378674	0.0006136773
9561	9562	9563	9564	9565	9566
0.0009516856	0.0008637486	0.0007030789	0.0017629725	0.0008135076	0.0009098395
9567	9568	9569	9570	9571	9572
0.0009128307	0.0011802464	0.0013335666	0.0014855148	0.0018975897	0.0011016491
9573	9574	9575	9576	9577	9578
0.0011048110	0.0008636761	0.0009695690	0.0011525113	0.0008595920	0.0007136275
9579	9580	9581	9582	9583	9584
0.0007453305	0.0007927307	0.0007107793	0.0007568815	0.0007964074	0.0011707381
9585	9586	9587	9588	9589	9590
0.0009069236	0.0010623688	0.0507677018	0.0007763562	0.0017154600	0.0007043787
9591	9592	9593	9594	9595	9596
0.0005627399	0.0029947796	0.0009390879	0.0011192027	0.0009794537	0.0011319527
9597	9598	9599	9600	9601	9602
0.0025548709	0.0012432047	0.0007509953	0.0004490065	0.0004701336	0.0004131123
9603	9604	9605	9606	9607	9608
0.0004731071	0.0003916651	0.0004672778	0.0006958326	0.0004089685	0.0004546915
9609	9610	9611	9612	9613	9614

0.0004505111	0.0004071294	0.0030492658	0.0032689163	0.0049561924	0.0607220380
9615	9616	9617	9618	9619	9620
0.0011772752	0.0008746002	0.0030418643	0.0009237491	0.0005990295	0.0009217505
9621	9622	9623	9624	9625	9626
0.0008051693	0.0008346386	0.0008228538	0.0007052264	0.0013801453	0.0026828678
9627	9628	9629	9630	9631	9632
0.0012252253	0.0011759823	0.0015139007	0.0021406479	0.0005847620	0.0005025033
9633	9634	9636	9637	9638	9639
0.0013979259	0.0007323666	0.0618056229	0.0012717732	0.0114838317	0.0014699092
9640	9641	9642	9643	9644	9645
0.0014977437	0.0009230547	0.0010747655	0.0007354215	0.0029845998	0.0010024371
9646	9647	9648	9649	9650	9651
0.0005965032	0.0007361038	0.0011103942	0.0006610034	0.0010516947	0.0117449121
9652	9653	9654	9713	9714	9715
0.0026440304	0.0034560951	0.0031612939	0.0031351795	0.0016018941	0.0011779307
9716	9717	9718	9719	9720	9721
0.0013909226	0.0009061903	0.0010263038	0.0008411795	0.0019218870	0.0012759361
9722	9723	9724	9725	9726	9727
0.0009038026	0.0009365142	0.0013672574	0.0010807346	0.0010608984	0.0011411427
9728	9729	9730	9731	9732	9733
0.0016730699	0.0021627667	0.0128257212	0.0019230060	0.0014592646	0.0035991440
9734	9735	9736	9737	9738	9739
0.0013774704	0.0045720898	0.0016289890	0.0019189810	0.0014775796	0.0013510947
9740	9741	9742	9743	9744	9745
0.0021208534	0.0076820154	0.0088874868	0.0070197906	0.0007944877	0.0004697666
9746	9748	9749	9750	9751	9752
0.0005280121	0.0009502415	0.0004243095	0.0007257950	0.0004142065	0.0022398038
9753	9754	9755	9756	9757	9758
0.0003992598	0.0017870449	0.0008190957	0.0011190170	0.0014196135	0.0015386264
9759	9760	9761	9762	9763	9764
0.0004940854	0.0009649435	0.0014300918	0.0004521036	0.0004632439	0.0004155350
9765	9766	9767	9768	9769	9770
0.0009154457	0.0004041057	0.0004024288	0.0005057669	0.0004005944	0.0004048553
9771	9772	9773	9774	9775	9776
0.0006461248	0.0034279198	0.0019438379	0.0029186016	0.0022260780	0.0034147700
9777	9778	9779	9780	9781	9782
0.0016181060	0.0021716727	0.0012062604	0.0016076868	0.0024024701	0.0036844719
9783	9784	9785	9786	9787	9788
0.0013173051	0.0009840097	0.0008965829	0.0007369609	0.0007587362	0.0008747628
9789	9790	9791	9792	9793	9794
0.0019217886	0.0019397512	0.0011727946	0.0010571585	0.0009217648	0.0008732497
9795	9796	9797	9798	9799	9800
0.0011482180	0.0008712609	0.0007410276	0.0006374874	0.0009241684	0.0008895634

9801	9802	9803	9804	9805	9806
0.0008646257	0.0037905921	0.0011153286	0.0011360741	0.0024523010	0.0007403984
9807	9809	9810	9811	9812	9813
0.0005185743	0.0009197056	0.0004490945	0.0004144009	0.0004098706	0.0006429714
9814	9815	9816	9817	9818	9819
0.0004948420	0.0016154458	0.0006145099	0.0033775625	0.0014634212	0.0007261307
9820	9821	9822	9823	9824	9825
0.0006197896	0.0005731902	0.0008014267	0.0005062352	0.0020009629	0.0013580090
9826	9827	9828	9829	9830	9831
0.0016233075	0.0010726202	0.0012069552	0.0022202951	0.0008799573	0.0006475233
9833	9834	9835	9836	9837	9838
0.0005163936	0.0005829122	0.0005296039	0.0005807165	0.0005947654	0.0006085106
9839	9840	9841	9842	9843	9844
0.0006968562	0.0005102818	0.0028274547	0.0005087746	0.0008672394	0.0008754604
9845	9846	9847	9848	9849	9850
0.0007713221	0.0011132997	0.0011378384	0.0011301931	0.0006975165	0.0112854819
9851	9852	9853	9854	9855	9856
0.0013002685	0.0014538492	0.0009464956	0.0012469263	0.0006731021	0.0005589353
9858	9859	9896	9897	9898	9899
0.0026644595	0.0027543986	0.0011673478	0.0011393787	0.0010065229	0.0011797214
9900	9901	9902	9903	9904	9905
0.0016427779	0.0011611519	0.0113411759	0.0015656213	0.0017073071	0.0020542876
9906	9907	9908	9909	9910	9911
0.0018167382	0.0103980322	0.0090322467	0.0055789010	0.0027849044	0.0011779177
9912	9913	9914	9915	9916	9917
0.0013508648	0.0015505217	0.0013008562	0.0034441823	0.0075673091	0.0068610762
9918	9919	9920	9921	9922	9923
0.0005740357	0.0007027220	0.0007350039	0.0008914204	0.0073793601	0.0008700778
9924	9925	9926	9927	9928	9929
0.0008814411	0.0008838119	0.0012775541	0.0004457937	0.0006283020	0.0007429620
9930	9931	9932	9933	9934	9935
0.0004656337	0.0004008232	0.0105963192	0.0015035819	0.0018462865	0.0012815268
9936	9937	9938	9939	9940	9941
0.0022640297	0.0019345554	0.0039597673	0.0019024260	0.0021271381	0.0011084858
9942	9943	9944	9945	9946	9947
0.0010183559	0.0009916401	0.0009736740	0.0009724045	0.0011902122	0.0013402060
9948	9949	9951	9952	9953	9954
0.0012106219	0.0013924627	0.0005292256	0.0006893972	0.0011679294	0.0018797017
9955	9956	9957	9958	9959	9960
0.0009634801	0.0027899125	0.0009865790	0.0012772655	0.0007528708	0.0007935032
9961	9962	9963	9964	9965	9966
0.0008790390	0.0008192773	0.0008679425	0.0009174231	0.0015181052	0.0010957782
9967	9968	9969	9970	9971	9972

0.0007459037	0.0015831826	0.0004223287	0.0171537910	0.0005513367	0.0014231017
9973	9974	9975	9976	9977	9978
0.0005278640	0.0012309175	0.0016213874	0.0004559236	0.0004737051	0.0005964711
9979	9980	9981	9982	9983	9984
0.0007024691	0.0004774346	0.0009432589	0.0008719853	0.0003933590	0.0007828201
9985	9986	9987	9988	9989	9990
0.0003978797	0.0003972378	0.0007015355	0.0006473011	0.0006329007	0.0008263643
9991	9992	9993	9994	9995	9996
0.0007152884	0.0006127218	0.0010352638	0.0020033687	0.0041057809	0.0103881683
9997	9998	9999	10000	10001	10002
0.0037349127	0.0028352879	0.0009621681	0.0021381914	0.0007632115	0.0016139802
10003	10004	10005	10006	10007	10008
0.0028280672	0.0007833242	0.0026118714	0.0008599278	0.0007524344	0.0005890741
10009	10010	10011	10012	10013	10014
0.0011656060	0.0005080415	0.0008088454	0.0007363307	0.0018392091	0.0009603810
10015	10016	10017	10018	10019	10020
0.0007356321	0.0009822279	0.0010115793	0.0015204278	0.0009496207	0.0006886077
10021	10022	10023	10024	10025	10026
0.0006989439	0.0007811169	0.0009673853	0.0010332883	0.0013479667	0.0009041211
10067	10068	10069	10070	10071	10072
0.0085423862	0.0021735968	0.0021180394	0.0025759082	0.0013244891	0.0029700490
10073	10074	10075	10076	10077	10078
0.0011959429	0.0012097674	0.0016076874	0.0009313438	0.0008474874	0.0008298189
10079	10080	10081	10082	10083	10084
0.0011578789	0.0011483758	0.0034879694	0.0014758374	0.0017358354	0.0012859972
10085	10086	10087	10088	10089	10090
0.0337214581	0.0038394005	0.0011633703	0.0004857538	0.0005826023	0.0004775495
10091	10092	10093	10094	10095	10096
0.0008910241	0.0006291903	0.0006322432	0.0004172552	0.0006308095	0.0003888195
10097	10098	10099	10100	10101	10102
0.0003805881	0.0004155032	0.0008037838	0.0010294929	0.0012796088	0.0025896390
10103	10104	10105	10106	10107	10108
0.0023877990	0.0004068241	0.0004713431	0.0004788177	0.0004684964	0.0006935902
10109	10110	10111	10112	10113	10114
0.0004298906	0.0006096039	0.0004109173	0.0003983230	0.0012936338	0.0030376728
10115	10116	10117	10118	10119	10120
0.0038838684	0.0014012098	0.0021341749	0.0030944234	0.0022251551	0.0014823613
10121	10122	10123	10124	10125	10126
0.0012300144	0.0019565755	0.0016648664	0.0014480696	0.0023550114	0.0014728456
10127	10128	10129	10130	10131	10132
0.0009885541	0.0008897627	0.0006349256	0.0007812943	0.0005804515	0.0006378643
10133	10134	10135	10136	10137	10138
0.0005548390	0.0009562794	0.0010506860	0.0009241016	0.0011631803	0.0009175158

10139	10140	10141	10142	10143	10144
0.0009868870	0.0008034374	0.0008296848	0.0007901098	0.0005448994	0.0008213053
10145	10146	10147	10148	10149	10150
0.0010066341	0.0024707440	0.0007238477	0.0006777970	0.0005089716	0.0008008418
10151	10152	10153	10154	10155	10156
0.0008189243	0.0008303261	0.0008202004	0.0003987993	0.0003909579	0.0004217446
10157	10158	10159	10160	10161	10162
0.0006946755	0.0005991768	0.0007788424	0.0005012454	0.0003852479	0.0004385784
10163	10164	10165	10166	10167	10168
0.0003957428	0.0006846629	0.0003966555	0.0011687770	0.0024032804	0.0076186387
10169	10170	10171	10172	10173	10174
0.0021509345	0.0011566552	0.0017314043	0.0010264721	0.0005865592	0.0020051170
10175	10176	10177	10178	10179	10180
0.0005091208	0.0004910475	0.0006907623	0.0005965055	0.0008231504	0.0006266216
10181	10182	10183	10184	10185	10186
0.0007034747	0.0010995509	0.0014838201	0.0010085121	0.0008951987	0.0015339090
10187	10188	10189	10190	10191	10192
0.0005148894	0.0009932410	0.0007053242	0.0009055326	0.0013577524	0.0010785869
10193	10194	10195	10196	10197	10236
0.0013295995	0.0007343498	0.0006080135	0.0113952704	0.0032156726	0.0016549011
10237	10238	10239	10240	10241	10242
0.0020056304	0.0013436605	0.0013169910	0.0011816305	0.0016577217	0.0011069289
10243	10244	10245	10246	10247	10249
0.0008064562	0.0015670175	0.0045401210	0.0021071390	0.0014881260	0.0177868783
10250	10251	10252	10253	10254	10255
0.0034912934	0.0073758125	0.0069482613	0.0075226176	0.0007985944	0.0014783628
10256	10257	10258	10259	10260	10261
0.0004766806	0.0006054467	0.0016343007	0.0019322273	0.0014147102	0.0005308798
10262	10263	10264	10265	10266	10267
0.0005226061	0.0017225175	0.0007726155	0.0005063243	0.0004125069	0.0006426375
10268	10269	10270	10271	10272	10273
0.0009753837	0.0005935664	0.0004260343	0.0006421580	0.0005809720	0.0093982584
10274	10275	10276	10277	10278	10279
0.0020922396	0.0032306562	0.0011819201	0.0014585436	0.0035231889	0.0012450234
10280	10281	10282	10283	10284	10285
0.0013714750	0.0016571706	0.0014864306	0.0013536579	0.0016761051	0.0011557227
10286	10287	10288	10289	10290	10291
0.0011701390	0.0012357862	0.0013402421	0.0013268532	0.0010365589	0.0010666504
10292	10293	10294	10295	10296	10297
0.0031444656	0.0012884939	0.0009397720	0.0020744156	0.0008306212	0.0007849181
10298	10299	10300	10301	10302	10303
0.0019901361	0.0007323954	0.0015546569	0.0004588961	0.0017739272	0.0004026169
10304	10305	10306	10307	10308	10309

0.0005151972	0.0004719343	0.0007062824	0.0006181738	0.0006150788	0.0005303260
10310	10311	10312	10313	10314	10315
0.0004840893	0.0030508821	0.0028700377	0.0008366149	0.0006621460	0.0007069180
10316	10317	10318	10319	10320	10321
0.0009441824	0.0022970579	0.0005752439	0.0008009020	0.0005057361	0.0005404454
10322	10323	10324	10325	10326	10327
0.0009882502	0.0008182948	0.0031266337	0.0012328306	0.0007387098	0.0012285323
10328	10329	10330	10331	10332	10333
0.0012040772	0.0562593970	0.0026240927	0.0015719025	0.0007267034	0.0005159241
10334	10335	10336	10337	10339	10373
0.0013056373	0.0020081447	0.0013872069	0.0010879690	0.0063475074	0.0035350008
10374	10375	10376	10377	10378	10379
0.0020891098	0.0014858883	0.0013081387	0.0014363636	0.0016085893	0.0010634963
10380	10381	10382	10383	10384	10385
0.0028012486	0.0032071336	0.0091973387	0.0017026485	0.0036781641	0.0023358922
10386	10387	10388	10389	10390	10391
0.0016988676	0.0015980903	0.0015103925	0.0894939196	0.0030728654	0.0019920464
10392	10393	10394	10395	10396	10397
0.0014219281	0.0004163524	0.0003853241	0.0004172467	0.0004036466	0.0006575117
10398	10399	10400	10401	10402	10403
0.0003857833	0.0007184558	0.0170064540	0.0036899037	0.0022984948	0.0004175880
10404	10405	10406	10407	10408	10409
0.0004827215	0.0005985402	0.0005817181	0.0006927935	0.0004102299	0.0003858760
10410	10411	10412	10413	10414	10415
0.0007060299	0.0027414585	0.0013545991	0.0021686931	0.0088209742	0.0015433149
10416	10417	10418	10419	10420	10421
0.0025670430	0.0015208193	0.0018759223	0.0014670510	0.0016870756	0.0005229129
10422	10423	10424	10425	10426	10427
0.0012186168	0.0027287692	0.0009112070	0.0006644969	0.0007164952	0.0012346674
10428	10429	10430	10431	10432	10433
0.0018204342	0.0018926414	0.0011298387	0.0007407842	0.0005212480	0.0004492623
10434	10435	10436	10437	10438	10439
0.0003983172	0.0004425890	0.0008063459	0.0030062863	0.0037687267	0.0034129476
10440	10441	10442	10443	10444	10445
0.0008269865	0.0008464148	0.0031232089	0.0016164024	0.0007837259	0.0006379666
10446	10447	10448	10449	10450	10451
0.0019956009	0.0008872225	0.0014981342	0.0005565238	0.0007919558	0.0007317196
10452	10453	10454	10455	10456	10457
0.0031523841	0.0013410561	0.0017394715	0.0005601438	0.0009295417	0.0007278848
10458	10459	10460	10461	10462	10463
0.0007551737	0.0012416954	0.0008995245	0.0013126490	0.0012453922	0.0027694246
10464	10524	10525	10526	10527	10528
0.0033288716	0.0015224780	0.0012998904	0.0009523039	0.0011872565	0.0009181324

10529	10530	10531	10532	10533	10534
0.0008882710	0.0009364281	0.0008178960	0.0030035365	0.0013449818	0.0067301883
10535	10536	10537	10538	10539	10540
0.0167588434	0.0016089222	0.0006302392	0.0011062662	0.0003845187	0.0013258284
10541	10542	10543	10544	10545	10546
0.0004138684	0.0006475324	0.0003920096	0.0018047896	0.0023134300	0.0022748414
10547	10548	10549	10550	10551	10552
0.0022862923	0.0023636669	0.0014763202	0.0031560300	0.0010515076	0.0013103453
10553	10554	10555	10556	10557	10558
0.0009863779	0.0005647114	0.0012077735	0.0013847673	0.0013141290	0.0009273860
10559	10560	10561	10562	10563	10564
0.0009086806	0.0114075254	0.0029784417	0.0008985038	0.0010682854	0.0008515927
10565	10566	10567	10568	10569	10570
0.0016574506	0.0008864032	0.0069987314	0.0024410475	0.0027046521	0.0003974680
10571	10572	10573	10574	10575	10576
0.0015875975	0.0005836318	0.0008306359	0.0003807589	0.0004672575	0.0003983097
10577	10578	10579	10580	10581	10582
0.0005482712	0.0006120121	0.0006890110	0.0027708738	0.0018952656	0.0009873188
10583	10584	10585	10587	10588	10589
0.0040379312	0.0035175558	0.0027725516	0.0007333338	0.0014984846	0.0005298256
10590	10591	10592	10593	10594	10595
0.0006966736	0.0006981048	0.0010282737	0.0015376332	0.0027360176	0.0009654864
10596	10597	10598	10599	10600	10601
0.0007998602	0.0005108687	0.0007751349	0.0030210971	0.0007808891	0.0016237686
10602	10603	10604	10605	10606	10636
0.0010332231	0.0008020925	0.0022413962	0.0007411081	0.0028269866	0.0014430585
10637	10638	10639	10640	10641	10642
0.0013192411	0.0024473414	0.0013413617	0.0011677450	0.0012846215	0.0015821553
10643	10644	10645	10646	10647	10648
0.0014060243	0.0011752020	0.0011056409	0.0009377744	0.0015498268	0.0027476564
10649	10650	10651	10652	10653	10654
0.0024523762	0.0029148149	0.0046324956	0.0067847014	0.1185142269	0.0005756088
10655	10656	10657	10658	10659	10660
0.0007229819	0.0006199861	0.0004741723	0.0007598903	0.0004590791	0.0013360149
10661	10662	10663	10664	10665	10666
0.0007389363	0.0004677370	0.0004986792	0.0004844730	0.0003795492	0.0003967773
10667	10668	10669	10670	10671	10672
0.0003886115	0.0003928886	0.0003983360	0.0006191832	0.0105411183	0.0023927713
10673	10674	10675	10677	10678	10679
0.0028059967	0.0020757942	0.0023430415	0.0020599131	0.0022574458	0.0020886905
10680	10681	10682	10683	10684	10685
0.0018394904	0.0038431107	0.0021511706	0.0023678106	0.0014987228	0.0067260062
10686	10687	10688	10689	10690	10691

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10692	10693	10695	10696	10697	10698
0.0008730587	0.0007523290	0.0024151042	0.0005110653	0.0003910012	0.0004324132
10699	10700	10701	10702	10703	10704
0.0006386267	0.0174380707	0.0005288080	0.0004665923	0.0004444448	0.0005917815
10705	10706	10707	10708	10709	10710
0.0004177622	0.0004733410	0.0008496487	0.0034668128	0.0028479387	0.0019881309
10711	10712	10713	10714	10715	10716
0.0040885733	0.0009204400	0.0010729714	0.0006004057	0.0006733635	0.0005492715
10717	10718	10719	10720	10721	10723
0.0018124573	0.0005991465	0.0008781612	0.0009974346	0.0008916646	0.0005869597
10724	10725	10726	10727	10728	10729
0.0011205875	0.0012333128	0.0005727721	0.0030846482	0.0035569417	0.0027867370
10730	10768	10769	10770	10771	10772
0.0030650395	0.0013052927	0.0012504300	0.0011159096	0.0025599666	0.0124432723
10773	10774	10775	10776	10777	10778
0.0011427830	0.0011299314	0.0011645164	0.0010626389	0.0013648105	0.0011988474
10779	10780	10781	10782	10783	10784
0.0008897996	0.0011543669	0.0010404032	0.0014360740	0.0019163323	0.0160427755
10785	10786	10787	10788	10789	10790
0.0032264379	0.0018845525	0.0015817160	0.0014872568	0.0110857975	0.0024812421
10791	10792	10793	10794	10795	10796
0.0131109958	0.0032343635	0.0023174649	0.0023928208	0.0018253956	0.0075705435
10797	10798	10799	10800	10801	10802
0.0069479665	0.0010652555	0.0010432389	0.0005877866	0.0008247524	0.0003981274
10803	10804	10805	10806	10807	10808
0.0007266115	0.0013708610	0.0011286962	0.0027376526	0.0039705444	0.0005791627
10809	10810	10811	10812	10813	10814
0.0004473538	0.0007059751	0.0006920297	0.0004486068	0.0004164101	0.0006926537
10815	10816	10817	10818	10819	10820
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10821	10822	10823	10824	10825	10826
0.0017205987	0.0021401645	0.0022694557	0.0017502898	0.0022211358	0.0015061350
10827	10828	10829	10830	10831	10832
0.0014192439	0.0017084563	0.0017287331	0.0016698746	0.0010689186	0.0012387386
10833	10834	10835	10836	10837	10838
0.0012046790	0.0018257936	0.0018250742	0.0029008369	0.0024453892	0.0005666257
10839	10840	10841	10842	10843	10844
0.0005460274	0.0005531027	0.0018099196	0.0012352235	0.0113706920	0.0021389494
10845	10846	10847	10848	10849	10850
0.0018049853	0.0026858493	0.0005899580	0.0036419564	0.0007038421	0.0004819183
10851	10852	10853	10854	10855	10856
0.0027612974	0.0010221488	0.0004537972	0.0004347943	0.0004247625	0.0024729782

10857	10858	10859	10860	10861	10862
0.0011615139	0.0010630038	0.0084484355	0.0007078084	0.0004639827	0.0005774134
10863	10864	10865	10866	10867	10868
0.0004615001	0.0004583888	0.0003853472	0.0003791727	0.0003871892	0.0059358548
10869	10870	10871	10872	10873	10874
0.0026530667	0.0025818915	0.0026340980	0.0054357150	0.0016586092	0.0005124704
10875	10876	10877	10878	10879	10880
0.0005271577	0.0014862281	0.0009971378	0.0013843782	0.0011461466	0.0005641843
10881	10882	10883	10884	10885	10886
0.0009455405	0.0005763175	0.0008052015	0.0011467053	0.0004911740	0.0005316356
10887	10888	10889	10890	10891	10892
0.0021460423	0.0005737211	0.0009159369	0.0010734880	0.0012157715	0.0140734125
10893	10894	10895	10896	10897	10898
0.0012567290	0.0011761728	0.0007225625	0.0006676094	0.0081175835	0.0017074448
10899	10900	10901	10902	10903	10955
0.0010235259	0.0010576533	0.0009349875	0.0027846112	0.0029110819	0.0017090878
10956	10957	10958	10959	10960	10961
0.0013283398	0.0019321308	0.0019321308	0.0015179713	0.0014975033	0.0008128122
10962	10963	10964	10965	10966	10967
0.0011123484	0.0011417248	0.0019006444	0.0009092594	0.0018972352	0.0010293202
10968	10969	10970	10971	10972	10973
0.0010450661	0.0020495291	0.0013051087	0.0019169684	0.0015578486	0.0014431545
10974	10975	10976	10977	10978	10979
0.0031558226	0.0023228534	0.0021744888	0.0020422553	0.0086413877	0.0018213478
10980	10981	10982	10983	10984	10985
0.0026341835	0.0018151563	0.0018192206	0.0014178122	0.0015924917	0.0060002788
10986	10987	10988	10989	10990	10991
0.0436268293	0.0070429201	0.0009986216	0.0006467966	0.0009030824	0.0011225783
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0.0007092435	0.0009373521	0.0010345392	0.0023986912	0.0006136003	0.0007570238
10998	10999	11000	11001	11002	11003
0.0004001837	0.0006522741	0.0003767788	0.0023967858	0.0024233033	0.0039691518
11004	11005	11006	11007	11008	11009
0.0115152688	0.0004498244	0.0003945497	0.0016163446	0.0017269172	0.0004249530
11010	11011	11012	11013	11014	11015
0.0004935835	0.0003949096	0.0006246050	0.0087337919	0.0051492851	0.0051492851
11016	11017	11018	11019	11020	11021
0.0022222702	0.0022988953	0.0019488697	0.0023950259	0.0043656296	0.0046558234
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0.0010576694	0.0036510936	0.0007638347	0.0007798738	0.0008658597	0.0007269566
11052	11053	11054	11055	11056	11057
0.0008195338	0.0007844795	0.0064371514	0.0010046483	0.0004013377	0.0004022944
11058	11059	11060	11061	11062	11063
0.0004208101	0.0009200543	0.0009766022	0.0003811931	0.0006212596	0.0007196523
11064	11065	11066	11067	11068	11069
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11070	11071	11072	11073	11075	11076
0.0031181865	0.0031530018	0.0028545977	0.0561123431	0.0010194241	0.0004793151
11077	11078	11079	11080	11081	11082
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11083	11084	11085	11086	11087	11088
0.0009136331	0.0004871350	0.0007197409	0.0007154154	0.0011298421	0.0006866954
11089	11090	11091	11092	11093	11094
0.0116264539	0.0025405869	0.0005244635	0.0009334520	0.0014336550	0.0011687271
11095	11096	11097	11098	11099	11100
0.0012137174	0.0010900214	0.0011296982	0.0023265097	0.0009404058	0.0007747207
11101	11102	11103	11104	11105	11106
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11107	11108	11109	11110	11111	11112
0.0010839019	0.0009179332	0.0010602823	0.0007650560	0.0084308923	0.0237749109
11113	11114	11115	11116	11178	11179
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11180	11181	11182	11183	11184	11185
0.0086756968	0.0008282959	0.0007987101	0.0008729552	0.0024229077	0.0016727702
11186	11187	11188	11189	11190	11191
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11192	11193	11194	11195	11196	11197
0.0008131570	0.0008189072	0.0023862227	0.0036087355	0.0012506946	0.0716020426
11198	11199	11200	11201	11202	11203
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11204	11205	11206	11207	11208	11209
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11210	11211	11212	11213	11214	11215
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11216	11217	11218	11219	11220	11221
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11252	11253	11254	11255	11256	11257
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11258	11259	11260	11261	11262	11263
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11270	11271	11272	11273	11274	11275
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11276	11277	11278	11279	11280	11281
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11282	11283	11284	11285	11286	11287
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11288	11289	11290	11291	11292	11293
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11306	11307	11308	11309	11310	11311
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11318	11319	11320	11321	11322	11323
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11324	11325	11326	11327	11328	11329
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11330	11331	11332	11333	11334	11335
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11336	11337	11338	11339	11340	11341
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11453	11454	11455	11456	11457	11458
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11477	11478	11479	11480	11481	11482
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11483	11484	11485	11486	11487	11488
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11489	11490	11491	11492	11493	11494
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11495	11496	11497	11498	11499	11500
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11513	11514	11515	11516	11517	11518
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11519	11520	11521	11522	11523	11524
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11525	11526	11527	11528	11529	11530
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11537	11538	11539	11540	11541	11542
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11543	11544	11545	11546	11547	11548
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11549	11550	11551	11552	11553	11554
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0.0018583475	0.0009137907	0.0012387971	0.0005427622	0.0011555445	0.0018098195
11561	11562	11563	11564	11565	11566
0.0009648957	0.0006582632	0.0005093815	0.0004142346	0.0018289031	0.0010167468

11567	11568	11569	11570	11571	11572
0.0008272110	0.0020842109	0.0016895296	0.0018495566	0.0003867716	0.0003839995
11573	11574	11575	11576	11577	11578
0.0007733498	0.0005781580	0.0007701773	0.0004604337	0.0007320183	0.0006416147
11579	11580	11581	11582	11583	11584
0.0006722489	0.0003948306	0.0003897188	0.0006287134	0.0006031557	0.0060814334
11585	11586	11587	11588	11589	11590
0.0031029864	0.0008778376	0.0008189994	0.0005301922	0.0006044788	0.0019643689
11591	11592	11593	11594	11595	11596
0.0011713713	0.0007358755	0.0009480063	0.0005544316	0.0005812371	0.0006262390
11597	11598	11599	11600	11601	11602
0.0004981748	0.0004724408	0.0008344899	0.0005087928	0.0007407153	0.0004934036
11603	11604	11605	11606	11607	11608
0.0006920125	0.0013206243	0.0010942235	0.0005341014	0.0007616579	0.0005491298
11609	11610	11611	11612	11613	11614
0.0007219166	0.0010631392	0.0020592570	0.0007703496	0.0014972258	0.0012776587
11615	11616	11617	11618	11619	11620
0.0010531419	0.0020892905	0.0010486134	0.0006651911	0.0007285503	0.0006509291
11621	11622	11623	11624	11625	11626
0.0005089352	0.0006854447	0.0010135556	0.0006707169	0.0007510325	0.0013562866
11627	11628	11629	11630	11631	11632
0.0010099838	0.0013832210	0.0007404791	0.0007914950	0.0010277745	0.0008794037
11633	11634	11635	11636	11637	11638
0.0006760563	0.0014650920	0.0006898769	0.0007296964	0.0092469906	0.0036438283
11639	11640	11641	11642	11721	11722
0.0026540299	0.0026609302	0.0025433798	0.0023685588	0.0014152945	0.0084970337
11723	11724	11725	11726	11727	11728
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11729	11730	11731	11732	11733	11734
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11735	11736	11737	11738	11739	11740
0.0013297807	0.0024395593	0.0021866966	0.0013611569	0.0013859543	0.0014764389
11741	11742	11743	11744	11745	11746
0.0014685402	0.0015612407	0.0038617540	0.0032891722	0.0015592240	0.0037261704
11747	11748	11750	11751	11752	11753
0.0029023908	0.0027923041	0.0018975574	0.0103265091	0.0007697328	0.0014353017
11754	11755	11756	11757	11758	11759
0.0010182788	0.0004882088	0.0012011763	0.0007230690	0.0011413050	0.0004701433
11760	11761	11762	11763	11764	11765
0.0006014532	0.0006998581	0.0018349558	0.0006955782	0.0004645629	0.0004471142
11766	11767	11768	11769	11770	11771
0.0004568353	0.0007572483	0.0003972890	0.0003840236	0.0007855346	0.0003878168
11772	11773	11774	11775	11776	11777

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11778	11779	11780	11781	11782	11783
0.0004884576	0.0006390381	0.0004593328	0.0003831224	0.0003868361	0.0004734050
11784	11785	11786	11787	11788	11789
0.0003892952	0.0003815510	0.0003761501	0.0009648903	0.0003714158	0.0006075571
11790	11791	11792	11793	11794	11795
0.0006662086	0.0004123184	0.0010162976	0.0003961281	0.0006127521	0.0006269263
11796	11797	11798	11799	11800	11801
0.0006293659	0.0022683077	0.0019837450	0.0019465078	0.0017786484	0.0041694867
11802	11803	11804	11805	11806	11807
0.0011493518	0.0018343662	0.0012508932	0.0020367899	0.0014819780	0.0036288909
11808	11809	11810	11811	11812	11813
0.0017334949	0.0015667949	0.0021459644	0.0021063546	0.0017558927	0.0016446256
11814	11815	11816	11817	11818	11819
0.0014374591	0.0014884010	0.0015561027	0.0009974695	0.0013593331	0.0013300440
11820	11821	11822	11823	11824	11825
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11826	11827	11828	11829	11830	11831
0.0006968135	0.0008220749	0.0019493936	0.0018850574	0.0010058661	0.0008650337
11832	11833	11834	11835	11836	11837
0.0116106059	0.0013619307	0.0009610330	0.0013180344	0.0012377269	0.0008184458
11838	11839	11840	11841	11842	11843
0.0008119393	0.0007768832	0.0008051577	0.0008097887	0.0011464731	0.0009884900
11844	11845	11846	11847	11848	11849
0.0005936730	0.0005936730	0.0010421010	0.0008614900	0.0011380125	0.0006692125
11850	11851	11852	11853	11854	11855
0.0117757364	0.0012818572	0.0028698851	0.0009964556	0.0006041545	0.0010845285
11856	11857	11858	11859	11860	11861
0.0007609631	0.0074514470	0.0017316928	0.0019640868	0.0007716277	0.0007278992
11862	11863	11864	11865	11866	11867
0.0008253113	0.0006009682	0.0028394912	0.0167103899	0.0004644886	0.0009362381
11868	11869	11870	11871	11873	11874
0.0013937849	0.0004147388	0.0003933140	0.0006480860	0.0004547926	0.0004924699
11875	11876	11877	11878	11879	11880
0.0004502841	0.0015896887	0.0004699537	0.0004466648	0.0003835832	0.0003897559
11881	11882	11883	11884	11885	11886
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11887	11888	11889	11890	11891	11892
0.0006355850	0.0012531167	0.0025418696	0.0031969292	0.0010121721	0.0005931573
11893	11894	11895	11896	11897	11898
0.0015432323	0.0005323072	0.0005292978	0.0010898596	0.0005494955	0.0008310795
11899	11900	11901	11902	11903	11904
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11905	11906	11907	11908	11909	11910
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11911	11912	11913	11914	11915	11916
0.0004891794	0.0004779310	0.0005161712	0.0007022340	0.0115187537	0.0007638613
11917	11918	11919	11920	11921	11922
0.0006178017	0.0005721073	0.0009688570	0.0008742642	0.0010671615	0.0010888205
11923	11924	11925	11926	11927	11928
0.0011224156	0.0007851260	0.0009165873	0.0008984660	0.0016446782	0.0017553438
11929	11930	11931	11932	11933	11934
0.0021387261	0.0028790413	0.0013686894	0.0009272982	0.0008286383	0.0008636578
11935	11936	11937	11938	11939	11940
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11941	11942	11943	11944	11945	11946
0.0010123722	0.0021310187	0.0009762757	0.0011369107	0.0012773012	0.0005462639
11947	11948	11949	11950	11951	11952
0.0006915370	0.0128033066	0.0027212441	0.0031636402	0.0029283516	0.0024753335
11953	12047	12048	12049	12050	12051
0.0032636420	0.0022059912	0.0012387322	0.0017368793	0.0012394150	0.0011767242
12052	12053	12054	12055	12056	12057
0.0008119371	0.0012077601	0.0023911060	0.0018234588	0.0015545795	0.0016503586
12058	12059	12060	12061	12062	12063
0.0019085154	0.0008416801	0.0008436021	0.0008508246	0.0007926174	0.0009753559
12064	12065	12066	12067	12068	12069
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12070	12071	12072	12073	12074	12075
0.0014257111	0.0011402136	0.0016370688	0.0016440610	0.0020998209	0.0040381101
12076	12077	12078	12079	12080	12081
0.0032342007	0.0014047002	0.0016583304	0.0036747122	0.0117784536	0.0028054716
12082	12083	12084	12085	12086	12087
0.0067689340	0.0068350556	0.0019279267	0.0010594593	0.0076179423	0.0005788574
12088	12089	12090	12091	12092	12093
0.0004328673	0.0006184162	0.0011029062	0.0008458173	0.0003692806	0.0003878972
12094	12095	12096	12097	12098	12099
0.0006306381	0.0006381494	0.0003954560	0.0003962386	0.0003963740	0.0006185919
12100	12101	12102	12103	12104	12105
0.0017716845	0.0019393720	0.0026673852	0.0013210114	0.0055532603	0.0011057068
12106	12107	12108	12109	12110	12111
0.0009449446	0.0011156231	0.0028026955	0.0008935422	0.0007593543	0.0006546657
12112	12113	12114	12115	12116	12117
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12118	12119	12120	12121	12122	12123
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12124	12125	12126	12127	12128	12129

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12130	12131	12132	12133	12134	12135
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12136	12137	12138	12139	12140	12141
0.0046471870	0.0019686425	0.0020957569	0.0021861199	0.0018938884	0.0028297803
12142	12143	12144	12145	12146	12147
0.0028169634	0.0042877092	0.0033393962	0.0016866919	0.0014047865	0.0024899522
12148	12149	12150	12151	12152	12153
0.0020618965	0.0031311438	0.0021712201	0.0020255044	0.0022574373	0.0019748938
12154	12155	12156	12157	12158	12159
0.0022097055	0.0019222009	0.0014483515	0.0016537167	0.0019307934	0.0018248144
12160	12161	12162	12163	12164	12165
0.0022568007	0.0017523795	0.0011128579	0.0015396089	0.0011816828	0.0045942814
12166	12167	12168	12169	12170	12171
0.0016822068	0.0018580147	0.0008856829	0.0009103983	0.0006794883	0.0005644180
12172	12173	12174	12175	12176	12177
0.0005354291	0.0075134346	0.0005502453	0.0011606524	0.0007565662	0.0009262801
12178	12179	12180	12181	12182	12183
0.0011807861	0.0015902108	0.0012901059	0.0012569149	0.0011821991	0.0011257447
12184	12185	12186	12187	12188	12189
0.0009013554	0.0016750263	0.0031651579	0.0008747921	0.0007210792	0.0008150256
12190	12191	12192	12193	12194	12195
0.0006936237	0.0005546156	0.0007679216	0.0009053986	0.0013713279	0.0009230376
12196	12197	12198	12199	12200	12201
0.0007397337	0.0010719768	0.0016296754	0.0007698387	0.0015580733	0.0004588241
12202	12203	12204	12205	12206	12207
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12208	12209	12210	12211	12212	12213
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12214	12215	12216	12217	12218	12219
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12220	12221	12222	12223	12224	12225
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12226	12227	12228	12229	12230	12231
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12232	12233	12234	12235	12236	12237
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12238	12239	12240	12241	12242	12243
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12244	12245	12246	12247	12248	12249
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12250	12251	12252	12253	12254	12255
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12268	12269	12270	12271	12272	12273
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12274	12275	12276	12277	12280	12281
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12282	12283	12284	12285	12367	12368
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12369	12370	12371	12372	12373	12374
0.0017220270	0.0014381165	0.0016279375	0.0011681718	0.0008660986	0.0010425670
12375	12376	12377	12378	12379	12380
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12381	12382	12383	12384	12385	12387
0.0019815806	0.0014653475	0.0023742134	0.0018990711	0.0049170936	0.0023579799
12388	12389	12390	12391	12392	12393
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12394	12395	12396	12397	12398	12399
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12400	12401	12402	12403	12404	12405
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12406	12407	12409	12410	12411	12412
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12413	12414	12415	12416	12417	12418
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12419	12420	12421	12422	12423	12424
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12438	12439	12440	12441	12442	12443
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12444	12445	12446	12447	12448	12449
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12450	12451	12452	12453	12454	12455
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12456	12457	12458	12459	12460	12461
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12480	12481	12482	12483	12484	12485
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12499	12500	12501	12502	12503	12504
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12505	12506	12507	12508	12509	12510
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12511	12512	12513	12514	12515	12516
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12517	12518	12519	12520	12521	12522
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12523	12524	12525	12526	12527	12528
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12529	12530	12531	12532	12533	12534
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12541	12542	12543	12544	12545	12546
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12547	12548	12550	12618	12619	12620
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12621	12622	12623	12624	12625	12626
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12633	12634	12635	12636	12637	12638
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12639	12640	12641	12642	12643	12644
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12645	12646	12647	12648	12649	12650
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12651	12652	12653	12654	12655	12656
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12657	12658	12659	12660	12661	12662
0.0003823685	0.0006533854	0.0003964306	0.0010144719	0.0013753786	0.0013373224
12663	12664	12665	12666	12668	12669
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12676	12677	12678	12679	12680	12681
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12682	12683	12684	12685	12686	12687
0.0021436887	0.0029570847	0.0025142769	0.0023449135	0.0021687125	0.0018123704
12688	12689	12690	12691	12692	12693
0.0015122709	0.0015943906	0.0016795579	0.0019221103	0.0017424141	0.0132284625
12694	12695	12696	12697	12698	12699
0.0074868004	0.0017633565	0.0012662629	0.0010630466	0.0015518145	0.0012068496
12700	12701	12702	12703	12704	12705
0.0010004173	0.0009805889	0.0078162717	0.0005544240	0.0006464778	0.0005624747
12706	12707	12708	12709	12710	12711
0.0010592352	0.0008459742	0.0099617441	0.0009539917	0.0014595994	0.0009103967
12712	12713	12714	12715	12716	12717
0.0014955332	0.0014200074	0.0006469444	0.0006922865	0.0005576254	0.0006748309
12718	12719	12720	12721	12722	12723
0.0008994948	0.0009253716	0.0008912892	0.0013143370	0.0059000501	0.0013796506
12724	12725	12726	12727	12728	12729
0.0007361675	0.0006456736	0.0122033794	0.0004034263	0.0004252063	0.0013927169
12730	12731	12732	12733	12734	12736
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12737	12738	12739	12740	12741	12742
0.0007682442	0.0004391319	0.0003875940	0.0003800144	0.0004480768	0.0004212215
12743	12744	12745	12746	12747	12748
0.0003809039	0.0006920996	0.0004496645	0.0004730155	0.0003739902	0.0003997520
12749	12750	12751	12752	12753	12754
0.0003805367	0.0003826926	0.0003831538	0.0006310253	0.0007991429	0.0031638564
12755	12756	12757	12758	12759	12761
0.0051429581	0.0045975973	0.0035669892	0.0026413320	0.0029741367	0.0081118721
12762	12763	12764	12765	12766	12767
0.0009275792	0.0008176760	0.0009412760	0.0005277302	0.0004896499	0.0005074503
12768	12769	12770	12771	12772	12773
0.0006890077	0.0009004137	0.0014295538	0.0007043967	0.0005952808	0.0005648634
12774	12775	12776	12777	12778	12779
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12780	12781	12782	12783	12784	12785
0.0075812147	0.0006796922	0.0007088210	0.0007950910	0.0009452937	0.0014603839
12786	12787	12788	12789	12790	12791
0.0030657789	0.0019715841	0.0005543180	0.0012276868	0.0017584977	0.0014091591
12792	12793	12794	12795	12796	12797
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12798	12799	12800	12801	12802	12803

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12810	12811	12812	12813	12814	12815
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12884	12885	12886	12887	12888	12889
0.0022849546	0.0015111351	0.0035434585	0.0014237743	0.0012849886	0.0023012742
12890	12891	12892	12893	12894	12895
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12896	12897	12898	12899	12900	12901
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12902	12903	12904	12905	12906	12907
0.0420804759	0.0076433378	0.0070709573	0.0007872363	0.0004445340	0.0006803914
12908	12909	12910	12911	12912	12913
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12914	12915	12916	12917	12918	12919
0.0007222320	0.0075271897	0.0006127584	0.0009409916	0.0088372055	0.0022638905
12920	12921	12922	12923	12924	12925
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12926	12927	12928	12929	12930	12931
0.0017756510	0.0083153510	0.0030468429	0.0011700096	0.0014643507	0.0019657373
12932	12933	12934	12935	12936	12937
0.0034158303	0.0025161359	0.0519874222	0.0014539620	0.0018748238	0.0016866032
12938	12939	12940	12941	12942	12943
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12944	12945	12946	12947	12948	12949
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12950	12951	12952	12953	12954	12955
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12957	12958	12959	12960	12961	12962
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12963	12964	12965	12966	12967	12968
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12969	12970	12971	12972	12973	12974
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12975	12976	12977	12978	12979	12980
0.0006231111	0.0003668978	0.0004307658	0.0014248526	0.0030744290	0.0027936881
12981	12982	12984	12985	12986	12987
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12988	12989	12990	12991	12992	12993
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12994	12995	12996	12997	12998	12999
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13006	13007	13008	13009	13010	13011
0.0005283946	0.0031246303	0.0014764099	0.0011121569	0.0013561881	0.0013920358
13012	13013	13014	13015	13016	13017
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13018	13019	13020	13021	13022	13023
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13085	13086	13087	13088	13089	13090
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13097	13098	13099	13100	13101	13102
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13103	13105	13106	13107	13108	13109
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13110	13111	13112	13113	13114	13115
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13116	13117	13118	13119	13120	13121
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13122	13123	13124	13125	13126	13127
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13128	13129	13130	13131	13132	13133
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13134	13135	13136	13137	13138	13139
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13140	13141	13142	13143	13144	13145
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13152	13153	13154	13155	13156	13157
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13158	13159	13160	13161	13162	13163
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13164	13165	13166	13167	13168	13169
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13176	13177	13178	13179	13180	13181
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13182	13183	13184	13185	13186	13187

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13218	13219	13220	13221	13222	13223
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13224	13225	13226	13227	13278	13279
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13286	13287	13288	13289	13290	13291
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13292	13293	13294	13295	13296	13297
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13328	13329	13330	13331	13332	13333
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13334	13335	13336	13337	13338	13339
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13346	13347	13348	13349	13350	13351
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13352	13353	13354	13355	13356	13357
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13358	13359	13360	13361	13362	13363
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13440	13441	13442	13443	13444	13445
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13452	13453	13454	13455	13456	13457
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13458	13459	13460	13461	13462	13463
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13470	13471	13472	13473	13474	13475
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13476	13477	13478	13479	13480	13481
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13482	13483	13484	13485	13486	13487
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13553	13554	13555	13556	13557	13558
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13577	13578	13579	13580	13581	13582
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13619	13620	13621	13622	13623	13624
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13649	13650	13651	13652	13653	13654
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13655	13656	13657	13658	13659	13660
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13661	13662	13663	13664	13665	13666
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13742	13743	13744	13745	13746	13747
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13748	13749	13750	13751	13752	13753
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13754	13755	13756	13757	13758	13759
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13760	13761	13762	13763	13764	13765
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13766	13767	13768	13769	13770	13771
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13778	13779	13780	13781	13782	13783
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13790	13791	13792	13793	13794	13795
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13808	13809	13810	13811	13812	13813
0.0006493353	0.0003716781	0.0074239003	0.0016709205	0.0017937032	0.0013494347
13814	13815	13816	13817	13818	13819
0.0014417761	0.0013101556	0.0004478043	0.0003668667	0.0004376447	0.0003638152
13820	13821	13822	13823	13824	13825
0.0004199659	0.0005047254	0.0003739518	0.0003827409	0.0003817803	0.0006121276
13826	13827	13828	13829	13830	13831
0.0027617805	0.0036277708	0.0036580979	0.0036096044	0.0033397454	0.0005064813
13832	13833	13834	13835	13836	13837
0.0005033066	0.0004683716	0.0004761122	0.0012313785	0.0019985659	0.0012117480
13838	13839	13840	13841	13842	13843
0.0013351812	0.0014049918	0.0007231104	0.0008354286	0.0006888111	0.0005081594
13844	13845	13846	13847	13848	13849
0.0004747878	0.0005296169	0.0004916397	0.0006679656	0.0004795291	0.0005912992
13850	13851	13852	13853	13854	13855
0.0008848705	0.0008072366	0.0021451755	0.0021330363	0.0008391660	0.0010344737
13856	13857	13858	13859	13860	13861
0.0011859913	0.0008510072	0.0008545467	0.0010661955	0.0005161813	0.0005009052
13862	13863	13864	13865	13866	13867
0.0011756726	0.0007155097	0.0008267037	0.0004909553	0.0007857508	0.0007098377
13868	13869	13870	13871	13872	13873
0.0015563262	0.0021694102	0.0010928093	0.0155128371	0.0059127685	0.0036529726
13874	13875	13932	13933	13934	13935
0.0024819309	0.0033661679	0.0015873550	0.0023882992	0.0012173608	0.0011318014
13936	13937	13938	13939	13940	13941
0.0008849936	0.0009254371	0.0010115110	0.0021452719	0.0018562426	0.0008520940
13942	13943	13944	13945	13946	13947
0.0009238866	0.0008961496	0.0011593515	0.0010171528	0.0008044403	0.0011487786
13948	13949	13950	13951	13952	13953
0.0008557955	0.0011597256	0.0019393912	0.0017569211	0.0019242912	0.0012474065
13954	13955	13956	13957	13958	13959

0.0012410648	0.0015360983	0.0017694187	0.0015488188	0.0623368933	0.0481924461
13960	13961	13962	13963	13964	13965
0.0052564020	0.0044024697	0.0019908273	0.0023631815	0.0018541526	0.0034999047
13966	13967	13968	13969	13970	13971
0.0029419201	0.0013728095	0.0061124670	0.0135552562	0.0067087861	0.0007256195
13972	13973	13974	13975	13976	13977
0.0004733540	0.0009782479	0.0004498672	0.0004772969	0.0006308905	0.0007026737
13978	13979	13980	13981	13982	13983
0.0003911172	0.0006399960	0.0007590664	0.0006317162	0.0039141644	0.0017835182
13984	13985	13986	13987	13988	13989
0.0010552095	0.0009712098	0.0033451838	0.0114978184	0.0005298753	0.0009602110
13990	13991	13992	13993	13994	13995
0.0010765088	0.0004542597	0.0014290767	0.0004330950	0.0003835151	0.0006372253
13996	13997	13998	13999	14000	14001
0.0003925557	0.0005441606	0.0003781975	0.0006932119	0.0003928613	0.0004591026
14002	14003	14004	14005	14006	14007
0.0006796226	0.0003818606	0.0004634111	0.0006131234	0.0006138347	0.0004523153
14008	14009	14010	14011	14012	14013
0.0006046125	0.0011416758	0.0014160087	0.0023809087	0.0019304608	0.0021292679
14014	14015	14016	14017	14018	14019
0.0025421848	0.0019500031	0.0017874096	0.0020645567	0.0021854817	0.0013878276
14020	14021	14022	14023	14024	14025
0.0024875755	0.0015589467	0.0014620426	0.0013066194	0.0014085693	0.0017249864
14026	14027	14028	14029	14030	14031
0.0021734997	0.0022447445	0.0017420088	0.0017379535	0.0015942614	0.0018959346
14032	14033	14034	14035	14036	14037
0.0014333956	0.0021160909	0.0012988977	0.0030025472	0.0016863337	0.0014763136
14038	14039	14040	14041	14042	14043
0.0011520927	0.0125373880	0.0009750662	0.0011240577	0.0011284256	0.0009693123
14044	14045	14046	14047	14048	14049
0.0013170264	0.0013903549	0.0015740897	0.0015001887	0.0008336283	0.0013312676
14050	14051	14052	14053	14054	14055
0.0008592711	0.0006707162	0.0178689187	0.0016011538	0.0009205980	0.0009971417
14056	14057	14058	14059	14060	14061
0.0011902004	0.0032530892	0.0009362089	0.0008067118	0.0006716664	0.0008631614
14062	14063	14064	14065	14066	14067
0.0009170073	0.0011736086	0.0007692857	0.0010783329	0.0031152368	0.0008884819
14068	14069	14070	14071	14072	14073
0.0008315978	0.0008883488	0.0010786990	0.0009903481	0.0006730242	0.0009772082
14074	14075	14076	14077	14078	14079
0.0006581334	0.0014478906	0.0003913675	0.0010594484	0.0006764420	0.0003962681
14080	14081	14082	14083	14084	14085
0.0006037533	0.0020146351	0.0017874458	0.0016426775	0.0023403716	0.0007386925

14086	14087	14088	14089	14090	14091
0.0015401083	0.0007839095	0.0006059283	0.0003933646	0.0004302320	0.0004325421
14092	14093	14094	14095	14096	14097
0.0003645557	0.0006157511	0.0004456951	0.0003748758	0.0005860087	0.0006691849
14098	14099	14100	14101	14102	14103
0.0014852096	0.0012950045	0.0012512571	0.0032078386	0.0026107695	0.0209773477
14104	14105	14106	14107	14108	14109
0.0011836935	0.0014544205	0.0005799566	0.0013333292	0.0007223700	0.0005856639
14110	14111	14112	14113	14114	14115
0.0017835993	0.0008698995	0.0006269352	0.0005664359	0.0010707575	0.0008849743
14116	14117	14118	14119	14120	14121
0.0011034088	0.0005366496	0.0006354023	0.0008055142	0.0005285960	0.0027459441
14122	14123	14124	14125	14126	14127
0.0017103797	0.0004745166	0.0006735909	0.0012644644	0.0025258823	0.0039831816
14128	14129	14130	14131	14132	14133
0.0008266994	0.0005849877	0.0007939272	0.0006309978	0.0012940807	0.0012903919
14134	14135	14136	14137	14138	14139
0.0011976726	0.0013573508	0.0012915072	0.0018576067	0.0078217049	0.0007229545
14140	14141	14142	14143	14144	14145
0.0014874743	0.0015280859	0.0006547749	0.0010639190	0.0006525086	0.0010286353
14146	14147	14148	14149	14150	14151
0.0005924069	0.0005658754	0.0011171058	0.0024032490	0.0014136770	0.0009448167
14152	14153	14154	14155	14156	14157
0.0009348600	0.0010922485	0.0009922648	0.0018493062	0.0007557485	0.0008407053
14158	14159	14160	14161	14162	14245
0.0138108578	0.0027038226	0.0024875207	0.0028892672	0.0030336225	0.0015088049
14246	14247	14248	14249	14250	14251
0.0021540909	0.0011175510	0.0022948540	0.0017025695	0.0016643708	0.0011793332
14252	14253	14254	14255	14256	14257
0.0012129259	0.0012942145	0.0015897336	0.0010413519	0.0008196110	0.0008089531
14258	14259	14260	14261	14262	14263
0.0007878104	0.0011654386	0.0013092865	0.0010775554	0.0020092071	0.0037322590
14264	14266	14267	14268	14269	14270
0.0011005997	0.0046750850	0.0028950783	0.0095227581	0.0026634419	0.0016649085
14271	14272	14273	14274	14275	14276
0.0028678952	0.0026866743	0.0013450527	0.0012692647	0.0031119913	0.0074742456
14277	14278	14279	14280	14281	14282
0.0006999710	0.0005409364	0.0028917771	0.0006830008	0.0005971540	0.0008711430
14283	14284	14285	14286	14287	14288
0.0004407303	0.0004912653	0.0014521657	0.0008183240	0.0003651345	0.0005742590
14289	14290	14291	14292	14293	14294
0.0005796621	0.0003717666	0.0007255828	0.0021325049	0.0033888961	0.0008666427
14295	14296	14297	14298	14299	14300

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14301	14302	14303	14304	14305	14306
0.0003712127	0.0003820743	0.0003648042	0.0005002805	0.0005504109	0.0004420996
14307	14308	14309	14310	14311	14312
0.0006174778	0.0003667290	0.0006152446	0.0005223290	0.0020364247	0.0019724733
14313	14314	14315	14316	14317	14318
0.0019262204	0.0019135024	0.0018847011	0.0014578405	0.0015785564	0.0017516499
14319	14320	14321	14322	14323	14324
0.0015511021	0.0014724796	0.0011678357	0.0024355160	0.0020963970	0.0022414277
14325	14326	14327	14328	14329	14330
0.0016551990	0.0016718541	0.0041040614	0.0111146576	0.0016826441	0.0020102701
14331	14332	14333	14334	14335	14336
0.0017513335	0.0010517783	0.0011222142	0.0009961725	0.0012078957	0.0009854877
14337	14338	14339	14340	14341	14342
0.0009765325	0.0012860093	0.0017943883	0.0009088035	0.0010757268	0.0006226237
14343	14344	14345	14346	14347	14348
0.0006404273	0.0005609770	0.0006910430	0.0007413655	0.0019916013	0.0020232913
14349	14350	14351	14352	14353	14354
0.0009328207	0.0008250652	0.0011214925	0.0012217453	0.0013479610	0.0012136875
14355	14356	14357	14358	14359	14360
0.0008369091	0.0005696635	0.0005199296	0.0007248579	0.0010675598	0.0007009973
14361	14362	14363	14364	14365	14366
0.0007640236	0.0019268983	0.0013484543	0.0005726348	0.0020649127	0.0011277080
14367	14368	14369	14370	14371	14372
0.0009988921	0.0006032767	0.0006184066	0.0004890393	0.0010820749	0.0004772123
14373	14374	14375	14376	14377	14378
0.0008559635	0.0004590441	0.0017739263	0.0006297133	0.0073547397	0.0014267725
14379	14380	14381	14382	14383	14384
0.0028121943	0.0023946506	0.0010982293	0.0007992389	0.0005301723	0.0005626572
14385	14386	14387	14388	14389	14390
0.0004613478	0.0006620611	0.0004676463	0.0005200640	0.0003912415	0.0003712220
14391	14392	14393	14394	14395	14396
0.0003731279	0.0005604892	0.0003633343	0.0016231472	0.0004562857	0.0006481746
14397	14398	14399	14400	14401	14402
0.0006720450	0.0003683929	0.0004782327	0.0003746839	0.0004000686	0.0006119367
14403	14404	14405	14406	14407	14408
0.0006285881	0.0004113995	0.0019060799	0.0062996608	0.0014507094	0.0019698998
14409	14410	14411	14412	14413	14414
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14415	14416	14417	14418	14419	14420
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14421	14422	14423	14424	14425	14426
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14427	14428	14429	14430	14431	14432
0.0007718825	0.0004764187	0.0004772722	0.0004777237	0.0004744789	0.0012816435
14433	14434	14435	14436	14437	14438
0.0011092130	0.0007664772	0.0006178511	0.0007239960	0.0005748361	0.0008929218
14439	14440	14441	14442	14443	14444
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14445	14446	14447	14448	14449	14450
0.0014334613	0.0011252952	0.0009984610	0.0011592944	0.0010472084	0.0028548762
14451	14452	14453	14454	14455	14456
0.0013544688	0.0014520978	0.0007388956	0.0007423164	0.0008255780	0.0005267923
14457	14458	14459	14460	14461	14462
0.0007443449	0.0006981026	0.0007645219	0.0007054523	0.0033012275	0.0012271970
14463	14464	14465	14466	14467	14468
0.0014932494	0.0011637153	0.0010205153	0.0009610134	0.0018499198	0.0008729317
14469	14470	14471	14472	14473	14474
0.0012083104	0.0011687892	0.0032052964	0.0031727511	0.0024539431	0.0042286092
14576	14577	14578	14579	14580	14581
0.0016579746	0.0011238991	0.0012786598	0.0019091830	0.0015416489	0.0014424234
14582	14583	14584	14585	14586	14587
0.0012580006	0.0017167711	0.0010825332	0.0009285821	0.0009012513	0.0008771314
14588	14589	14590	14591	14592	14593
0.0008297785	0.0009212164	0.0008327596	0.0007856364	0.0007858776	0.0011176496
14594	14595	14596	14597	14598	14599
0.0027677798	0.0028927805	0.0153084647	0.0166038948	0.0019152315	0.0015471898
14600	14601	14602	14603	14604	14605
0.0013045519	0.0033100452	0.0012666828	0.0019248188	0.0021704291	0.0025387039
14606	14607	14608	14609	14610	14611
0.0017142459	0.0013212045	0.0093915392	0.0072028147	0.0010309912	0.0006742755
14612	14613	14614	14615	14616	14617
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14618	14619	14620	14621	14622	14623
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14624	14625	14626	14627	14628	14629
0.0003669559	0.0007056810	0.0007297198	0.0003670569	0.0004206297	0.0005935936
14630	14631	14632	14633	14634	14635
0.0003730120	0.0003896361	0.0003722408	0.0003903782	0.0003806663	0.0186241543
14636	14637	14638	14639	14640	14641
0.0016507194	0.0025932737	0.0042675948	0.0178731002	0.0177847441	0.0016215431
14642	14643	14644	14645	14646	14647
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14648	14649	14650	14651	14652	14653
0.0009168784	0.0004322902	0.0003917307	0.0003736219	0.0004766606	0.0004940895
14654	14655	14656	14657	14658	14659

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14660	14661	14662	14663	14664	14665
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14666	14667	14668	14669	14670	14671
0.0018798748	0.0015258987	0.0014121509	0.0011453813	0.0025426015	0.0019020213
14672	14673	14674	14675	14676	14677
0.0016369908	0.0035548395	0.0012592796	0.0017586796	0.0014295061	0.0018346162
14678	14679	14680	14681	14682	14683
0.0027769705	0.0013032921	0.0010180018	0.0015090321	0.0009496159	0.0026540753
14684	14685	14686	14687	14688	14689
0.0011753164	0.0011622078	0.0011768447	0.0011768067	0.0013553805	0.0034219643
14690	14691	14692	14693	14694	14695
0.0012949249	0.0017929865	0.0010795974	0.0009462764	0.0005204809	0.0018580824
14696	14697	14698	14699	14700	14701
0.0005247998	0.0007063148	0.0005281339	0.0005343160	0.0007769753	0.0007661278
14702	14703	14704	14705	14706	14707
0.0019007784	0.0011846293	0.0031169956	0.0017836672	0.0011372544	0.0013060634
14708	14709	14710	14711	14712	14713
0.0031312851	0.0010303232	0.0024585640	0.0022618657	0.0009113344	0.0010610579
14714	14715	14716	14717	14718	14719
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14720	14721	14722	14723	14724	14725
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14726	14727	14728	14729	14730	14731
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14732	14733	14734	14735	14736	14737
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14738	14739	14740	14741	14742	14743
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14744	14745	14746	14747	14748	14749
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14750	14751	14752	14753	14754	14755
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14756	14757	14758	14759	14760	14761
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14762	14763	14764	14765	14766	14767
0.0006313278	0.0030124148	0.0028339166	0.0025265097	0.0082075579	0.0027798308
14768	14769	14770	14771	14772	14773
0.0012126793	0.0016151630	0.0032725188	0.0006902565	0.0005157165	0.0017651119
14774	14775	14776	14777	14778	14779
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14780	14781	14782	14783	14784	14785
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14786	14787	14788	14789	14790	14791
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14792	14793	14794	14795	14796	14797
0.0008107586	0.0019317906	0.0008776751	0.0008764042	0.0011243033	0.0010336699
14798	14799	14800	14801	14802	14803
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14804	14805	14806	14807	14808	14809
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14810	14811	14812	14813	14814	14815
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14816	14817	14818	14819	14820	14821
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14822	14823	14824	14825	14916	14917
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14918	14919	14920	14921	14922	14923
0.0017251122	0.0014150756	0.0024092197	0.0013014185	0.0018305373	0.0012200017
14924	14925	14926	14927	14928	14929
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14930	14931	14932	14933	14934	14935
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14936	14937	14938	14939	14940	14941
0.0010561287	0.0007871329	0.0007893605	0.0008647010	0.0011589341	0.0016203666
14942	14943	14944	14945	14946	14947
0.0010542367	0.0018223569	0.0015394474	0.0016147334	0.0012058981	0.0046148288
14948	14949	14950	14951	14952	14953
0.0032328312	0.0036173307	0.0013521709	0.0012785994	0.0011907793	0.0014115301
14954	14955	14956	14957	14958	14959
0.0122821712	0.0081770832	0.0313739483	0.0016466897	0.0006765137	0.0005993872
14960	14961	14962	14963	14964	14965
0.0007825827	0.0008003145	0.0003978002	0.0004161583	0.0008007098	0.0003760413
14966	14967	14968	14969	14970	14971
0.0006550678	0.0005601438	0.0004254597	0.0003793885	0.0003894480	0.0003777487
14972	14973	14974	14975	14976	14977
0.0005809142	0.0005677686	0.0003914337	0.0125304734	0.0004763498	0.0006047211
14978	14979	14980	14981	14982	14983
0.0010346305	0.0007843668	0.0004427815	0.0004442381	0.0003955551	0.0023137222
14984	14985	14986	14987	14988	14989
0.0006761921	0.0006352959	0.0003895625	0.0003741812	0.0008317617	0.0006259544
14990	14991	14992	14993	14994	14995
0.0003770452	0.0010157482	0.0003971692	0.0006161421	0.0008442992	0.0005436917
14996	14997	14998	14999	15000	15001
0.0021306072	0.0027356511	0.0027740482	0.0019344686	0.0020482328	0.0019964620
15002	15003	15004	15005	15006	15007

0.0015545893	0.0024462829	0.0015697877	0.0015697877	0.0015418696	0.0017295132
15008	15009	15010	15011	15012	15013
0.0022428885	0.0018120008	0.0014653554	0.0020078163	0.0012438660	0.0017116755
15014	15015	15016	15017	15018	15019
0.0018316131	0.0024576855	0.0014623045	0.0015046713	0.0012377854	0.0014876599
15020	15021	15022	15023	15024	15025
0.0011224017	0.0011520543	0.0011699019	0.0009744595	0.0012224780	0.0011754313
15026	15027	15028	15029	15030	15031
0.0009641350	0.0009730859	0.0013448626	0.0009134647	0.0005731049	0.0009791551
15032	15033	15034	15035	15036	15037
0.0019354522	0.0013386449	0.0030914823	0.0016078840	0.0019394274	0.0010295761
15038	15039	15040	15041	15042	15043
0.0008717130	0.0007475041	0.0011166745	0.0008656873	0.0005312672	0.0006109905
15044	15045	15046	15047	15048	15049
0.0007014769	0.0009653868	0.0009778559	0.0007524219	0.0004862302	0.0026944239
15050	15051	15052	15053	15054	15055
0.0005236952	0.0007584986	0.0007156823	0.0004388122	0.0011936126	0.0015201356
15056	15057	15058	15059	15060	15061
0.0013926040	0.0006681874	0.0016840922	0.0004552282	0.0004420541	0.0005685762
15062	15063	15064	15065	15066	15067
0.0006332047	0.0003749798	0.0004033612	0.0006420908	0.0004339140	0.0004097026
15068	15069	15070	15071	15072	15073
0.0005750720	0.0003628915	0.0004595516	0.0003644624	0.0003662373	0.0007347537
15074	15075	15076	15077	15078	15079
0.0007521586	0.0004122614	0.0006872992	0.0009101034	0.0133950406	0.0032595957
15080	15081	15082	15083	15084	15085
0.0033203154	0.0030478705	0.0011790944	0.0013379306	0.0011519160	0.0008690798
15086	15087	15088	15089	15090	15091
0.0016458188	0.0007597937	0.0032605712	0.0012042667	0.0008494700	0.0004740310
15092	15093	15094	15095	15096	15097
0.0006578687	0.0005812858	0.0008134545	0.0010490489	0.0014516585	0.0010506965
15098	15099	15100	15101	15102	15103
0.0011684434	0.0010075121	0.0008871352	0.0011314918	0.0029362153	0.0015641136
15104	15105	15106	15107	15108	15109
0.0014845578	0.0007407319	0.0009344703	0.0006567500	0.0005851270	0.0076813852
15110	15111	15112	15113	15114	15115
0.0004846454	0.0009598733	0.0005561337	0.0004729772	0.0007932162	0.0008929310
15116	15117	15118	15119	15120	15121
0.0007264998	0.0004773791	0.0011075903	0.0006742651	0.0008119979	0.0011602163
15122	15123	15124	15125	15126	15127
0.0018941274	0.0010789420	0.0005773362	0.0006572667	0.0008585055	0.0006930128
15128	15129	15130	15131	15132	15133
0.0010870850	0.0009554042	0.0023897738	0.0014078641	0.0013734624	0.0017626448

15134	15135	15136	15137	15138	15139
0.0013571128	0.0018967328	0.0022654233	0.0009481952	0.0009560190	0.0009122277
15140	15141	15142	15143	15144	15145
0.0006368738	0.0007403621	0.0007086088	0.0013012811	0.0018184110	0.0013334456
15146	15147	15148	15149	15150	15151
0.0017057909	0.0009805557	0.0013489725	0.0009415523	0.0032838328	0.0031882897
15152	15226	15227	15228	15229	15230
0.0043742109	0.0014137869	0.0022930284	0.0008966884	0.0013057859	0.0011126831
15231	15232	15233	15234	15235	15236
0.0014739054	0.0012466637	0.0012573386	0.0009760015	0.0008401058	0.0009094550
15237	15238	15239	15240	15241	15242
0.0008038942	0.0010443949	0.0008075042	0.0013851010	0.0007899023	0.0007895027
15243	15244	15245	15246	15247	15248
0.0010167625	0.0010415133	0.0010660492	0.0019014316	0.0012042577	0.0564091300
15249	15250	15251	15252	15253	15254
0.0030596963	0.0022945314	0.0017764742	0.0021033941	0.0015292025	0.0012666477
15255	15256	15257	15258	15259	15260
0.0019922589	0.0024984159	0.0032208402	0.0084304441	0.0087543155	0.0067073669
15261	15262	15263	15264	15265	15266
0.0070514694	0.0012426896	0.0006701039	0.0005793906	0.0007731070	0.0006021701
15267	15268	15269	15270	15271	15272
0.0013240691	0.0005504206	0.0003884677	0.0003826784	0.0003905851	0.0003805852
15273	15274	15275	15276	15277	15278
0.0006313020	0.0012997284	0.0008015255	0.0010146543	0.0012306512	0.0019922035
15279	15280	15281	15282	15283	15284
0.0016977294	0.0005214367	0.0008100335	0.0006829129	0.0005449136	0.0003753949
15285	15286	15287	15288	15289	15290
0.0005031626	0.0010366365	0.0004039552	0.0003684851	0.0004145171	0.0006822239
15291	15292	15293	15294	15295	15296
0.0007593070	0.0004799753	0.0004225476	0.0003830491	0.0006046502	0.0043369635
15297	15298	15299	15300	15301	15302
0.0019209384	0.0033647646	0.0017720984	0.0019414899	0.0015365415	0.0034455889
15303	15304	15305	15306	15307	15308
0.0011859500	0.0014174896	0.0025613272	0.0016763935	0.0020461853	0.0013273136
15309	15310	15311	15312	15313	15314
0.0021297304	0.0016550163	0.0018083359	0.0015673292	0.0016781172	0.0014383171
15315	15316	15317	15318	15319	15320
0.0011673262	0.0009837341	0.0009819074	0.0010046379	0.0007065083	0.0007979394
15321	15322	15323	15324	15325	15326
0.0024326807	0.0008986605	0.0009070299	0.0012963729	0.0009721046	0.0113894467
15327	15328	15329	15330	15331	15332
0.0020117462	0.0031060387	0.0014674827	0.0005405093	0.0006151190	0.0171709652
15333	15334	15335	15336	15337	15338

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15339	15340	15341	15342	15343	15344
0.0009506398	0.0007286435	0.0006949750	0.0024572919	0.0015106522	0.0039089964
15345	15346	15347	15348	15349	15350
0.0010573267	0.0011369593	0.0017951723	0.0008416865	0.0006382805	0.0004778622
15351	15352	15353	15354	15355	15356
0.0007046547	0.0004349960	0.0003766882	0.0003619920	0.0009628172	0.0004400466
15357	15358	15359	15360	15361	15362
0.0016107173	0.0004589039	0.0004465303	0.0005035882	0.0007978169	0.0003990671
15363	15364	15365	15366	15367	15368
0.0003923404	0.0003732671	0.0007813775	0.0006156753	0.0006959391	0.0005898638
15369	15370	15371	15372	15373	15374
0.0011531302	0.0021843106	0.0009441483	0.0035925146	0.0029987944	0.0034201354
15375	15376	15377	15378	15379	15380
0.0028128935	0.0030111986	0.0006298021	0.0031695561	0.0005950278	0.0006067121
15381	15382	15383	15384	15385	15386
0.0004781200	0.0020828119	0.0020816495	0.0018718409	0.0011186356	0.0009079705
15387	15388	15389	15390	15391	15392
0.0009941798	0.0006944745	0.0019824281	0.0006456648	0.0006882449	0.0005797225
15393	15394	15395	15396	15397	15398
0.0007226544	0.0010018840	0.0014535869	0.0114826696	0.0006122059	0.0008988283
15399	15400	15401	15402	15403	15404
0.0006460676	0.0015642893	0.0013434855	0.0008632831	0.0011509283	0.0006777367
15405	15406	15407	15408	15409	15410
0.0154831395	0.0014601971	0.0010434093	0.0015808108	0.0013870363	0.0008518868
15411	15412	15413	15414	15415	15416
0.0010920643	0.0017488987	0.0016315731	0.0012720504	0.0007750474	0.0007838573
15417	15418	15419	15420	15421	15422
0.0006652396	0.0006444024	0.0007714495	0.0017261928	0.0027190820	0.0014491602
15423	15424	15425	15426	15427	15428
0.0010284514	0.0009941837	0.0009478243	0.0098334517	0.0007645202	0.0033444947
15429	15430	15431	15503	15504	15505
0.0033943534	0.0025981562	0.0025879574	0.0016421733	0.0027016666	0.0014951173
15506	15507	15508	15509	15510	15511
0.0013924366	0.0014176407	0.0018239324	0.0017176029	0.0032229948	0.0016916255
15512	15513	15514	15515	15516	15517
0.0011989614	0.0007984461	0.0011319531	0.0009052868	0.0009237222	0.0008037301
15518	15519	15520	15521	15522	15523
0.0008447518	0.0050574273	0.0016169761	0.0014503228	0.0029123749	0.0046160107
15524	15525	15526	15527	15528	15529
0.0015290293	0.0013104638	0.0020572003	0.0026377088	0.0035706541	0.0117336856
15530	15531	15532	15533	15534	15536
0.0012427631	0.0014098822	0.0033933383	0.0014916155	0.0015374052	0.0011796913

15537	15538	15539	15540	15541	15542
0.0011563753	0.0119497973	0.0080528481	0.0023344599	0.0004746735	0.0004452572
15543	15544	15545	15546	15547	15548
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15549	15550	15551	15552	15553	15554
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15555	15556	15557	15558	15559	15560
0.0020656143	0.0031292066	0.0009836701	0.0166811111	0.0009868690	0.0005457660
15561	15562	15563	15564	15565	15566
0.0004397053	0.0004264088	0.0004381130	0.0004382190	0.0003854528	0.0004424989
15567	15568	15569	15570	15571	15572
0.0007165387	0.0003939128	0.0005163098	0.0015202093	0.0003781006	0.0019135995
15573	15574	15575	15576	15577	15578
0.0033829769	0.0021382272	0.0025977775	0.0020859020	0.0026535325	0.0018771497
15579	15580	15581	15582	15583	15584
0.0019827046	0.0021113128	0.0016970325	0.0029705224	0.0024274400	0.0014201645
15585	15586	15587	15588	15589	15590
0.0022643146	0.0014086816	0.0013011959	0.0017364963	0.0023922452	0.0021176541
15591	15592	15593	15594	15595	15596
0.0018915971	0.0016093433	0.0014321473	0.0019292322	0.0016935763	0.0014673418
15597	15598	15599	15600	15601	15602
0.0009458087	0.0009727123	0.0018463665	0.0014083530	0.0009653111	0.0010589157
15603	15604	15605	15606	15607	15608
0.0018096423	0.0008807907	0.0012547257	0.0008083256	0.0019131947	0.0010065914
15609	15610	15611	15612	15613	15614
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15615	15616	15617	15618	15619	15620
0.0016657810	0.0009366596	0.0015535015	0.0006884566	0.0007315627	0.0007594442
15621	15622	15623	15624	15625	15626
0.0007514859	0.0008300594	0.0005523578	0.0009271028	0.0010006499	0.0012779784
15627	15628	15629	15630	15631	15632
0.0015715487	0.0017821475	0.0006539918	0.0004059709	0.0003827798	0.0017970575
15633	15634	15635	15636	15637	15638
0.0074054726	0.0012228722	0.0027245845	0.0018874239	0.0013760605	0.0005516201
15639	15640	15641	15642	15643	15644
0.0004685749	0.0004306075	0.0004521982	0.0009132717	0.0018331204	0.0013995733
15645	15646	15647	15648	15649	15650
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15651	15652	15653	15654	15655	15656
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15657	15658	15659	15660	15661	15662
0.0032298780	0.0027365802	0.0039151378	0.0034330383	0.0030351229	0.0040322044
15663	15664	15665	15666	15667	15668

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15669	15670	15671	15672	15673	15674
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15675	15676	15677	15678	15679	15680
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15681	15682	15683	15684	15685	15686
0.0004890059	0.0006872820	0.0058503402	0.0020767346	0.0011129437	0.0007243973
15687	15688	15689	15690	15691	15692
0.0013649770	0.0008457223	0.0010023498	0.0015226633	0.0010185453	0.0008555433
15693	15694	15695	15696	15697	15698
0.0011030757	0.0009046877	0.0011136625	0.0012395715	0.0011081051	0.0007166565
15699	15700	15701	15702	15703	15704
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15705	15706	15707	15708	15709	15710
0.0012234131	0.0009242391	0.0009148075	0.0005619668	0.0013593276	0.0009023828
15711	15712	15713	15714	15715	15716
0.0010871112	0.0027846642	0.0034022608	0.0032332255	0.0114731991	0.0025190759
15717	15796	15797	15798	15799	15800
0.0027692302	0.0014048418	0.0015735663	0.0015997323	0.0012279998	0.0037246986
15801	15802	15803	15804	15805	15806
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15807	15808	15809	15810	15811	15812
0.0008323405	0.0013588684	0.0008059053	0.0011559780	0.0028980183	0.0014272474
15813	15814	15815	15816	15817	15818
0.0016999506	0.0015100854	0.0022557069	0.0162908193	0.0011969841	0.0015651090
15819	15820	15822	15823	15824	15825
0.0014203455	0.0016126649	0.0368736300	0.0063338583	0.0029110787	0.0005749078
15826	15827	15828	15829	15830	15831
0.0014282127	0.0005738082	0.0006235684	0.0006609228	0.0004787746	0.0003980457
15832	15833	15834	15835	15836	15837
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15838	15839	15840	15841	15842	15843
0.0018322830	0.0012584060	0.0024053991	0.0015427616	0.0004298942	0.0016168352
15844	15845	15846	15847	15848	15849
0.0003840018	0.0007799447	0.0007601242	0.0010768964	0.0003614860	0.0006887317
15850	15851	15852	15853	15854	15855
0.0006088168	0.0088097505	0.0038905917	0.0032995348	0.0025502658	0.0021579238
15856	15857	15858	15859	15860	15861
0.0023388762	0.0014697234	0.0040737607	0.0014223366	0.0009540793	0.0009911528
15862	15863	15864	15865	15866	15867
0.0009886484	0.0011564097	0.0009634943	0.0009689594	0.0012428562	0.0013893458
15868	15869	15870	15871	15872	15873
0.0100286645	0.0005609169	0.0017304702	0.0010340698	0.0008681814	0.0010355105

15874	15875	15876	15877	15878	15879
0.0010562125	0.0005268787	0.0005223936	0.0011264941	0.0007850171	0.0008205711
15880	15881	15882	15883	15884	15885
0.0009889529	0.0010042801	0.0182137961	0.0022693954	0.0006148276	0.0006480184
15886	15887	15888	15889	15890	15891
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15892	15893	15894	15895	15896	15897
0.0004682576	0.0004661607	0.0027241537	0.0004417237	0.0007568953	0.0003733860
15898	15899	15900	15901	15902	15903
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15904	15905	15906	15907	15908	15909
0.0027648489	0.0005735039	0.0034302453	0.0008033455	0.0009053544	0.0011991051
15910	15911	15912	15913	15914	15915
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15916	15917	15918	15919	15920	15921
0.0007989068	0.0005623457	0.0007688153	0.0005016483	0.0004707954	0.0004744749
15922	15923	15924	15925	15926	15927
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15928	15929	15930	15931	15932	15933
0.0008602748	0.0019198026	0.0008304914	0.0009267219	0.0007441109	0.0006686577
15934	15935	15936	15937	15938	15939
0.0004987488	0.0012914515	0.0016697154	0.0010297330	0.0009338440	0.0010564262
15940	15941	15942	15943	15944	16000
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16001	16002	16003	16004	16005	16006
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16007	16008	16009	16010	16011	16012
0.0013898491	0.0009035632	0.0008297167	0.0028181241	0.0016952918	0.0016637779
16013	16014	16015	16016	16017	16018
0.0014866508	0.0020319194	0.0090616969	0.0012359252	0.0012322486	0.0012134136
16019	16020	16021	16022	16023	16024
0.0015909529	0.0038972219	0.0013643879	0.0022821491	0.0017798111	0.0012819863
16025	16026	16027	16028	16029	16030
0.0168708217	0.0066016267	0.0068432219	0.0015648246	0.0097123130	0.0008843370
16031	16032	16033	16034	16035	16036
0.0006859695	0.0003670780	0.0003835956	0.0003714314	0.0003843314	0.0013252815
16037	16038	16039	16040	16041	16042
0.0083939673	0.0006022243	0.0086377598	0.0009573242	0.0005367476	0.0006722661
16043	16044	16045	16046	16047	16048
0.0004255603	0.0003809215	0.0013895782	0.0088336294	0.0019316677	0.0022011977
16049	16051	16052	16053	16054	16055
0.0018581753	0.0012512239	0.0013271457	0.0015365616	0.0018061461	0.0022213955
16056	16057	16058	16059	16060	16061

0.0016731478	0.0017391827	0.0024052477	0.0017125731	0.0017123760	0.0019728278
16062	16063	16064	16065	16066	16067
0.0048284455	0.0029580107	0.0012962702	0.0009650150	0.0021142486	0.0009770284
16068	16069	16070	16071	16072	16073
0.0014201435	0.0016977549	0.0011551494	0.0011393314	0.0008843146	0.0010875177
16074	16075	16076	16077	16078	16079
0.0007305263	0.0007965604	0.0005896600	0.0006895033	0.0008204866	0.0010358091
16080	16081	16082	16083	16084	16085
0.0010458452	0.0135616405	0.0015847956	0.0010722671	0.0006212618	0.0003927774
16086	16087	16088	16089	16090	16091
0.0073483165	0.0008904465	0.0011841707	0.0010909456	0.0012586768	0.0016735255
16092	16093	16094	16095	16096	16097
0.0006163916	0.0004581142	0.0005555330	0.0003984614	0.0012971417	0.0007613524
16098	16099	16100	16101	16102	16103
0.0004268701	0.0003749625	0.0004250878	0.0004859181	0.0004329241	0.0005750196
16104	16105	16106	16107	16108	16109
0.0004601446	0.0003907713	0.0004462535	0.0005964668	0.0008587278	0.0021009645
16110	16111	16112	16113	16114	16115
0.0007711214	0.0007760246	0.0006712627	0.0005498963	0.0006016779	0.0006367004
16116	16117	16118	16119	16120	16121
0.0005980018	0.0004957384	0.0004729900	0.0018595691	0.0008981737	0.0030315252
16122	16123	16124	16125	16126	16127
0.0014836616	0.0019349927	0.0008487600	0.0007326397	0.0005569165	0.0005372733
16128	16129	16130	16131	16132	16133
0.0006506544	0.0004689704	0.0007186222	0.0007679880	0.0004797706	0.0004751297
16134	16135	16136	16137	16138	16139
0.0004857657	0.0006872436	0.0006919075	0.0058753635	0.0012862465	0.0010427377
16140	16141	16142	16143	16144	16145
0.0008827835	0.0030101014	0.0016283195	0.0010962791	0.0028524757	0.0004930405
16146	16147	16148	16149	16150	16151
0.0032140002	0.0023205550	0.0023205550	0.0025674632	0.0035710383	0.0030129153
16224	16225	16226	16227	16228	16229
0.0014191329	0.0012132856	0.0023661085	0.0016591109	0.0011149965	0.0013918948
16230	16231	16232	16233	16234	16235
0.0009177572	0.0010255771	0.0016914188	0.0015832444	0.0017515465	0.0031977309
16237	16238	16239	16240	16241	16242
0.0020023865	0.0067646347	0.0065877140	0.0007250373	0.0014332962	0.0005439294
16243	16244	16245	16246	16247	16248
0.0003824088	0.0003730340	0.0007187371	0.0178398654	0.0017758163	0.0018366879
16249	16250	16251	16252	16253	16254
0.0020211438	0.0016072496	0.0003617382	0.0075254131	0.0006178457	0.0025763166
16255	16256	16257	16258	16259	16260
0.0090442225	0.0013983198	0.0018774336	0.0011739668	0.0015510032	0.0018576204

16261	16262	16263	16264	16265	16266
0.0017207175	0.0017055475	0.0023335870	0.0021063963	0.0018720545	0.0018440982
16267	16268	16269	16270	16271	16272
0.0009980116	0.0012345146	0.0009743664	0.0017906921	0.0018007946	0.0006694066
16273	16274	16275	16276	16277	16278
0.0007088550	0.0008479311	0.0008924499	0.0027387758	0.0012413637	0.0008759950
16279	16280	16281	16282	16283	16284
0.0010289672	0.0007622914	0.0008188488	0.0004947891	0.0008404451	0.0005095096
16285	16286	16287	16288	16289	16290
0.0004191723	0.0007570451	0.0026896984	0.0009530175	0.0004559955	0.0008727724
16291	16292	16293	16294	16295	16296
0.0006855399	0.0004439866	0.0004508715	0.0003803507	0.0005216615	0.0009335295
16297	16298	16299	16301	16302	16303
0.0057539352	0.0030078419	0.0050137027	0.0009778237	0.0007566384	0.0007195920
16304	16305	16306	16307	16308	16309
0.0004762080	0.0007151588	0.0008360661	0.0020111652	0.0030213067	0.0007593900
16310	16311	16312	16313	16314	16315
0.0009874988	0.0006436758	0.0006941295	0.0004745117	0.0009692405	0.0005555637
16316	16317	16318	16319	16320	16321
0.0005509104	0.0033568387	0.0012580049	0.0004925101	0.0009475021	0.0007765191
16322	16323	16324	16378	16379	16380
0.0026216359	0.0026698393	0.0024755821	0.0013051146	0.0013117742	0.0017166789
16381	16382	16383	16384	16385	16386
0.0013464165	0.0011683583	0.0011269860	0.0015095498	0.0011647893	0.0030063580
16387	16388	16389	16390	16391	16392
0.0019119631	0.0029433122	0.0009161441	0.0010142140	0.0012249518	0.0007895755
16393	16394	16395	16396	16397	16398
0.0009842567	0.0012025695	0.0010576734	0.0010576734	0.0014007892	0.0017959265
16399	16401	16402	16403	16404	16405
0.0100088830	0.0072541714	0.0070016688	0.0073381563	0.0025743750	0.0003947587
16406	16407	16408	16409	16410	16411
0.0006278941	0.0003794810	0.0010739981	0.0013308714	0.0023053993	0.0005262091
16412	16413	16414	16415	16416	16417
0.0005888299	0.0015994785	0.0024935751	0.0007229635	0.0008542209	0.0005684757
16418	16419	16420	16421	16422	16423
0.0021747137	0.0016957266	0.0022607759	0.0020614490	0.0017373819	0.0022375223
16424	16425	16426	16427	16428	16429
0.0011534926	0.0023251602	0.0022102459	0.0016337909	0.0020272057	0.0012315147
16430	16431	16432	16434	16435	16436
0.0023289956	0.0019617217	0.0019554317	0.0010754138	0.0025441477	0.0009484937
16437	16438	16439	16440	16441	16442
0.0021241530	0.0010131020	0.0010805963	0.0007550004	0.0031329090	0.0008735084
16443	16444	16445	16446	16447	16448

0.0015771383	0.0009407023	0.0023860057	0.0038894616	0.0007976243	0.0018645080
16449	16450	16451	16452	16453	16454
0.0007604298	0.0018731524	0.0016154201	0.0006480109	0.0003992626	0.0010277855
16455	16456	16457	16458	16459	16460
0.0009925148	0.0010618764	0.0005730390	0.0004334858	0.0007036756	0.0004391948
16461	16462	16463	16464	16465	16466
0.0004236902	0.0003620554	0.0006909590	0.0007851515	0.0007828720	0.0031919381
16467	16468	16469	16470	16471	16472
0.0035290656	0.0027564592	0.0028466545	0.0010394580	0.0007808723	0.0008657440
16473	16474	16475	16476	16477	16478
0.0022212248	0.0011250068	0.0004832432	0.0004767761	0.0004762544	0.0015939450
16479	16480	16481	16482	16483	16484
0.0010751577	0.0008681260	0.0016894841	0.0008907598	0.0009851904	0.0008377073
16485	16486	16487	16488	16489	16490
0.0012648977	0.0012944025	0.0005466333	0.0005167844	0.0005148750	0.0023661963
16491	16492	16493	16554	16555	16556
0.0026720363	0.0025341865	0.0024517907	0.0011860772	0.0013121055	0.0014989495
16557	16558	16559	16560	16561	16562
0.0016841306	0.0025704514	0.0016717180	0.0015342137	0.0014297737	0.0011851216
16563	16564	16565	16566	16567	16568
0.0011541916	0.0010497665	0.0008350501	0.0017835152	0.0016322520	0.0015512925
16569	16570	16571	16572	16573	16574
0.0009222593	0.0010015614	0.0009001470	0.0010884062	0.0012248306	0.0009133264
16575	16576	16577	16578	16579	16580
0.0012344152	0.0016355844	0.0021358607	0.0015378399	0.0013877782	0.0014267531
16581	16582	16583	16584	16585	16586
0.0017505416	0.0018583520	0.0013095912	0.0147175676	0.0014281243	0.0013980702
16587	16588	16589	16590	16592	16593
0.0014591249	0.0014374248	0.0015438712	0.0016668486	0.0067456267	0.0028392640
16594	16595	16596	16597	16598	16599
0.0010666336	0.0010449107	0.0004722899	0.0006791625	0.0003876317	0.0004489819
16600	16601	16602	16603	16604	16605
0.0004744845	0.0005450153	0.0004575277	0.0004691976	0.0014720191	0.0008105263
16606	16607	16608	16609	16610	16611
0.0004939109	0.0008638586	0.0016223560	0.0006093718	0.0006329295	0.0019121969
16612	16613	16614	16615	16616	16617
0.0019594005	0.0021927709	0.0020127004	0.0021219535	0.0022750515	0.0014277611
16618	16619	16620	16621	16622	16623
0.0021534094	0.0015070279	0.0013871911	0.0021050135	0.0144337028	0.0011821190
16624	16625	16626	16627	16628	16629
0.0021166740	0.0040729774	0.0010600541	0.0013587869	0.0012278740	0.0009950524
16630	16631	16632	16633	16634	16635
0.0013429890	0.0013084080	0.0016206213	0.0011917020	0.0011677833	0.0011814113

16636	16637	16638	16639	16640	16641
0.0010082038	0.0009927795	0.0009316093	0.0005281002	0.0032046542	0.0030219080
16642	16643	16644	16645	16646	16647
0.0010250227	0.0008066568	0.0008941372	0.0012247150	0.0008787146	0.0013830075
16648	16649	16650	16651	16652	16653
0.0009286518	0.0014921215	0.0008304736	0.0007458892	0.0005319500	0.0008382340
16654	16655	16656	16657	16658	16659
0.0005418856	0.0008923892	0.0030732821	0.0020241509	0.0009342935	0.0007736315
16660	16661	16662	16663	16664	16665
0.0005140183	0.0013846828	0.0003688399	0.0004176223	0.0006614529	0.0006328700
16666	16667	16668	16669	16670	16671
0.0004092809	0.0073655110	0.0007897563	0.0016377136	0.0008739507	0.0009234747
16672	16673	16674	16675	16676	16677
0.0009902282	0.0004876820	0.0004520753	0.0005599262	0.0008063440	0.0004282156
16678	16679	16680	16681	16682	16683
0.0005879705	0.0008792876	0.0004630741	0.0075068796	0.0003956337	0.0008267608
16684	16685	16686	16687	16688	16689
0.0004469556	0.0005885502	0.0004739728	0.0008085288	0.0004826207	0.0004114778
16690	16691	16692	16693	16694	16695
0.0005925013	0.0012172537	0.0010230186	0.0033754536	0.0027607780	0.0034593981
16696	16697	16698	16699	16700	16701
0.0033326547	0.0030222093	0.0025934293	0.0014055595	0.0009492949	0.0007926714
16702	16703	16704	16705	16706	16707
0.0018396673	0.0009810797	0.0007641826	0.0021801852	0.0009457126	0.0010816836
16708	16709	16710	16711	16712	16713
0.0008357375	0.0005701222	0.0005778620	0.0007737314	0.0008234621	0.0005542144
16714	16715	16716	16717	16718	16719
0.0007634518	0.0005640603	0.0009317147	0.0006914227	0.0006281546	0.0011834439
16720	16721	16722	16723	16724	16725
0.0010357162	0.0007230316	0.0008264704	0.0008424463	0.0017760498	0.0011664334
16726	16727	16728	16729	16730	16731
0.0005609571	0.0010151616	0.0005360930	0.0006745292	0.0007807814	0.0007698308
16732	16733	16734	16735	16736	16737
0.0007125620	0.0027934604	0.0033173826	0.0007090697	0.0010651133	0.0014233951
16738	16739	16741	16742	16743	16744
0.0012638046	0.0009397236	0.0011981628	0.0027031113	0.0033435884	0.0027343230
16745	16805	16806	16807	16808	16809
0.0023582315	0.0014450754	0.0016843060	0.0031387800	0.0011908065	0.0012826270
16810	16811	16812	16813	16814	16815
0.0016171235	0.0021796140	0.0015235360	0.0021262014	0.0014231976	0.0008947088
16816	16817	16818	16819	16820	16821
0.0011931991	0.0007952990	0.0155399535	0.0012395111	0.0157687901	0.0160135686
16822	16823	16824	16825	16826	16827

0.0027037880	0.0051025922	0.0013120692	0.0124342266	0.0019494912	0.0016807326
16828	16829	16830	16831	16832	16833
0.0019651915	0.0013573948	0.0025334008	0.0032761345	0.0013942261	0.2566417437
16834	16835	16836	16837	16838	16839
0.0108067453	0.0167177347	0.0128210423	0.0120494394	0.0063377243	0.0094093732
16840	16841	16842	16843	16844	16845
0.0162347811	0.0162851969	0.0014932911	0.0021485905	0.0009818722	0.0015120127
16846	16847	16848	16849	16850	16851
0.0007385336	0.0006144788	0.0005076499	0.0006189748	0.0005956903	0.0004342391
16852	16853	16854	16855	16856	16857
0.0004493122	0.0007513761	0.0003954699	0.0007710984	0.0004060812	0.0064449991
16858	16859	16860	16861	16862	16863
0.0010818287	0.0023237900	0.0016005211	0.0005508888	0.0005673698	0.0009535280
16864	16865	16866	16867	16868	16869
0.0011324583	0.0009720697	0.0004531225	0.0006260706	0.0004344453	0.0005429623
16870	16871	16872	16873	16874	16875
0.0007210812	0.0003612212	0.0003646957	0.0006476535	0.0027147207	0.0007678947
16876	16877	16878	16879	16880	16881
0.0020540644	0.0017381537	0.0024714589	0.0012410671	0.0016596416	0.0011360823
16882	16883	16884	16885	16886	16887
0.0014365607	0.0028703924	0.0017719988	0.0021670557	0.0017923034	0.0029757614
16888	16889	16890	16891	16892	16893
0.0022068777	0.0060501418	0.0018894408	0.0009670830	0.0011532695	0.0011274038
16894	16895	16896	16897	16898	16899
0.0009674768	0.0012027382	0.0009661620	0.0009905702	0.0009537748	0.0013645029
16900	16901	16902	16903	16904	16905
0.0027849087	0.0087017367	0.0022462340	0.0008671827	0.0008142147	0.0005694729
16906	16907	16908	16909	16910	16911
0.0008861296	0.0023989773	0.0008731477	0.0011419994	0.0006779718	0.0008630789
16912	16913	16914	16915	16916	16917
0.0007892091	0.0007414263	0.0018003144	0.0009094428	0.0008799989	0.0010574765
16918	16919	16920	16921	16922	16923
0.0005393961	0.0009208309	0.0016235147	0.0010344155	0.0006215681	0.0006438865
16924	16925	16926	16927	16928	16929
0.0006322488	0.0009532791	0.0006599623	0.0005774944	0.0006395605	0.0006011378
16930	16931	16932	16933	16934	16935
0.0018329246	0.0017897534	0.0012647755	0.0021260117	0.0005773356	0.0014465782
16936	16937	16938	16939	16940	16941
0.0006067614	0.0007950013	0.0012763403	0.0016292386	0.0004347749	0.0007840283
16942	16943	16944	16945	16946	16947
0.0006355451	0.0006434217	0.0004391798	0.0004373615	0.0004424839	0.0004543501
16948	16949	16950	16951	16952	16953
0.0006841239	0.0003896432	0.0008187998	0.0003729997	0.0004556758	0.0007360385

16954	16955	16956	16957	16958	16959
0.0029387455	0.0031591508	0.0079865332	0.0007963575	0.0028557744	0.0005421099
16960	16961	16962	16963	16964	16965
0.0005636554	0.0006897836	0.0007061121	0.0007896985	0.0009466099	0.0010937085
16966	16967	16968	16969	16970	16971
0.0009283516	0.0009006458	0.0011842535	0.0013305483	0.0010570935	0.0005915248
16972	16973	16974	16975	16976	16977
0.0007202237	0.0006018316	0.0006425405	0.0005855383	0.0005566004	0.0004733309
16978	16979	16980	16981	16983	16984
0.0006530356	0.0004735940	0.0005715882	0.0009169957	0.0008764195	0.0005862674
16985	16986	16987	16988	16989	16990
0.0009464774	0.0009689274	0.0115268194	0.0008087219	0.0006752680	0.0005217602
16991	16992	16993	16994	16995	16996
0.0010849233	0.0009717023	0.0021078057	0.0010540826	0.0009649104	0.0010587423
16997	16998	16999	17000	17001	17083
0.0004981861	0.0007242834	0.0007664920	0.0024987023	0.0029516072	0.0021985219
17084	17085	17086	17087	17088	17089
0.0012429984	0.0016019669	0.0011881872	0.0016857942	0.0064793180	0.0018273667
17090	17091	17092	17093	17094	17095
0.0015748625	0.0010767246	0.0007980654	0.0032540613	0.0019536898	0.0012965239
17096	17097	17098	17099	17100	17101
0.0008848369	0.0010821651	0.0008286714	0.0010062640	0.0014396106	0.0009987695
17102	17103	17104	17105	17106	17107
0.0008249298	0.0008256904	0.0007965318	0.0011521749	0.0012409407	0.0011072453
17108	17109	17110	17111	17112	17113
0.0017981331	0.0096174904	0.0012468471	0.0014512990	0.0019160813	0.0561439812
17114	17115	17116	17117	17118	17119
0.0016490667	0.0017677683	0.0029078398	0.0018056049	0.0121841991	0.0027359685
17120	17121	17122	17123	17124	17125
0.0020637854	0.0022854712	0.0011633925	0.0018028503	0.0030821251	0.0019949579
17126	17127	17128	17130	17131	17132
0.0015051308	0.0014914979	0.0013670027	0.0169500316	0.0067922486	0.0070017588
17133	17134	17135	17136	17137	17138
0.0071097642	0.0067694125	0.0009995994	0.0017671478	0.0009654820	0.0006390906
17139	17140	17141	17142	17143	17144
0.0014693506	0.0006132472	0.0004744125	0.0004512415	0.0014530037	0.0008003964
17145	17146	17147	17148	17149	17150
0.0004649256	0.0006849157	0.0003898481	0.0011253370	0.0006357836	0.0006406950
17151	17152	17153	17154	17155	17156
0.0003908705	0.0007611010	0.0006396060	0.0019141563	0.0009646232	0.0007838157
17157	17158	17159	17160	17161	17162
0.0007914334	0.0015777823	0.0055235227	0.0004548310	0.0005982476	0.0003898391
17163	17164	17165	17166	17167	17168

0.0004614145	0.0004938363	0.0003809124	0.0006422002	0.0003958792	0.0003650654
17169	17170	17171	17172	17173	17174
0.0003673473	0.0024041804	0.0003925593	0.0003865194	0.0006267775	0.0006076599
17175	17176	17177	17178	17179	17180
0.0011344316	0.0020691772	0.0012078782	0.0163059183	0.0021910048	0.0020288145
17181	17182	17183	17184	17185	17186
0.0019956091	0.0022275064	0.0021818822	0.0029108139	0.0017126925	0.0026366484
17187	17188	17189	17190	17191	17192
0.0102648817	0.0021121283	0.0016587674	0.0013341316	0.0014461260	0.0017003626
17194	17195	17196	17197	17198	17200
0.0021221487	0.0026452842	0.0014264671	0.0017046949	0.0016629818	0.0014413281
17201	17202	17203	17204	17205	17206
0.0015097403	0.0019829743	0.0015510713	0.0009548490	0.0009982911	0.0011709775
17207	17208	17209	17210	17211	17212
0.0012029537	0.0012934861	0.0011678812	0.0011790475	0.0013014282	0.0013272137
17213	17214	17215	17216	17217	17218
0.0010733595	0.0018404924	0.0010177403	0.0008458506	0.0015367213	0.0010565725
17219	17220	17221	17222	17223	17224
0.0005468342	0.0019161968	0.0117014016	0.0013351227	0.0027348842	0.0013622180
17225	17226	17227	17228	17229	17230
0.0009078190	0.0020107274	0.0009521766	0.0010831172	0.0008118601	0.0006599549
17231	17232	17233	17234	17235	17236
0.0011399070	0.0030839447	0.0006058348	0.0009327509	0.0008909869	0.0007565474
17237	17238	17239	17240	17241	17242
0.0047966055	0.0010929075	0.0005392522	0.0008232559	0.0008631240	0.0008330945
17243	17244	17245	17246	17247	17248
0.0007224812	0.0005288745	0.0017273982	0.0006957861	0.0004350336	0.0007187314
17249	17250	17251	17252	17253	17254
0.0007367607	0.0003903300	0.0004158202	0.0004065959	0.0004478171	0.0003974284
17255	17256	17257	17258	17259	17260
0.0006836459	0.0017660417	0.0007565398	0.0008060676	0.0008043664	0.0023172294
17261	17262	17263	17264	17265	17266
0.0006051437	0.0005091279	0.0004488183	0.0004377611	0.0004797084	0.0006793954
17267	17268	17269	17270	17271	17272
0.0007359037	0.0003876504	0.0004571459	0.0004343222	0.0003672406	0.0004728769
17273	17274	17275	17276	17277	17278
0.0003689918	0.0004684124	0.0005596073	0.0003810662	0.0003751875	0.0005929590
17279	17280	17281	17283	17284	17285
0.0044187011	0.0034697578	0.0031776966	0.0505507159	0.0015794956	0.0009645886
17286	17287	17288	17289	17290	17291
0.0006549143	0.0075003595	0.0008091688	0.0004687217	0.0005665237	0.0006939747
17292	17293	17294	17295	17296	17297
0.0021661345	0.0009951676	0.0009520209	0.0011234934	0.0020159298	0.0010844921

17298	17299	17300	17301	17302	17303
0.0007192258	0.0005801367	0.0005597264	0.0005826127	0.0006407102	0.0005606254
17304	17305	17306	17307	17308	17309
0.0005673870	0.0005594653	0.0011046154	0.0004749333	0.0004745848	0.0009681666
17310	17311	17312	17313	17314	17315
0.0005828856	0.0009849607	0.0007672884	0.0025563263	0.0007629224	0.0005658075
17316	17317	17318	17319	17320	17321
0.0006894352	0.0012518143	0.0007402602	0.0005498903	0.0006017246	0.0005878751
17322	17323	17324	17325	17326	17327
0.0009026798	0.0007745509	0.0011125157	0.0103881488	0.0008803447	0.0010112629
17328	17329	17330	17331	17332	17333
0.0019127036	0.0030375298	0.0015316854	0.0010254110	0.0009975023	0.0009314071
17334	17335	17336	17337	17338	17339
0.0008961898	0.0007287860	0.0005645496	0.0172139500	0.0030196364	0.0007033334
17340	17341	17342	17343	17344	17345
0.0013768459	0.0008947566	0.0005571042	0.0008942484	0.0011852310	0.0007681773
17346	17347	17348	17349	17350	17351
0.0007475491	0.0016290943	0.0031549698	0.0023336425	0.0023372461	0.0025166370
17352	17439	17440	17441	17442	17443
0.0026706526	0.0024085172	0.0011159753	0.0016402541	0.0019483647	0.0016875919
17444	17445	17446	17447	17448	17449
0.0019109595	0.0012466522	0.0015655420	0.0014769480	0.0013522394	0.0016569077
17450	17451	17452	17453	17454	17455
0.0013304362	0.0013304362	0.0015346152	0.0012812181	0.0010360965	0.0008184088
17456	17457	17458	17459	17460	17461
0.0015987837	0.0016645486	0.0008502045	0.0011645957	0.0008103172	0.0010420805
17462	17463	17464	17465	17466	17467
0.0016864092	0.0016609052	0.0180691575	0.0038821939	0.0036057229	0.0026459630
17468	17469	17470	17471	17472	17473
0.0025819412	0.0018947660	0.0515168194	0.0020019340	0.0151259541	0.0017402391
17474	17475	17476	17477	17478	17479
0.0030818808	0.0023518825	0.0017314001	0.0014089079	0.0041530690	0.0087079237
17480	17481	17482	17483	17484	17485
0.0016203052	0.0054919238	0.0101913913	0.0024732488	0.0020786318	0.0019920727
17486	17487	17488	17489	17490	17491
0.0019920727	0.0015806694	0.0013753199	0.0019489181	0.0013415283	0.0013416736
17492	17493	17494	17495	17496	17497
0.0014371614	0.0013816743	0.0020877863	0.0025296586	0.0015332028	0.0014037190
17498	17499	17500	17501	17502	17503
0.0016290997	0.0112530580	0.0063959550	0.0052091506	0.0069524803	0.0016094114
17504	17505	17506	17507	17508	17509
0.0006573244	0.0018215256	0.0006387789	0.0004542378	0.0006909015	0.0004600428
17510	17511	17512	17513	17514	17515

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17516	17517	17518	17519	17520	17521
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17522	17523	17524	17525	17526	17527
0.0007059219	0.0006056416	0.0009220245	0.0004871619	0.0007088871	0.0003993805
17528	17529	17530	17531	17532	17533
0.0006131354	0.0005611040	0.0003935106	0.0003824579	0.0005670433	0.0003837859
17534	17535	17536	17537	17538	17539
0.0004249580	0.0003916394	0.0003639518	0.0004662487	0.0171388690	0.0007901497
17540	17541	17542	17543	17544	17545
0.0013789466	0.0008911015	0.0005756508	0.0003957525	0.0009351630	0.0004605758
17546	17547	17548	17549	17550	17551
0.0004348914	0.0007567328	0.0017338341	0.0004617269	0.0004826610	0.0007611099
17552	17553	17554	17555	17556	17557
0.0003984550	0.0003636879	0.0005331118	0.0006325394	0.0003778845	0.0003778845
17558	17559	17560	17561	17562	17563
0.0004091214	0.0008633617	0.0006184677	0.0006147150	0.0006168137	0.0029649849
17564	17565	17566	17567	17568	17570
0.0019090936	0.0025208609	0.0022547798	0.0040462473	0.0042396435	0.0012181701
17571	17572	17573	17574	17575	17576
0.0015936759	0.0027157469	0.0025836810	0.0036641824	0.0017540078	0.0020264137
17577	17578	17579	17580	17581	17582
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17583	17584	17585	17586	17587	17588
0.0014637962	0.0025867440	0.0020445602	0.0022224926	0.0018060118	0.0017184757
17589	17590	17591	17592	17593	17594
0.0014891577	0.0016363173	0.0014239011	0.0011175177	0.0011738281	0.0009885215
17595	17596	17597	17598	17599	17600
0.0011805812	0.0015226610	0.0012033968	0.0011729789	0.0013728869	0.0009486885
17601	17602	17603	17604	17605	17606
0.0009963372	0.0009827976	0.0014097402	0.0009914046	0.0012925403	0.0018916075
17607	17608	17609	17610	17611	17612
0.0018038176	0.0010126779	0.0012131490	0.0015422438	0.0019726243	0.0011751701
17613	17614	17615	17616	17617	17618
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17619	17620	17621	17622	17623	17624
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17625	17626	17627	17628	17629	17630
0.0029459060	0.0006140744	0.0006060585	0.0009999235	0.0007519511	0.0029783394
17631	17632	17633	17634	17635	17636
0.0009483412	0.0007561870	0.0007493190	0.0008010656	0.0008966843	0.0007503429
17637	17638	17639	17640	17641	17642
0.0014417299	0.0006199354	0.0004205738	0.0004396123	0.0003970463	0.0003844869

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17649	17650	17651	17652	17653	17654
0.0004554604	0.0006089012	0.0004168859	0.0004838034	0.0003874806	0.0006532040
17655	17656	17657	17658	17659	17660
0.0004602416	0.0006937755	0.0004692609	0.0003651294	0.0005915222	0.0007148418
17661	17662	17663	17664	17665	17666
0.0003859259	0.0010358452	0.0015666833	0.0044939975	0.0034880661	0.0022911282
17667	17668	17669	17670	17671	17672
0.0008688896	0.0009761580	0.0007073521	0.0009249574	0.0007252504	0.0006780964
17673	17674	17675	17676	17677	17678
0.0005967857	0.0005423235	0.0008439744	0.0004869748	0.0005223518	0.0005096281
17679	17680	17681	17682	17683	17684
0.0020049232	0.0020619686	0.0011060748	0.0011056144	0.0010946021	0.0018049895
17685	17686	17687	17688	17689	17690
0.0030998843	0.0018594567	0.0007443522	0.0006094803	0.0005447043	0.0006064287
17691	17692	17693	17694	17695	17696
0.0007016084	0.0005282905	0.0048658209	0.0015201356	0.0004981643	0.0005639959
17697	17698	17699	17700	17701	17702
0.0005623267	0.0005954724	0.0005619118	0.0005489272	0.0006320668	0.0005505655
17703	17704	17705	17706	17707	17708
0.0004925918	0.0005476794	0.0007498429	0.0004858752	0.0005735176	0.0008852854
17709	17710	17711	17712	17713	17714
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17716	17717	17718	17719	17720	17721
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17722	17723	17724	17725	17726	17727
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17728	17729	17730	17731	17732	17733
0.0007323439	0.0075783122	0.0009697804	0.0021306822	0.0017013763	0.0017470328
17734	17735	17736	17737	17738	17739
0.0008464406	0.0009669084	0.0012230408	0.0011470412	0.0015300132	0.0009273657
17740	17741	17742	17743	17744	17745
0.0014885158	0.0014630979	0.0014864189	0.0010961191	0.0013682886	0.0006026869
17746	17747	17748	17749	17750	17751
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17752	17753	17754	17755	17756	17757
0.0007756412	0.0009805717	0.0007367031	0.0007661094	0.0009638219	0.0006978687
17758	17759	17760	17761	17762	17763
0.0009619705	0.0008159930	0.0022487158	0.0045082522	0.0012554162	0.0013061620
17764	17765	17766	17767	17768	17769
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17770	17771	17772	17773	17774	17775

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17776	17777	17907	17908	17909	17910
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17911	17912	17913	17914	17915	17916
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17917	17918	17919	17920	17921	17922
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17923	17924	17925	17926	17927	17928
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17929	17930	17931	17932	17933	17934
0.0008850839	0.0009278044	0.0080382638	0.0010875907	0.0008975767	0.0011373309
17935	17936	17937	17938	17939	17940
0.0007876038	0.0009209176	0.0011362333	0.0008085431	0.0011595219	0.0016152792
17941	17942	17943	17944	17945	17946
0.0018361173	0.0016940974	0.0014677744	0.0119980860	0.0029811433	0.0026806903
17947	17948	17949	17950	17951	17952
0.0017885553	0.0018899324	0.0014124813	0.0018658364	0.0025725341	0.0049742946
17953	17954	17955	17956	17957	17958
0.0031375494	0.0015629547	0.0049476456	0.0043882970	0.0032092511	0.0025374963
17959	17960	17961	17962	17963	17964
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17965	17966	17967	17968	17969	17970
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17971	17972	17973	17974	17975	17976
0.0006094437	0.0004714198	0.0009477500	0.0004550518	0.0004714372	0.0005843078
17977	17978	17979	17980	17981	17982
0.0004558538	0.0006348057	0.0004113724	0.0004655317	0.0005376455	0.0004843446
17983	17984	17985	17986	17987	17988
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17989	17990	17991	17992	17993	17994
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18001	18002	18003	18004	18005	18006
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18007	18008	18009	18010	18011	18013
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18014	18015	18016	18017	18018	18019
0.0022040038	0.0021675042	0.0025395294	0.0025901831	0.0020354776	0.0024148780
18020	18021	18022	18023	18024	18025
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18026	18027	18028	18029	18030	18031
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18032	18033	18034	18035	18036	18037
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18038	18039	18040	18041	18042	18043
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18044	18045	18046	18047	18048	18049
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18050	18051	18052	18053	18054	18055
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18056	18057	18058	18059	18060	18061
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18062	18063	18064	18065	18066	18067
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18068	18069	18070	18071	18072	18073
0.0007699517	0.0009278380	0.0007702024	0.0005430905	0.0005192967	0.0005366229
18074	18075	18076	18077	18078	18079
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18080	18081	18082	18083	18084	18085
0.0005209047	0.0021893682	0.0010743293	0.0009468959	0.0009102612	0.0077057064
18086	18087	18088	18089	18090	18091
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18092	18093	18094	18095	18096	18097
0.0004410991	0.0073896982	0.0006147501	0.0006507739	0.0009096838	0.0006349681
18098	18099	18100	18101	18102	18103
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18104	18105	18106	18107	18108	18109
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18110	18111	18112	18113	18114	18115
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18116	18117	18118	18119	18120	18121
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18122	18123	18124	18125	18126	18127
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18128	18129	18130	18131	18132	18133
0.0004667296	0.0004170455	0.0005966845	0.0012987580	0.0010551605	0.0014988248
18134	18135	18136	18138	18139	18140
0.0028110400	0.0032345584	0.0028414087	0.0008053738	0.0008654139	0.0009269062
18141	18142	18143	18144	18145	18146
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18147	18148	18149	18150	18151	18152
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18153	18154	18155	18156	18157	18158
0.0013051424	0.0010995202	0.0009593072	0.0013171371	0.0006418405	0.0007381716
18159	18160	18161	18162	18163	18164

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18165	18166	18167	18168	18169	18170
0.0007798067	0.0007746527	0.0006889376	0.0004812981	0.0005637259	0.0004880462
18171	18172	18173	18174	18175	18176
0.0005373560	0.0004850561	0.0006709713	0.0005338966	0.0007737698	0.0004908562
18177	18178	18179	18180	18181	18182
0.0005352968	0.0006767484	0.0006830777	0.0006737921	0.0007629087	0.0011174286
18183	18184	18185	18186	18187	18188
0.0024104163	0.0030839496	0.0008062519	0.0006266914	0.0009721082	0.0014854784
18189	18190	18191	18192	18193	18194
0.0007175915	0.0011527942	0.0008426741	0.0008696535	0.0009205617	0.0008984155
18195	18196	18197	18198	18199	18200
0.0011980279	0.0008585935	0.0008351156	0.0021545134	0.0007977309	0.0011899241
18201	18202	18203	18204	18205	18206
0.0034352938	0.0006683424	0.0009702794	0.0009765188	0.0006986939	0.0007650400
18207	18208	18209	18210	18211	18212
0.0012235846	0.0007579284	0.0015988042	0.0010275085	0.0010502751	0.0007369285
18213	18214	18215	18216	18217	18218
0.0008802292	0.0008953505	0.0012151012	0.0014093752	0.0007380213	0.0010201889
18220	18221	18222	18223	18224	18225
0.0036231914	0.0034666906	0.0023131891	0.0026498703	0.0023519968	0.0044539041
18226	18227	18228	18229	18230	18231
0.0023665311	0.0024695422	0.0026793677	0.0028133418	0.0038178929	0.0026767130
18344	18345	18346	18347	18348	18349
0.0018067344	0.0085412930	0.0012487099	0.0016026684	0.0017098728	0.0017045472
18350	18351	18352	18353	18354	18355
0.0022475442	0.0020118315	0.0016414084	0.0014222007	0.0012157101	0.0034353833
18356	18357	18358	18359	18360	18361
0.0016745219	0.0018475812	0.0015549427	0.0013015882	0.0011050347	0.0010396923
18362	18363	18364	18365	18366	18367
0.0014919829	0.0013454988	0.0019324440	0.0019041232	0.0009446523	0.0008565673
18368	18369	18370	18371	18372	18373
0.0007931515	0.0008750724	0.0016553900	0.0017021791	0.0019337529	0.0024030040
18374	18375	18376	18377	18378	18379
0.0019788419	0.0514526620	0.0027662470	0.0150773295	0.0016861269	0.0036768500
18380	18381	18382	18383	18384	18385
0.0031591080	0.0089018945	0.0016177412	0.0018835412	0.0013586587	0.0064764648
18386	18387	18388	18389	18390	18391
0.0436195483	0.0078556278	0.0078360123	0.0083649001	0.0072132423	0.0068049982
18392	18393	18394	18395	18396	18397
0.0007567321	0.0019400403	0.0009775989	0.0004873217	0.0003983658	0.0007475500
18398	18399	18400	18401	18402	18403
0.0004435942	0.0006414140	0.0003947041	0.0007313157	0.0006871772	0.0005434146

18404	18405	18406	18407	18408	18409
0.0007556809	0.0003722514	0.0007528453	0.0004750171	0.0003764206	0.0003660815
18410	18411	18412	18413	18414	18415
0.0009624583	0.0003806572	0.0006411104	0.0004120099	0.0014331257	0.0018075171
18416	18417	18418	18419	18420	18421
0.0010938895	0.0007795927	0.0007917914	0.0018533343	0.0007115721	0.0029267220
18422	18423	18424	18425	18426	18427
0.0008870547	0.0004845750	0.0004435743	0.0004979058	0.0015212341	0.0004346318
18428	18429	18430	18431	18432	18433
0.0006178084	0.0014221228	0.0004427652	0.0004479183	0.0003697580	0.0007120894
18434	18435	18436	18437	18438	18439
0.0006335812	0.0004738836	0.0003946189	0.0003943372	0.0006852750	0.0004112393
18440	18441	18442	18443	18444	18445
0.0008660965	0.0011462567	0.0014201296	0.0127927996	0.0019564481	0.0019156652
18446	18447	18449	18450	18451	18452
0.0031591871	0.0024165793	0.0024187626	0.0022232734	0.0014834150	0.0016680126
18453	18454	18455	18456	18457	18458
0.0020027846	0.0016438956	0.0023779471	0.0015472132	0.0017097834	0.0012528014
18459	18460	18461	18462	18463	18464
0.0011933261	0.0015967450	0.0121598666	0.0018945031	0.0032478724	0.0128894894
18465	18466	18467	18468	18469	18470
0.0017497770	0.0024489876	0.0024535922	0.0067757196	0.0029293669	0.0015253040
18471	18472	18473	18474	18475	18476
0.0009868703	0.0013209023	0.0009770143	0.0010236317	0.0012761461	0.0009630220
18477	18478	18479	18480	18481	18482
0.0012391812	0.0009651349	0.0009429768	0.0011974688	0.0011909089	0.0011785044
18483	18484	18485	18486	18487	18488
0.0012969733	0.0009376775	0.0007659718	0.0008482611	0.0012730942	0.0011781858
18489	18490	18491	18492	18493	18494
0.0009753790	0.0006732462	0.0006447231	0.0005414441	0.0008984461	0.0011920004
18495	18496	18497	18498	18499	18500
0.0007390830	0.0009163057	0.0009514835	0.0012519762	0.0011007081	0.0010157842
18501	18502	18503	18504	18505	18506
0.0009632403	0.0016888186	0.0006247966	0.0010099354	0.0007560590	0.0008268787
18507	18508	18509	18510	18511	18512
0.0028587821	0.0012419754	0.0008818736	0.0015991309	0.0007929582	0.0009566379
18513	18514	18515	18516	18517	18518
0.0010763609	0.0007643600	0.0004453925	0.0073900704	0.0017879697	0.0010129430
18519	18520	18521	18522	18523	18524
0.0007653232	0.0019460520	0.0010791623	0.0016028232	0.0015674478	0.0010226075
18525	18526	18527	18528	18529	18530
0.0008353442	0.0004690353	0.0006010746	0.0008002743	0.0004678282	0.0004381019
18531	18532	18533	18534	18535	18536

0.0004404945	0.0004404945	0.0007216489	0.0004435317	0.0005127970	0.0004317969
18537	18538	18539	18540	18541	18542
0.0004023876	0.0004437773	0.0003657330	0.0003796731	0.0003810275	0.0005775178
18543	18544	18545	18546	18547	18548
0.0006111623	0.0003757607	0.0007803629	0.0004607262	0.0005941325	0.0004644086
18549	18550	18551	18552	18553	18555
0.0003861417	0.0006067528	0.0006992147	0.0031612289	0.0028689387	0.0028915585
18556	18557	18558	18559	18560	18561
0.0013743753	0.0007921981	0.0007390697	0.0006359440	0.0005992493	0.0005304046
18562	18563	18564	18565	18566	18567
0.0006545792	0.0006944691	0.0008547698	0.0012121757	0.0008879719	0.0007488576
18568	18569	18570	18571	18572	18573
0.0031195628	0.0007519606	0.0008592589	0.0005960485	0.0006887216	0.0027163673
18574	18575	18576	18577	18578	18579
0.0005227284	0.0007659928	0.0004873203	0.0009037629	0.0004760084	0.0004741763
18580	18581	18582	18583	18584	18585
0.0005070884	0.0005125950	0.0008059472	0.0008515937	0.0010655389	0.0005849322
18586	18587	18588	18589	18590	18591
0.0018267468	0.0005529811	0.0012578624	0.0014256456	0.0010612418	0.0010530083
18592	18593	18594	18595	18596	18597
0.0009693457	0.0016865847	0.0017508991	0.0016182154	0.0025696885	0.0014840434
18598	18599	18600	18601	18602	18603
0.0011432094	0.0009671903	0.0010231574	0.0008054475	0.0007405210	0.0006057065
18604	18605	18606	18607	18608	18609
0.0006744582	0.0008920595	0.0170060075	0.0006277842	0.0007307244	0.0007893724
18610	18611	18612	18613	18614	18615
0.0138493531	0.0012043884	0.0008763867	0.0007161405	0.0010254935	0.0009479677
18616	18617	18618	18619	18620	18621
0.0005548363	0.0009091103	0.0007735450	0.0011545443	0.0026365707	0.0027441415
18622	18623	18624	18625	18626	18721
0.0021721181	0.0021851560	0.0038697707	0.0024789099	0.0718266228	0.0019533036
18722	18723	18724	18725	18726	18727
0.0011823174	0.0018511795	0.0011265757	0.0011213096	0.0016479907	0.0013707143
18728	18729	18730	18731	18732	18733
0.0014283984	0.0009617968	0.0008532403	0.0013659033	0.0018945610	0.0008852498
18734	18735	18736	18737	18738	18739
0.0009170419	0.0007912409	0.0008046013	0.0008062901	0.0007913244	0.0008584573
18740	18741	18742	18743	18744	18745
0.0011692704	0.0009887418	0.0008748067	0.0017265562	0.0036509080	0.0022882458
18746	18747	18748	18749	18750	18751
0.0017560095	0.0015307830	0.0020445976	0.0112689266	0.0020247034	0.0016303965
18752	18753	18754	18755	18756	18757
0.0016095890	0.0026954715	0.0058049674	0.0069143322	0.0020089385	0.0020256066

18758	18759	18760	18761	18762	18763
0.0013063783	0.0042894108	0.0015655646	0.0013115320	0.0019468755	0.0013992190
18764	18765	18766	18767	18768	18769
0.0015861254	0.0073291127	0.0071625531	0.0010732651	0.0009597941	0.0007892746
18770	18771	18772	18773	18774	18775
0.0008356923	0.0006125747	0.0006791708	0.0006957276	0.0009193111	0.0010982917
18776	18777	18778	18779	18780	18781
0.0006711904	0.0004033262	0.0006474832	0.0003902836	0.0007700631	0.0003917203
18782	18783	18784	18785	18786	18787
0.0020131766	0.0010946092	0.0008267757	0.0009177581	0.0014364891	0.0032846212
18788	18789	18790	18791	18792	18793
0.0008521735	0.0008043246	0.0024370044	0.0009115825	0.0009043781	0.0004423321
18794	18795	18796	18797	18798	18799
0.0007377127	0.0004526863	0.0006802084	0.0003750799	0.0005900222	0.0004870819
18800	18801	18802	18803	18804	18805
0.0003637329	0.0006873656	0.0075299386	0.0004015278	0.0023313544	0.0018961725
18806	18807	18808	18810	18811	18812
0.0027364717	0.0021005908	0.0019624381	0.0037450594	0.0016683679	0.0018093810
18813	18814	18815	18816	18817	18818
0.0013820029	0.0015589380	0.0015940275	0.0014242564	0.0012426324	0.0017730638
18819	18820	18821	18822	18823	18824
0.0020834523	0.0020546566	0.0025803163	0.0024022018	0.0031073653	0.0016038298
18825	18826	18827	18828	18829	18831
0.0030910881	0.0019773059	0.0019295292	0.0020274294	0.0015776686	0.0177746733
18832	18833	18834	18835	18836	18837
0.0016838755	0.0018545771	0.0011189426	0.0011563925	0.0013280430	0.0011433720
18838	18839	18840	18841	18842	18843
0.0013286488	0.0014667447	0.0009835398	0.0013496334	0.0010384870	0.0007206710
18844	18845	18846	18847	18848	18849
0.0008456701	0.0010376233	0.0007867377	0.0005651835	0.0006761994	0.0011040189
18850	18851	18852	18853	18854	18855
0.0005767677	0.0008821070	0.0011641550	0.0009124523	0.0020610243	0.0012927339
18856	18857	18858	18859	18860	18861
0.0008705849	0.0005360306	0.0007005485	0.0005332257	0.0006572969	0.0010785594
18862	18863	18864	18865	18866	18867
0.0008744929	0.0009400339	0.0016366188	0.0014769144	0.0018346440	0.0008781220
18868	18869	18870	18871	18872	18873
0.0007105545	0.0010042448	0.0003984303	0.0006647710	0.0006366568	0.0014466045
18874	18875	18876	18877	18878	18879
0.0007554074	0.0006216537	0.0004153640	0.0009464148	0.0007002579	0.0008177963
18880	18881	18882	18883	18884	18885
0.0021101792	0.0007754087	0.0015373336	0.0014743708	0.0011710477	0.0013898788
18886	18887	18888	18889	18890	18891

0.0038219686	0.0018825169	0.0017740968	0.0011295679	0.0010365172	0.0076617122
18892	18893	18894	18895	18896	18897
0.0006701075	0.0003953690	0.0006682874	0.0004312273	0.0004748303	0.0006010565
18898	18899	18900	18901	18902	18903
0.0003760057	0.0004826634	0.0003692851	0.0005971968	0.0004675353	0.0003668255
18904	18905	18906	18907	18908	18909
0.0003655841	0.0004372805	0.0004950259	0.0003681838	0.0003789183	0.0015983936
18910	18911	18912	18913	18914	18915
0.0004048871	0.0003749061	0.0005906286	0.0006388594	0.0004093603	0.0013039551
18916	18917	18918	18919	18920	18921
0.0009436134	0.0046358968	0.0052470795	0.0039630494	0.0564339181	0.0032697075
18922	18926	18927	18928	18929	18930
0.0030798538	0.0134001039	0.0023882950	0.0010638929	0.0009887435	0.0005943152
18931	18932	18933	18934	18935	18936
0.0005835957	0.0005808805	0.0005988534	0.0005796807	0.0006378641	0.0005021952
18937	18938	18939	18940	18941	18942
0.0005069950	0.0005108393	0.0008387143	0.0006517333	0.0006539211	0.0005725843
18943	18944	18945	18946	18947	18948
0.0005244994	0.0005602386	0.0007655829	0.0004769870	0.0007269229	0.0017775617
18949	18950	18951	18952	18953	18954
0.0004786887	0.0008944857	0.0006710142	0.0006922492	0.0006747529	0.0009399526
18955	18956	18957	18958	18959	18960
0.0075679757	0.0022759953	0.0014222989	0.0014390226	0.0013797249	0.0008587357
18961	18962	18963	18964	18965	18966
0.0012111496	0.0012723869	0.0015766831	0.0007618317	0.0007410091	0.0011869593
18967	18968	18969	18970	18971	18972
0.0005220717	0.0005560800	0.0012573284	0.0005992755	0.0007736497	0.0012001841
18973	18974	18975	18976	18977	18978
0.0009102296	0.0169966797	0.0007214535	0.0008489624	0.0010760152	0.0007498398
18979	18980	18981	19058	19059	19060
0.0059770537	0.0530780498	0.0027125411	0.0014481709	0.0013597088	0.0028409553
19061	19062	19063	19064	19065	19066
0.0025969867	0.0012222895	0.0023212598	0.0013636174	0.0009250163	0.0012785658
19067	19068	19069	19070	19071	19072
0.0019673694	0.0018535546	0.0019422636	0.0010843045	0.0009343834	0.0011030536
19073	19074	19075	19076	19077	19078
0.0012401749	0.0008938653	0.0008424936	0.0007912765	0.0008293815	0.0017422786
19079	19080	19081	19082	19083	19084
0.0014238901	0.0016145317	0.0013922928	0.0025084289	0.0021096241	0.0016124582
19085	19086	19087	19088	19089	19090
0.0017831729	0.0044834382	0.0015841629	0.0027944255	0.0028454893	0.0014666149
19091	19092	19093	19094	19095	19096
0.0079721951	0.0084276703	0.0012740361	0.0012740361	0.0178505653	0.0005180779

19097	19098	19099	19100	19101	19102
0.0006119520	0.0006303955	0.0004796394	0.0004658543	0.0006433439	0.0003939850
19103	19104	19105	19106	19107	19108
0.0006100839	0.0024656408	0.0009374590	0.0023294569	0.0016581681	0.0015870575
19109	19110	19111	19112	19113	19114
0.0077450605	0.0025961546	0.0020926978	0.0086850914	0.0007523844	0.0008768474
19115	19116	19117	19118	19119	19120
0.0018939624	0.0004416746	0.0004962702	0.0004095838	0.0004732103	0.0004229611
19121	19122	19123	19124	19125	19126
0.0004592739	0.0007265680	0.0004684484	0.0006212852	0.0010163667	0.0007038420
19127	19128	19129	19130	19131	19132
0.0006392260	0.0006314179	0.0012993478	0.0019649008	0.0019503183	0.0023644463
19133	19134	19135	19136	19137	19138
0.0162259911	0.0026718098	0.0018974944	0.0019531851	0.0023806438	0.0022561331
19139	19140	19141	19142	19143	19144
0.0023189982	0.0012733175	0.0014811778	0.0013730192	0.0013544951	0.0015456948
19145	19146	19147	19148	19149	19150
0.0021391718	0.0015471365	0.0012361944	0.0012106219	0.0014726925	0.0014791503
19151	19152	19153	19154	19155	19156
0.0030143855	0.0017267794	0.0019279577	0.0490675523	0.0018145929	0.0022301311
19157	19158	19159	19160	19161	19163
0.0018300028	0.0020459077	0.0016393766	0.0017914150	0.0015278089	0.0178608180
19164	19165	19166	19167	19168	19169
0.0017895134	0.0183173266	0.0009952414	0.0009707887	0.0009527024	0.0024246407
19170	19171	19172	19173	19174	19175
0.0018517677	0.0009471050	0.0010020066	0.0010020066	0.0009722953	0.0014371012
19176	19177	19178	19179	19180	19181
0.0009431288	0.0013717709	0.0006154226	0.0005382997	0.0005387129	0.0006465629
19182	19183	19184	19185	19186	19187
0.0008001313	0.0005341318	0.0025896382	0.0030792502	0.0011474477	0.0007475559
19188	19189	19190	19191	19192	19193
0.0155411938	0.0015055837	0.0020342641	0.0008886315	0.0006216066	0.0008460166
19194	19195	19196	19197	19198	19199
0.0008403874	0.0009094068	0.0059189414	0.0032017680	0.0194917314	0.0011814873
19200	19201	19202	19203	19204	19205
0.0005095263	0.0014498387	0.0009410248	0.0012429481	0.0019595160	0.0024149835
19206	19207	19208	19209	19210	19211
0.0010246358	0.0009447728	0.0004832793	0.0013957073	0.0004585048	0.0004419838
19212	19213	19214	19215	19216	19217
0.0003931723	0.0004595189	0.0004508698	0.0007529669	0.0010041794	0.0003774007
19218	19219	19220	19221	19222	19223
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19224	19225	19226	19227	19228	19229

0.0006315921	0.0008173672	0.0023299730	0.0031544731	0.0036041063	0.0037667780
19230	19231	19232	19233	19234	19235
0.0027661833	0.0027843239	0.0112611668	0.0036897440	0.0028590147	0.0006623968
19236	19237	19238	19239	19240	19241
0.0007458657	0.0007834518	0.0006017398	0.0030751173	0.0005557330	0.0006699158
19242	19243	19244	19245	19246	19247
0.0176624152	0.0013416668	0.0009865110	0.0011911417	0.0011240875	0.0010990579
19248	19249	19250	19251	19252	19253
0.0019721193	0.0010436450	0.0009458641	0.0022365559	0.0167835512	0.0019594389
19254	19255	19256	19257	19258	19259
0.0048681214	0.0013684406	0.0005558378	0.0004935331	0.0006920092	0.0004850828
19260	19261	19262	19263	19264	19265
0.0007037561	0.0007048137	0.0006869534	0.0017577482	0.0012736375	0.0023619306
19266	19267	19268	19269	19270	19271
0.0058739413	0.0038113374	0.0014935396	0.0020280734	0.0008329554	0.0007296781
19272	19273	19274	19275	19276	19277
0.0005723174	0.0006073759	0.0563332662	0.0020353237	0.0008676066	0.0009638535
19278	19279	19280	19281	19282	19283
0.0022427686	0.0011063778	0.0017403932	0.0009794013	0.0015679534	0.0011598044
19284	19285	19286	19287	19288	19289
0.0009542855	0.0010101828	0.0007996190	0.0009685190	0.0011627096	0.0008706492
19290	19291	19292	19293	19294	19295
0.0008255040	0.0007236198	0.0017679244	0.0009105982	0.0014010668	0.0012706117
19296	19297	19298	19299	19300	19301
0.0007087783	0.0006748349	0.0005057503	0.0113843877	0.0023727039	0.0026731755
19388	19389	19390	19391	19392	19393
0.0019137293	0.0013495486	0.0027069793	0.0031223685	0.0021621960	0.0034302224
19394	19395	19396	19397	19398	19399
0.0014456663	0.0012692077	0.0014001136	0.0009867923	0.0019484055	0.0016946875
19400	19401	19402	19403	19404	19405
0.0009724375	0.0007911524	0.0014255378	0.0010612528	0.0032346322	0.0013254699
19406	19407	19408	19409	19410	19411
0.0031618158	0.0104376271	0.0019001297	0.0016734355	0.0027864977	0.0012931426
19412	19413	19414	19415	19416	19417
0.0054749660	0.0017126502	0.0019180463	0.0169467254	0.0008878375	0.0009083711
19418	19419	19420	19421	19422	19423
0.0007270420	0.0007219653	0.0005047495	0.0004041428	0.0004169746	0.0006771276
19424	19425	19426	19427	19428	19429
0.0005901787	0.0006280410	0.0036361724	0.0013255025	0.0009613299	0.0009752317
19430	19431	19432	19433	19434	19435
0.0007160785	0.0005388481	0.0004091424	0.0003683494	0.0003860723	0.0005013406
19436	19437	19438	19439	19440	19441
0.0004646592	0.0004110802	0.0011445670	0.0421901141	0.0181127065	0.0086112841

19442	19443	19444	19445	19446	19447
0.0021051018	0.0022319870	0.0021380348	0.0023101983	0.0018910528	0.0020312840
19448	19449	19450	19451	19452	19453
0.0024242052	0.0013829986	0.0017896848	0.0515648611	0.0016096239	0.0018541582
19454	19455	19456	19457	19458	19459
0.0016676029	0.0014031926	0.0017729114	0.0013732327	0.0034092492	0.0024051706
19460	19461	19462	19463	19464	19465
0.0026118774	0.0014754079	0.0015959143	0.0038700551	0.0015964917	0.0070000932
19466	19467	19468	19469	19470	19471
0.0028798139	0.0014707931	0.0017972906	0.0017972444	0.0028108299	0.0013313238
19472	19473	19474	19475	19476	19477
0.0015240144	0.0012912816	0.0009855185	0.0015184711	0.0009897427	0.0009796118
19478	19479	19480	19481	19482	19483
0.0014296121	0.0017745879	0.0010845111	0.0006251915	0.0011117616	0.0007537876
19484	19485	19486	19487	19488	19489
0.0018477148	0.0018870992	0.0009284460	0.0026302683	0.0015475935	0.0009890585
19490	19491	19492	19493	19494	19495
0.0009812538	0.0008020773	0.0010720653	0.0005854588	0.0005362020	0.0007160064
19496	19497	19498	19499	19500	19501
0.0005842736	0.0008664524	0.0076500792	0.0007733085	0.0007551481	0.0007831431
19502	19503	19504	19505	19506	19507
0.0005942908	0.0005372667	0.0004483196	0.0006119282	0.0007360908	0.0007130154
19508	19509	19510	19511	19512	19513
0.0014712522	0.0006094944	0.0003916575	0.0006113406	0.0016230173	0.0020496043
19514	19515	19516	19517	19518	19519
0.0010014475	0.0004806072	0.0004391364	0.0008822519	0.0004291543	0.0004174281
19520	19521	19522	19523	19524	19525
0.0004326939	0.0003987826	0.0006168795	0.0005616423	0.0003690344	0.0006060143
19526	19527	19528	19529	19530	19531
0.0003720265	0.0003884908	0.0029840681	0.0025494023	0.0027257471	0.0019586096
19532	19533	19534	19535	19536	19537
0.0007645501	0.0006530946	0.0017222221	0.0016128026	0.0082206495	0.0014031784
19538	19539	19540	19541	19542	19543
0.0004838692	0.0004868729	0.0005541984	0.0005661376	0.0004736377	0.0004732263
19544	19545	19546	19547	19548	19549
0.0008195644	0.0005378303	0.0004802863	0.0058732777	0.0007938299	0.0010243885
19550	19551	19552	19553	19554	19555
0.0020198331	0.0013790992	0.0023242774	0.0012873680	0.0012834999	0.0007007637
19556	19557	19558	19559	19560	19561
0.0005617903	0.0006934744	0.0005640150	0.0029202747	0.0009893013	0.0007180199
19562	19563	19564	19565	19566	19567
0.0009411946	0.0009980812	0.0010034882	0.0016387460	0.0026258898	0.0024629946
19568	19569	19631	19632	19633	19634

0.0027445593	0.0077371217	0.0023893620	0.0025013976	0.0019084646	0.0011656965
19635	19636	19637	19638	19639	19640
0.0016549463	0.0017364671	0.0023256236	0.0015810699	0.0009492302	0.0009325202
19641	19642	19643	19644	19645	19646
0.0010540102	0.0015040078	0.0017053505	0.0013372261	0.0008900154	0.0013213294
19647	19648	19649	19650	19651	19652
0.0008417229	0.0008989370	0.0013454154	0.0009209227	0.0008540313	0.0008101944
19653	19654	19655	19656	19657	19658
0.0017576748	0.0029460427	0.0018939200	0.0016727544	0.0016843101	0.0015190737
19659	19660	19661	19662	19663	19665
0.0013515406	0.0018119990	0.0029628648	0.0103906939	0.0016988286	0.0026456434
19666	19667	19668	19669	19670	19671
0.0013504297	0.0018742437	0.0016139627	0.0423415962	0.0069080368	0.0081666315
19672	19673	19674	19675	19676	19677
0.0005647794	0.0007207436	0.0008451546	0.0007688252	0.0004771771	0.0006175636
19678	19679	19680	19681	19682	19683
0.0003780894	0.0003972749	0.0005717295	0.0005109629	0.0003886318	0.0026977071
19684	19685	19686	19687	19688	19689
0.0027555620	0.0026620580	0.0017727016	0.0014720834	0.0016499878	0.0010338672
19690	19691	19692	19693	19694	19695
0.0006817433	0.0005617168	0.0012902162	0.0024080654	0.0006091641	0.0004603417
19696	19697	19698	19699	19700	19701
0.0004771047	0.0004560124	0.0003828250	0.0004824590	0.0006955306	0.0003727186
19702	19703	19704	19705	19706	19707
0.0006881256	0.0004413484	0.0008652301	0.0025586765	0.0021310677	0.0026957967
19708	19709	19710	19711	19712	19713
0.0017200785	0.0029138491	0.0023310068	0.0017500092	0.0131303881	0.0014089524
19714	19715	19716	19717	19718	19719
0.0014735954	0.0025518050	0.0025599113	0.0035786159	0.0013757905	0.0015350528
19720	19721	19722	19723	19724	19725
0.0029338753	0.0024508123	0.0026860964	0.0024944359	0.0018678383	0.0023007874
19726	19727	19728	19729	19730	19731
0.0031902550	0.0016907684	0.0022124449	0.0011165580	0.0013594645	0.0012310826
19732	19733	19734	19735	19736	19737
0.0009664762	0.0011674456	0.0011447707	0.0011680709	0.0011845128	0.0009951253
19738	19739	19740	19741	19742	19743
0.0018886606	0.0017750444	0.0018290266	0.0008651652	0.0005928501	0.0009307672
19744	19745	19746	19747	19748	19749
0.0007706938	0.0009475760	0.0022544747	0.0032786124	0.0019308756	0.0021097927
19750	19751	19752	19753	19754	19755
0.0011142009	0.0008854263	0.0010097910	0.0010097910	0.0018151586	0.0011231933
19756	19757	19758	19759	19760	19761
0.0016751746	0.0023259447	0.0028680231	0.0008500558	0.0007832297	0.0006321017

19762	19763	19764	19765	19766	19767
0.0006048215	0.0008326538	0.0015169425	0.0031737231	0.0009344136	0.0012572546
19768	19769	19770	19771	19772	19773
0.0007204483	0.0009943370	0.0009379278	0.0007748476	0.0008089806	0.0006767440
19774	19775	19776	19777	19778	19779
0.0004364929	0.0007489122	0.0004466142	0.0003840173	0.0008249621	0.0020709956
19780	19781	19782	19783	19784	19785
0.0008504466	0.0004358053	0.0004129596	0.0009687842	0.0006529318	0.0003728421
19786	19787	19788	19789	19790	19791
0.0003825146	0.0004497152	0.0005872543	0.0003729864	0.0006257194	0.0004761699
19792	19793	19794	19795	19796	19797
0.0006089328	0.0006082652	0.0004863010	0.0033463232	0.0034709807	0.0036251074
19798	19799	19800	19801	19802	19803
0.0028583279	0.0033524744	0.0027786507	0.0011554079	0.0019035694	0.0009171114
19804	19805	19806	19807	19808	19809
0.0006227263	0.0006510127	0.0027862760	0.0006143604	0.0038656215	0.0015858959
19810	19811	19812	19813	19814	19815
0.0012387950	0.0010342391	0.0013884386	0.0006294118	0.0009309964	0.0005091286
19816	19817	19818	19819	19820	19821
0.0004724658	0.0007671120	0.0004866501	0.0015116137	0.0010040957	0.0008622250
19822	19823	19824	19825	19826	19827
0.0005591876	0.0010795254	0.0011225200	0.0013169069	0.0008930139	0.0008545451
19828	19829	19830	19831	19832	19833
0.0104156184	0.0008293092	0.0018380747	0.0013899677	0.0007526123	0.0008928383
19834	19835	19836	19837	19838	19839
0.0012444844	0.0116817964	0.0007174579	0.0019324955	0.0005868799	0.0007813335
19840	19841	19842	19843	19844	19845
0.0009852552	0.0007577689	0.0009589321	0.0007272974	0.0007706584	0.0033421725
19846	19930	19931	19932	19933	19934
0.0026623582	0.0014478619	0.0034225761	0.0016574122	0.0012935203	0.0013751947
19935	19936	19937	19938	19939	19940
0.0010976996	0.0009008964	0.0017946163	0.0010116419	0.0008168336	0.0010551572
19941	19942	19943	19944	19945	19946
0.0007999394	0.0013466178	0.0017501079	0.0160855417	0.0169927162	0.0096131449
19947	19948	19949	19951	19952	19953
0.0102922053	0.0017868482	0.0013121555	0.0004918388	0.0016753432	0.0004735001
19954	19955	19956	19957	19958	19959
0.0003891842	0.0003864101	0.0003848078	0.0007000080	0.0009816841	0.0017803029
19960	19961	19962	19963	19964	19965
0.0007320078	0.0004547362	0.0004725418	0.0007401114	0.0006291750	0.0003981706
19966	19967	19968	19969	19970	19971
0.0005117445	0.0004951292	0.0022422464	0.0021596358	0.0020294045	0.0071382635
19972	19973	19974	19975	19976	19977

0.0012348894	0.0025212892	0.0012754680	0.0029854022	0.0018784063	0.0016569559
19978	19979	19980	19981	19982	19983
0.0016802092	0.0019759645	0.0048629882	0.0010565286	0.0009980420	0.0012043901
19984	19985	19986	19987	19988	19989
0.0009692535	0.0011901780	0.0012031978	0.0019266970	0.0008184866	0.0016412444
19990	19991	19992	19993	19994	19995
0.0010562532	0.0005488014	0.0017599117	0.0012800490	0.0008876277	0.0007871325
19996	19997	19998	19999	20000	20001
0.0006269519	0.0007823631	0.0005706347	0.0010585348	0.0076213421	0.0030414360
20002	20003	20004	20005	20006	20007
0.0009385399	0.0006503031	0.0004378145	0.0005816203	0.0005291329	0.0006227179
20008	20009	20010	20011	20012	20013
0.0006146521	0.0024822549	0.0005968158	0.0022337365	0.0009070216	0.0009732400
20014	20015	20016	20017	20018	20019
0.0006306470	0.0004588596	0.0004430369	0.0007660756	0.0006845891	0.0006446368
20020	20021	20022	20023	20024	20025
0.0006554377	0.0006388153	0.0006415874	0.0006000999	0.0003784690	0.0003755593
20026	20027	20028	20029	20030	20031
0.0006816732	0.0171247475	0.0006244492	0.0034429754	0.0030984058	0.0031818124
20032	20033	20034	20035	20036	20037
0.0081745760	0.0008819575	0.0008588566	0.0007924942	0.0004808845	0.0010528047
20038	20039	20040	20041	20042	20043
0.0008947216	0.0009914865	0.0029083850	0.0016380764	0.0016518070	0.0009245635
20044	20045	20046	20047	20048	20049
0.0005559971	0.0005594278	0.0006349585	0.0005369354	0.0004722493	0.0007771628
20050	20051	20052	20053	20054	20055
0.0004836499	0.0007315134	0.0008216137	0.0007018321	0.0011781170	0.0008472765
20056	20057	20058	20059	20060	20061
0.0034846897	0.0010572780	0.0009102088	0.0008858427	0.0007544084	0.0028844481
20062	20063	20064	20065	20066	20067
0.0007279780	0.0006810822	0.0008249020	0.0007068000	0.0007882504	0.0007013931
20068	20069	20070	20071	20072	20073
0.0014619921	0.0014730526	0.0009734586	0.0011470386	0.0006438153	0.0093909477
20074	20139	20140	20141	20142	20143
0.0024988414	0.0016433252	0.0022929891	0.0013482682	0.0015917443	0.0015366452
20144	20145	20146	20147	20148	20149
0.0010442579	0.0015557597	0.0010398179	0.0009145912	0.0007971372	0.0010362488
20150	20151	20152	20153	20154	20155
0.0008094927	0.0010695080	0.0062111086	0.0094605150	0.0023969127	0.0091629929
20156	20157	20158	20159	20160	20161
0.0017037364	0.0016113368	0.0038282943	0.0026269326	0.0032861332	0.0006853923
20162	20163	20164	20165	20166	20167
0.0004095555	0.0171709486	0.0009607578	0.0019799538	0.0015717361	0.0004808812

20168	20169	20170	20171	20172	20173
0.0004997582	0.0006279495	0.0003861265	0.0006253057	0.0014533792	0.0014090438
20174	20175	20176	20177	20178	20179
0.0014929864	0.0013433298	0.0027895594	0.0016293086	0.0018092916	0.0016388385
20180	20181	20182	20183	20184	20185
0.0029014371	0.0014034726	0.0015783768	0.0021816837	0.0015015929	0.0015947443
20186	20187	20188	20190	20191	20192
0.0020478673	0.0018084399	0.0019255147	0.0014190737	0.0052131801	0.0010115414
20193	20194	20195	20196	20197	20198
0.0013203103	0.0009567841	0.0011455657	0.0010130845	0.0018758735	0.0007688177
20199	20200	20201	20202	20203	20204
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20205	20206	20207	20208	20209	20210
0.0007507031	0.0008939707	0.0009001940	0.0024280489	0.0010163545	0.0013638092
20211	20212	20213	20214	20215	20216
0.0018754855	0.0024597170	0.0018875228	0.0005569036	0.0004448729	0.0004615602
20217	20218	20219	20220	20221	20222
0.0010665740	0.0003768229	0.0003774568	0.0007892611	0.0012583868	0.0029746498
20223	20224	20225	20226	20227	20228
0.0028556319	0.0009508202	0.0005791865	0.0006434636	0.0005033341	0.0017762960
20229	20230	20231	20232	20233	20234
0.0017826217	0.0011736545	0.0014958844	0.0013284274	0.0008875351	0.0009430299
20235	20236	20237	20238	20239	20240
0.0006854760	0.0010496211	0.0004842471	0.0005040173	0.0005692164	0.0008924131
20241	20242	20243	20244	20245	20246
0.0005105874	0.0006889405	0.0009299953	0.0008839232	0.0068311992	0.0008537819
20247	20248	20249	20250	20251	20252
0.0005865589	0.0006157703	0.0010890144	0.0011988886	0.0009688562	0.0010142851
20253	20254	20255	20256	20257	20258
0.0014416694	0.0013064382	0.0030935377	0.0011232161	0.0008379254	0.0010197852
20259	20260	20261	20262	20263	20264
0.0009969298	0.0008989344	0.0008239878	0.0023858029	0.0012185870	0.0012193495
20265	20266	20267	20268	20269	20270
0.0080013131	0.0011027647	0.0010115809	0.0033298755	0.0110246371	0.0047627649
20271	20272	20326	20327	20328	20329
0.0026881084	0.0023693559	0.0014546753	0.0012279656	0.0013272609	0.0012391371
20330	20331	20332	20333	20334	20335
0.0014568571	0.0021307535	0.0012859894	0.0016524626	0.0014590601	0.0009968995
20336	20337	20338	20339	20340	20341
0.0011272206	0.0031370553	0.0019313023	0.0008025482	0.0008182258	0.0028128170
20342	20343	20344	20345	20346	20347
0.0158143538	0.0652191726	0.0014402256	0.0017406711	0.0017030429	0.0012349464
20348	20349	20350	20351	20352	20353

0.0023174763	0.0038101811	0.0025568423	0.0013856560	0.0027216261	0.0016761491
20354	20355	20357	20358	20359	20360
0.0013332214	0.0015207709	0.0063194129	0.0048776422	0.0085783654	0.0069061345
20361	20362	20363	20364	20365	20366
0.0004172221	0.0026524790	0.0010830994	0.0007843099	0.0010741869	0.0006411203
20367	20368	20369	20370	20371	20372
0.0004767026	0.0005897254	0.0004674864	0.0006954303	0.0006162121	0.0016608235
20373	20374	20375	20376	20377	20378
0.0008566051	0.0012014601	0.0016435372	0.0003982560	0.0023232176	0.0027709902
20379	20380	20381	20382	20383	20384
0.0026786862	0.0009157455	0.0036075951	0.0014098984	0.0086015695	0.0009599719
20385	20386	20387	20388	20389	20390
0.0006409044	0.0005097383	0.0004885035	0.0005202552	0.0004432548	0.0006295714
20391	20392	20393	20394	20395	20396
0.0003878939	0.0003959646	0.0004883555	0.0006419103	0.0007733448	0.0007668129
20397	20398	20399	20400	20401	20402
0.0004795182	0.0006384132	0.0006072653	0.0010329292	0.0019201362	0.0019505979
20403	20404	20405	20406	20407	20408
0.0040867800	0.0019429494	0.0025655884	0.0022974510	0.0040860952	0.0019301329
20409	20410	20411	20412	20413	20414
0.0042816129	0.0015506950	0.0029452862	0.0016984651	0.0012156141	0.0016621052
20415	20416	20417	20418	20419	20420
0.0018093840	0.0013346575	0.0013545385	0.0034672748	0.0025182600	0.0522352839
20421	20422	20423	20424	20425	20426
0.0037630513	0.0016436869	0.0016505581	0.0015080422	0.0014435004	0.0019898522
20427	20428	20429	20430	20431	20432
0.0022610241	0.0020709301	0.0014695117	0.0028142064	0.0013318908	0.0011639030
20433	20434	20435	20436	20437	20438
0.0011809958	0.0013650506	0.0012045336	0.0007357778	0.0011990878	0.0014267109
20439	20440	20441	20442	20443	20444
0.0013528212	0.0013822518	0.0011422855	0.0030668613	0.0007670193	0.0005672752
20445	20446	20447	20448	20449	20450
0.0010695479	0.0007989927	0.0030606550	0.0007701467	0.0012428150	0.0009723687
20451	20452	20453	20454	20455	20456
0.0005099495	0.0007498417	0.0004593608	0.0016050741	0.0074330893	0.0018992448
20457	20458	20459	20460	20461	20462
0.0012201086	0.0020602428	0.0009703088	0.0010253871	0.0012690120	0.0033858297
20463	20464	20465	20466	20467	20468
0.0006002442	0.0004866386	0.0005017381	0.0003952751	0.0004693242	0.0007178960
20469	20470	20471	20472	20473	20474
0.0003839364	0.0004481525	0.0006468466	0.0004307510	0.0003945735	0.0006950698
20475	20476	20477	20478	20479	20480
0.0006708129	0.0007441724	0.0005987678	0.0006159295	0.0005959908	0.0004095031

20481	20482	20483	20484	20485	20486
0.0006137154	0.0003978599	0.0011265769	0.0021161136	0.0014450176	0.0046379991
20487	20488	20489	20490	20491	20492
0.0037952038	0.0031286662	0.0025882333	0.0012162499	0.0005521430	0.0005884987
20493	20494	20495	20496	20497	20498
0.0005187918	0.0006744499	0.0177541939	0.0021157083	0.0010645015	0.0016982756
20499	20500	20501	20502	20503	20504
0.0011344077	0.0008014688	0.0007746365	0.0007814078	0.0007212235	0.0010991159
20505	20506	20507	20508	20509	20510
0.0005770457	0.0005609962	0.0075209368	0.0004903415	0.0004793657	0.0005063577
20511	20512	20513	20514	20515	20516
0.0004892717	0.0009891478	0.0007030613	0.0009737011	0.0008630735	0.0007282382
20517	20518	20519	20520	20521	20522
0.0006744112	0.0009367804	0.0009606870	0.0115388843	0.0039616374	0.0017508732
20523	20524	20525	20526	20527	20528
0.0011853320	0.0015816128	0.0006484044	0.0008350029	0.0005708787	0.0006702872
20529	20530	20531	20532	20533	20534
0.0011153661	0.0005080666	0.0006735226	0.0007269235	0.0018945104	0.0011435179
20535	20536	20537	20538	20539	20540
0.0005955340	0.0013048253	0.0005779109	0.0041867669	0.0163440766	0.0032785301
20541	20542	20643	20644	20645	20646
0.0031590963	0.0025132152	0.0014736982	0.0012512134	0.0014134437	0.0016524990
20647	20648	20649	20650	20651	20652
0.0012594672	0.0014204892	0.0020132221	0.0012303418	0.0012409331	0.0011163139
20653	20654	20655	20656	20657	20658
0.0009488804	0.0012051861	0.0008110874	0.0122361396	0.0016071302	0.0009287929
20659	20660	20661	20662	20663	20664
0.0010097074	0.0008157949	0.0008030916	0.0014083294	0.0008635135	0.0008067433
20665	20666	20667	20668	20669	20670
0.0011984092	0.0013924073	0.0605299027	0.0164441847	0.0151827012	0.0027391975
20671	20672	20673	20674	20675	20676
0.0101547479	0.0019903769	0.0015164926	0.0037400639	0.0016809546	0.0031556860
20677	20678	20679	20680	20681	20682
0.0032088366	0.0011349437	0.0012323358	0.0047157344	0.0047801892	0.0015309648
20683	20684	20685	20686	20687	20688
0.0032885407	0.0022358957	0.0023848217	0.0019691704	0.0013808598	0.0020161515
20689	20690	20691	20692	20693	20694
0.0012064555	0.0013685238	0.0022600449	0.0016404340	0.0012762404	0.0012854886
20696	20697	20698	20699	20700	20701
0.0167860036	0.0185571827	0.0010565409	0.0008915843	0.0004691691	0.0004592179
20702	20703	20704	20705	20706	20707
0.0009914448	0.0010221527	0.0004772285	0.0029208110	0.0009201429	0.0008064610
20708	20709	20710	20711	20712	20713

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20714	20715	20716	20717	20718	20719
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20720	20721	20722	20723	20724	20725
0.0040454761	0.0011344866	0.0008316332	0.0012925938	0.0010296929	0.0082603242
20726	20727	20728	20729	20730	20731
0.0007853996	0.0005405430	0.0004148711	0.0025773752	0.0018316776	0.0007742044
20732	20733	20734	20735	20736	20737
0.0008040313	0.0004479885	0.0076716074	0.0004553805	0.0003892227	0.0005971149
20738	20739	20740	20741	20742	20743
0.0003858547	0.0019678305	0.0003721032	0.0029488145	0.0007210810	0.0006231810
20744	20745	20746	20747	20748	20749
0.0006337682	0.0020922587	0.0058083488	0.0020396161	0.0041417601	0.0020311060
20750	20751	20752	20753	20754	20755
0.0024553047	0.0042254114	0.0022346948	0.0021013805	0.0022827427	0.0017882097
20756	20757	20758	20759	20760	20761
0.0033914233	0.0012288855	0.0011658733	0.0014978570	0.0014597901	0.0017041247
20762	20763	20764	20765	20766	20767
0.0017170037	0.0020117776	0.0018827055	0.0013134394	0.0016013642	0.0013910306
20768	20769	20770	20771	20772	20773
0.0037126031	0.0015968088	0.0021631399	0.0019717760	0.0037306068	0.0023817698
20774	20775	20776	20777	20778	20779
0.0020558247	0.0033469950	0.0018334243	0.0019250611	0.0014619981	0.0017389476
20780	20781	20782	20783	20784	20785
0.0014537158	0.0009984353	0.0009995720	0.0012977346	0.0011775557	0.0013486604
20786	20787	20788	20789	20790	20791
0.0013054154	0.0011414034	0.0013111751	0.0010571395	0.0013319925	0.0010146987
20792	20793	20794	20795	20796	20797
0.0013276487	0.0010165073	0.0011669064	0.0023488999	0.0010859091	0.0011330088
20798	20799	20800	20801	20802	20803
0.0006481310	0.0013918491	0.0005492453	0.0011086390	0.0019327161	0.0012649918
20804	20805	20806	20807	20808	20809
0.0009329942	0.0025384983	0.0012016051	0.0012669569	0.0019906293	0.0011908530
20810	20811	20812	20813	20814	20815
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20816	20817	20818	20819	20820	20821
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20822	20823	20824	20825	20826	20827
0.0018317027	0.0009933498	0.0023535293	0.0006283345	0.0014451430	0.0014805072
20828	20829	20830	20831	20832	20833
0.0005158254	0.0006408688	0.0008440328	0.0006571217	0.0006522540	0.0005762554
20834	20835	20836	20837	20838	20839
0.0005037799	0.0003989663	0.0004222144	0.0004286532	0.0006038145	0.0021631013

20840	20841	20842	20843	20844	20845
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20846	20847	20848	20849	20850	20851
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20852	20853	20854	20855	20856	20857
0.0006642430	0.0004056570	0.0004653436	0.0004596448	0.0003924626	0.0006618391
20858	20859	20860	20861	20862	20863
0.0003786674	0.0004549457	0.0004502701	0.0003750882	0.0006833509	0.0003777140
20864	20865	20866	20867	20868	20869
0.0003728378	0.0005886991	0.0003891030	0.0006041229	0.0003867839	0.0006145359
20870	20871	20872	20873	20874	20875
0.0007868788	0.0006402152	0.0022501329	0.0057655540	0.0036499878	0.0047608422
20876	20877	20879	20880	20881	20882
0.0038124905	0.0030353768	0.0008026686	0.0008241987	0.0004706968	0.0008614441
20883	20884	20885	20886	20887	20888
0.0005013419	0.0007555246	0.0014011563	0.0022396506	0.0010770386	0.0043941671
20889	20890	20891	20892	20893	20894
0.0017852171	0.0011005876	0.0012717233	0.0009747295	0.0011945729	0.0008368992
20895	20896	20897	20898	20899	20900
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20901	20902	20903	20904	20905	20906
0.0006340878	0.0006426423	0.0006076731	0.0007502738	0.0005717260	0.0005716634
20907	20908	20909	20910	20911	20912
0.0005138978	0.0009028508	0.0005693991	0.0006862165	0.0010695366	0.0008196687
20913	20914	20916	20917	20918	20919
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20920	20921	20922	20923	20924	20925
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20926	20927	20928	20929	20930	20931
0.0010697446	0.0116652509	0.0008978913	0.0011909229	0.0010829907	0.0012341176
20932	20933	20934	20935	20936	20937
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20938	20939	20940	20941	20942	20943
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20944	20945	20946	20947	20948	20949
0.0011594007	0.0008601766	0.0014228920	0.0009625051	0.0007502545	0.0009838795
20950	20951	20952	20953	20954	20955
0.0008751960	0.0013290186	0.0011096001	0.0023054365	0.0025501212	0.0024599398
21043	21044	21045	21046	21047	21048
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21049	21050	21051	21052	21053	21054
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21055	21056	21057	21058	21059	21060

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21061	21062	21063	21064	21065	21066
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21067	21068	21069	21070	21071	21072
0.0014374779	0.0101707749	0.0022669120	0.0035864772	0.0020639984	0.0019422375
21073	21074	21075	21076	21077	21078
0.0021483785	0.0014275283	0.0452431037	0.0048502015	0.0011001777	0.0036219783
21079	21080	21081	21082	21083	21084
0.0013817431	0.0030640191	0.0080456624	0.0081181824	0.0017548189	0.0017622997
21085	21086	21087	21088	21089	21090
0.0013737818	0.0014501526	0.0014111623	0.0028426486	0.0081755474	0.0090993841
21092	21093	21094	21095	21096	21097
0.0066573838	0.0118573196	0.0006378310	0.0006498093	0.0018112097	0.0005321067
21098	21099	21100	21101	21102	21103
0.0004957614	0.0005987679	0.0009643477	0.0004985332	0.0009321013	0.0004941248
21104	21105	21106	21107	21108	21109
0.0017082280	0.0003995757	0.0078064088	0.0010894450	0.0006489957	0.0003722279
21110	21111	21112	21113	21114	21115
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21116	21117	21118	21119	21120	21121
0.0012883744	0.0009319440	0.0090733789	0.0006648828	0.0022142352	0.0005590914
21122	21123	21124	21125	21126	21127
0.0023495003	0.0017664427	0.0008448895	0.0018698174	0.0007487795	0.0008832371
21128	21129	21130	21131	21132	21133
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21134	21135	21136	21137	21138	21139
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21140	21141	21142	21143	21144	21145
0.0007128107	0.0003862464	0.0003890653	0.0004882819	0.0005278998	0.0003752293
21146	21147	21148	21149	21150	21151
0.0008262276	0.0004056127	0.0023551437	0.0022617120	0.0018940467	0.0027208269
21152	21153	21154	21155	21156	21157
0.0027158650	0.0027830902	0.0021677183	0.0017051621	0.0017974449	0.0017436567
21158	21159	21160	21161	21162	21163
0.0015006911	0.0020067629	0.0014719030	0.0011833299	0.0013978629	0.0019244222
21164	21165	21166	21167	21168	21169
0.0016917677	0.0016040078	0.0015666430	0.0013969424	0.0012376850	0.0016051061
21170	21171	21172	21173	21174	21175
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21176	21177	21178	21179	21180	21181
0.0018808248	0.0160989684	0.0029123627	0.0013397126	0.0011692103	0.0010327557
21182	21183	21184	21185	21186	21187
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21188	21189	21190	21191	21192	21193
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21194	21195	21196	21197	21198	21199
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21200	21201	21202	21203	21204	21205
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21206	21207	21208	21209	21210	21211
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21212	21213	21214	21215	21216	21217
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21218	21219	21220	21221	21222	21223
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21224	21225	21226	21227	21228	21229
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21236	21237	21238	21239	21240	21241
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21242	21243	21244	21245	21246	21247
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21248	21249	21250	21251	21252	21253
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21254	21255	21256	21257	21258	21259
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21260	21261	21262	21263	21264	21265
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21266	21267	21268	21269	21270	21271
0.0004422265	0.0006576940	0.0006684639	0.0004451747	0.0004586947	0.0005655949
21272	21273	21274	21275	21276	21277
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21278	21279	21280	21281	21282	21283
0.0003736182	0.0005025035	0.0005084945	0.0003833785	0.0003811353	0.0003827025
21284	21285	21286	21287	21288	21289
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21290	21291	21292	21293	21294	21295
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21296	21297	21298	21299	21300	21301
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21302	21303	21304	21305	21306	21307
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21308	21309	21310	21311	21312	21313
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21314	21315	21316	21317	21318	21319

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21320	21321	21322	21323	21324	21325
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21326	21327	21328	21329	21330	21331
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21332	21333	21334	21335	21336	21337
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21338	21339	21340	21341	21342	21343
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21344	21345	21346	21347	21348	21349
0.0010598651	0.0011603082	0.0007607643	0.0007412837	0.0075981385	0.0010632938
21350	21351	21352	21353	21354	21355
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21356	21357	21358	21359	21360	21361
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21362	21363	21364	21365	21366	21367
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21473	21474	21475	21476	21477	21478
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21479	21480	21481	21482	21483	21484
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21485	21486	21487	21488	21489	21490
0.0017758248	0.0029919293	0.0013083144	0.0012465500	0.0012678399	0.0014924368
21491	21492	21493	21494	21495	21496
0.0012879417	0.0014992966	0.0013047653	0.0022419889	0.0010380608	0.0008110542
21497	21498	21499	21500	21501	21502
0.0010799237	0.0017451784	0.0047779880	0.0016120026	0.0018744042	0.0016549189
21503	21504	21505	21506	21507	21508
0.0032948528	0.0009530692	0.0008930544	0.0008168485	0.0008013452	0.0010265167
21509	21510	21511	21512	21513	21514
0.0008005163	0.0008277892	0.0008844718	0.0021384203	0.0059157213	0.0014889640
21515	21516	21517	21518	21519	21520
0.0033793186	0.0014969431	0.0015885959	0.0019762926	0.0014435754	0.0016432168
21521	21522	21523	21524	21525	21526
0.0018385249	0.0028510218	0.0191624554	0.0447656198	0.0012383106	0.0110088768
21527	21528	21529	21530	21531	21532
0.0104753996	0.0020660903	0.0028992529	0.0014176786	0.0014401938	0.0086064676
21533	21534	21536	21537	21538	21539
0.0013704643	0.0021485482	0.0170534305	0.0074329705	0.0069872384	0.0080593365
21540	21541	21542	21543	21544	21545
0.0023460959	0.0020324569	0.0009509720	0.0007972392	0.0015600315	0.0008934880
21546	21547	21548	21549	21550	21551
0.0005264141	0.0009073987	0.0006406353	0.0010048569	0.0006771860	0.0006182572

21552	21553	21554	21555	21556	21557
0.0006990333	0.0006919322	0.0004534426	0.0014260495	0.0004934488	0.0006197516
21558	21559	21560	21561	21562	21563
0.0004048078	0.0004133608	0.0011779269	0.0004567680	0.0006682519	0.0003901448
21564	21565	21566	21567	21568	21569
0.0007100112	0.0007134592	0.0003953649	0.0004070844	0.0015201732	0.0029470002
21570	21571	21572	21573	21574	21575
0.0010923083	0.0021025672	0.0018795156	0.0023464329	0.0020023228	0.0009200005
21576	21577	21578	21579	21580	21581
0.0026859667	0.0007412620	0.0010109312	0.0006002250	0.0004399661	0.0006021957
21582	21583	21584	21585	21586	21587
0.0015728897	0.0004012106	0.0004710753	0.0004978353	0.0003875033	0.0006866794
21588	21589	21590	21591	21592	21593
0.0005022106	0.0011572577	0.0004487843	0.0005005495	0.0004478653	0.0004792406
21594	21595	21596	21597	21598	21599
0.0004648924	0.0019505460	0.0005845038	0.0005833900	0.0003940200	0.0003900289
21600	21601	21602	21603	21604	21605
0.0004028742	0.0005613945	0.0006430903	0.0007884638	0.0007760088	0.0007834778
21606	21607	21608	21609	21610	21611
0.0006769143	0.0006169533	0.0007025363	0.0014569578	0.0077449424	0.0088882253
21612	21613	21614	21615	21616	21617
0.0022168700	0.0021337626	0.0019939641	0.0020372254	0.0020311499	0.0019365168
21618	21619	21620	21621	21622	21623
0.0020230582	0.0021013824	0.0022651120	0.0024916856	0.0015464234	0.0025982844
21624	21625	21626	21627	21628	21629
0.0011818057	0.0011770834	0.0012339854	0.0022369080	0.0025401399	0.0014103573
21630	21631	21632	21633	21634	21635
0.0022596252	0.0032347726	0.0019629277	0.0023939648	0.0024372547	0.0016924757
21636	21637	21638	21639	21640	21641
0.0025948313	0.0023560054	0.0018783645	0.0027179466	0.0016641331	0.0115982059
21642	21643	21644	21645	21646	21647
0.0018307213	0.0020216859	0.0014531670	0.0019995269	0.0012347530	0.0031314668
21648	21649	21650	21651	21652	21653
0.0021670936	0.0026100385	0.0010636771	0.0011705633	0.0011428897	0.0010259257
21654	21655	21656	21657	21658	21659
0.0011657597	0.0013522292	0.0012148034	0.0009731640	0.0014080868	0.0009884229
21660	21661	21662	21663	21664	21665
0.0011871396	0.0012011444	0.0013994914	0.0014439913	0.0012416883	0.0019573310
21666	21667	21668	21669	21670	21671
0.0017886375	0.0018698802	0.0011088634	0.0010452651	0.0005423201	0.0036992930
21672	21673	21674	21675	21676	21677
0.0020033029	0.0009516289	0.0009525241	0.0009078666	0.0028824663	0.0006536621
21678	21679	21680	21681	21682	21683

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21684	21685	21686	21687	21688	21689
0.0009076785	0.0010046062	0.0008947704	0.0017253223	0.0010348662	0.0019178543
21690	21691	21692	21693	21694	21695
0.0025480265	0.0019279297	0.0019439426	0.0020955657	0.0012681433	0.0011928977
21696	21697	21698	21699	21700	21701
0.0007688028	0.0008012547	0.0007409753	0.0005585213	0.0005743838	0.0032746131
21702	21703	21704	21705	21706	21707
0.0005883947	0.0012659895	0.0037840556	0.0009652931	0.0009990643	0.0009661450
21708	21709	21710	21711	21712	21713
0.0015898948	0.0013765511	0.0010467944	0.0006860670	0.0016178065	0.0026720089
21714	21715	21716	21717	21718	21719
0.0004408201	0.0004144431	0.0016115414	0.0005032834	0.0010396101	0.0007526821
21720	21721	21722	21723	21724	21725
0.0005645730	0.0004106179	0.0007988824	0.0007936954	0.0008044028	0.0082127143
21726	21727	21728	21729	21730	21731
0.0009903991	0.0024603364	0.0018360487	0.0007749096	0.0008215326	0.0010758224
21732	21733	21734	21735	21736	21737
0.0014597932	0.0013215451	0.0013558048	0.0009554419	0.0011691890	0.0005679274
21738	21739	21740	21741	21742	21743
0.0006704566	0.0013989578	0.0004733415	0.0004647515	0.0004396714	0.0005558750
21744	21745	21746	21747	21748	21749
0.0004379721	0.0004625427	0.0003981238	0.0003978568	0.0004629051	0.0003786911
21750	21751	21752	21753	21754	21755
0.0004574358	0.0004992118	0.0004728189	0.0003977937	0.0004776209	0.0003762136
21756	21757	21758	21759	21760	21761
0.0004096120	0.0006929251	0.0003828114	0.0004745039	0.0004889779	0.0003845670
21762	21763	21764	21765	21766	21767
0.0004805560	0.0003804957	0.0008250830	0.0006429217	0.0007384234	0.0004223012
21768	21769	21770	21771	21772	21773
0.0003894835	0.0006127849	0.0047624240	0.0012810601	0.0026618936	0.0027449570
21774	21775	21776	21777	21778	21779
0.0031354068	0.0036329374	0.0036329374	0.0033052139	0.0036860048	0.0527458492
21781	21782	21783	21784	21785	21786
0.0008325277	0.0005146873	0.0004926096	0.0005227581	0.0005324628	0.0006423016
21787	21788	21789	21790	21791	21792
0.0009500131	0.0004740437	0.0011336513	0.0008539120	0.0004776332	0.0006639500
21793	21794	21795	21796	21797	21798
0.0008090004	0.0011125669	0.0020938364	0.0019875678	0.0014793145	0.0011483313
21799	21800	21801	21802	21803	21804
0.0013491011	0.0009310847	0.0011249074	0.0011231377	0.0007796179	0.0006768168
21805	21806	21807	21808	21809	21810
0.0007755542	0.0009746401	0.0009510033	0.0011510451	0.0005472372	0.0006990349

21811	21812	21813	21814	21815	21816
0.0008141061	0.0006571750	0.0005803766	0.0007800109	0.0009025042	0.0004718516
21817	21818	21819	21820	21821	21822
0.0006855508	0.0005199730	0.0004916438	0.0008145996	0.0007023993	0.0007698484
21823	21824	21825	21826	21827	21828
0.0022279996	0.0062371759	0.0010414848	0.0011500611	0.0008735973	0.0012298778
21829	21830	21831	21832	21833	21834
0.0006297998	0.0012136585	0.0005479533	0.0005670231	0.0005701179	0.0005969416
21835	21836	21837	21838	21839	21840
0.0009121903	0.0009142201	0.0020602384	0.0006953900	0.0008689071	0.0013697589
21841	21842	21843	21844	21845	21846
0.0013737912	0.0008404984	0.0033281444	0.0012942982	0.0023344713	0.0010012155
21847	21848	21849	21850	21851	21852
0.0008007129	0.0018597803	0.0010093840	0.0005999890	0.0005709305	0.0005537037
21853	21854	21855	21856	21857	21858
0.0005313563	0.0009649282	0.0009327402	0.0006934305	0.0008091852	0.0007510403
21859	21860	21861	21862	21863	21864
0.0007445962	0.0031178438	0.0093589065	0.0011511384	0.0007898945	0.0008983609
21865	21866	21867	21868	21869	21870
0.0010793289	0.0010026916	0.0018826944	0.0015149274	0.0008433963	0.0010734332
21871	21872	21873	21874	21875	21876
0.0022150268	0.0006825393	0.0011452494	0.0006162723	0.0029339248	0.0011315545
21877	21878	21879	21880	21881	22024
0.0031741425	0.0027236194	0.0029944356	0.0021597428	0.0022434257	0.0014207821
22025	22026	22027	22028	22029	22030
0.0031104720	0.0022670219	0.0015437404	0.0015225804	0.0011920596	0.0011701716
22031	22032	22033	22034	22035	22036
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22037	22038	22039	22040	22041	22042
0.0020721463	0.0011634012	0.0013438953	0.0009095012	0.0032124288	0.0021936578
22043	22044	22045	22046	22047	22048
0.0016634891	0.0022337076	0.0018342624	0.0016582338	0.0008549727	0.0008990914
22049	22050	22051	22052	22053	22054
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22055	22056	22057	22058	22059	22060
0.0027422168	0.0016751452	0.0016595890	0.0100129770	0.0114017268	0.0035590888
22061	22062	22063	22064	22065	22066
0.0030137753	0.0026307496	0.0036310075	0.0017991285	0.0125235438	0.0020349406
22067	22068	22069	22070	22071	22072
0.0111616753	0.0030138237	0.0015781603	0.0035737875	0.0022472922	0.0021842646
22073	22074	22075	22076	22077	22078
0.0013434598	0.0015812793	0.0011597107	0.0013568086	0.0020162641	0.0169265638
22079	22080	22081	22082	22083	22084

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22085	22086	22087	22088	22089	22090
0.0008321005	0.0010656972	0.0021297105	0.0007883393	0.0005953538	0.0005172683
22091	22092	22093	22094	22095	22096
0.0006181539	0.0005491874	0.0004132272	0.0004346465	0.0005713456	0.0007066315
22097	22098	22099	22100	22101	22102
0.0011017219	0.0003997542	0.0006121013	0.0005052248	0.0004138314	0.0005672815
22103	22104	22105	22106	22107	22108
0.0003820346	0.0014748298	0.0005768704	0.0007486644	0.0009933681	0.0004874645
22109	22110	22111	22112	22113	22114
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22115	22116	22117	22118	22119	22120
0.0024535135	0.0017854641	0.0009846224	0.0007945284	0.0013242119	0.0013680889
22121	22122	22123	22124	22125	22126
0.0012967140	0.0004881580	0.0006006134	0.0032943601	0.0006432388	0.0007474169
22127	22128	22129	22130	22131	22132
0.0004615811	0.0007647901	0.0004472605	0.0006184097	0.0004914915	0.0004031486
22133	22134	22135	22136	22137	22138
0.0007361674	0.0004852117	0.0006556790	0.0006614750	0.0004345004	0.0003943408
22139	22140	22141	22142	22143	22144
0.0020831617	0.0006622255	0.0003888536	0.0003885635	0.0075414782	0.0003862355
22145	22146	22147	22148	22149	22150
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22151	22152	22153	22154	22155	22158
0.0088264778	0.0019641492	0.0022045661	0.0025548263	0.0021267982	0.0031355303
22159	22160	22161	22162	22163	22164
0.0014170898	0.0012381651	0.0013889564	0.0018289602	0.0011690972	0.0015368608
22165	22166	22167	22168	22169	22170
0.0082381130	0.0023265263	0.0029057253	0.0015194245	0.0014457838	0.0014562250
22171	22172	22173	22174	22175	22176
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22177	22178	22179	22180	22181	22182
0.0017341192	0.0022469255	0.0016888411	0.0015649888	0.0016906410	0.0014775108
22183	22184	22185	22186	22187	22188
0.0039077863	0.0009755923	0.0011245271	0.0009835833	0.0009835838	0.0009727200
22189	22190	22191	22192	22193	22194
0.0016227074	0.0009786651	0.0009760093	0.0009902363	0.0009924666	0.0009843372
22195	22196	22197	22198	22199	22200
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22201	22202	22203	22204	22205	22206
0.0013350794	0.0013716385	0.0010245650	0.0009966687	0.0012113404	0.0008550091
22207	22208	22209	22210	22211	22212
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22213	22214	22215	22216	22217	22218
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22219	22220	22221	22222	22223	22224
0.0010104812	0.0010126451	0.0010198437	0.0014181793	0.0029780832	0.0007110300
22225	22226	22227	22228	22229	22230
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22231	22232	22233	22234	22235	22236
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22237	22238	22239	22240	22241	22242
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22243	22244	22245	22246	22247	22248
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22249	22250	22251	22252	22253	22254
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22255	22256	22257	22258	22259	22260
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22261	22262	22263	22264	22265	22266
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22267	22268	22269	22270	22271	22272
0.0026832783	0.0007915348	0.0004510464	0.0017729989	0.0014944362	0.0004688411
22273	22274	22275	22276	22277	22278
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22279	22280	22281	22282	22283	22284
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22285	22286	22287	22288	22289	22290
0.0003851487	0.0004070937	0.0007175119	0.0006206997	0.0006046824	0.0006383345
22291	22292	22293	22294	22295	22296
0.0008653516	0.0023252492	0.0059043882	0.0026138080	0.0025509599	0.0033345080
22297	22299	22300	22301	22302	22303
0.0027381292	0.0597387027	0.0019551689	0.0009296405	0.0008101024	0.0005500770
22304	22305	22306	22307	22308	22309
0.0012210278	0.0007271613	0.0004734056	0.0004735669	0.0004743800	0.0007390952
22310	22311	22312	22313	22314	22315
0.0028180821	0.0030130448	0.0010233137	0.0009055167	0.0017031481	0.0016121584
22316	22317	22318	22319	22320	22321
0.0013642334	0.0016002888	0.0021869655	0.0011169566	0.0011734852	0.0008758384
22322	22323	22324	22325	22326	22327
0.0008350278	0.0021901155	0.0037991273	0.0006557062	0.0005189549	0.0008644205
22328	22329	22330	22331	22332	22333
0.0017131892	0.0006168393	0.0005685646	0.0007896933	0.0004977361	0.0004794080
22334	22335	22336	22337	22338	22339
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22340	22341	22342	22343	22344	22345

0.0006833967	0.0011303078	0.0006970803	0.0009803633	0.0007328417	0.0023689478
22346	22347	22348	22349	22350	22351
0.0006761590	0.0077270483	0.0006277915	0.0008937896	0.0005678996	0.0009273919
22352	22353	22354	22355	22356	22357
0.0008721756	0.0009621425	0.0012182819	0.0013946755	0.0010510420	0.0016804452
22358	22359	22360	22361	22362	22363
0.0009446349	0.0013825894	0.0009628408	0.0009072387	0.0009804516	0.0009494623
22364	22365	22366	22367	22368	22369
0.0005595261	0.0018890371	0.0007841181	0.0008782812	0.0007760442	0.0028186118
22370	22371	22372	22373	22374	22375
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22376	22377	22378	22379	22380	22381
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22382	22384	22385	22386	22387	22388
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22389	22390	22391	22509	22510	22511
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22512	22513	22514	22515	22516	22517
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22518	22519	22520	22521	22522	22523
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22524	22525	22526	22527	22528	22529
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22530	22531	22532	22533	22534	22535
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22536	22537	22538	22539	22540	22541
0.0307961343	0.0126293821	0.0019354593	0.0150737752	0.0015235040	0.0017997235
22542	22543	22544	22545	22546	22547
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22548	22549	22550	22551	22552	22553
0.0054243513	0.0015858569	0.0026023644	0.0098909717	0.0014567213	0.0013563348
22554	22555	22557	22558	22559	22560
0.0013784736	0.0023544163	0.0017244593	0.0079286011	0.0075717178	0.0081298060
22561	22562	22563	22564	22565	22566
0.0078236907	0.0067315206	0.0078996177	0.0007952720	0.0016134612	0.0016939877
22567	22568	22569	22570	22571	22572
0.0006186173	0.0042531273	0.0014289615	0.0004544434	0.0003930485	0.0008222935
22573	22574	22575	22576	22577	22578
0.0021861200	0.0005852391	0.0006537018	0.0003805869	0.0005923543	0.0003947528
22579	22580	22581	22582	22583	22584
0.0003797748	0.0007036803	0.0006282584	0.0008720447	0.0007138782	0.0005054601
22585	22586	22587	22588	22589	22590
0.0006912395	0.0005616656	0.0004541024	0.0006389796	0.0004077320	0.0004761781

22591	22592	22593	22594	22595	22596
0.0005599983	0.0005098183	0.0007790614	0.0007032017	0.0003880459	0.0003920865
22597	22598	22599	22600	22601	22602
0.0004866777	0.0003929937	0.0076310016	0.0010271109	0.0004039803	0.0004203659
22603	22604	22605	22606	22607	22608
0.0004065793	0.0010317855	0.0023435015	0.0126534888	0.0022714048	0.0023148350
22609	22611	22612	22613	22614	22615
0.0021046045	0.0021743403	0.0012300302	0.0016451199	0.0017194110	0.0018942276
22616	22617	22618	22619	22620	22621
0.0013984797	0.0015431155	0.0028279342	0.0023007665	0.0014789678	0.0019016740
22622	22623	22624	22625	22626	22627
0.0023796920	0.0025663515	0.0019584807	0.0018396392	0.0024912731	0.0024719816
22628	22629	22630	22631	22632	22633
0.0019680181	0.0020801829	0.0015207126	0.0017175986	0.0025736418	0.0013502515
22634	22635	22636	22637	22638	22639
0.0013436104	0.0010043634	0.0015874404	0.0010627129	0.0009929799	0.0009597108
22640	22641	22642	22643	22644	22645
0.0013507242	0.0011840544	0.0009786180	0.0011855860	0.0010240588	0.0012130176
22646	22647	22648	22649	22650	22651
0.0015446580	0.0015489160	0.0011817887	0.0011825992	0.0011929048	0.0013281860
22652	22653	22654	22655	22656	22657
0.0009764825	0.0018124217	0.0008656601	0.0018121299	0.0022907744	0.0009849080
22658	22659	22660	22661	22662	22663
0.0006940647	0.0007151671	0.0005936384	0.0005487890	0.0005815568	0.0009542316
22664	22665	22666	22667	22668	22669
0.0015926513	0.0126349276	0.0014452389	0.0010679571	0.0009752069	0.0009255891
22670	22671	22672	22673	22674	22675
0.0012340523	0.0017355019	0.0025484372	0.0010955615	0.0011818445	0.0009839454
22676	22677	22678	22679	22680	22681
0.0012424106	0.0014984722	0.0012324893	0.0028759500	0.0007196876	0.0022592006
22682	22683	22684	22685	22686	22687
0.0005721538	0.0009831581	0.0008286561	0.0017034148	0.0008106261	0.0010347482
22688	22689	22690	22691	22692	22693
0.0010565118	0.0014355864	0.0007575298	0.0007087772	0.0005732156	0.0008698026
22694	22695	22696	22697	22698	22699
0.0007665525	0.0008907522	0.0066801093	0.0010044002	0.0029704125	0.0017412837
22700	22701	22702	22703	22704	22705
0.0014615507	0.0007327893	0.0007043000	0.0006246206	0.0014500862	0.0006168994
22706	22707	22708	22709	22710	22711
0.0004532962	0.0006473578	0.0016414984	0.0006150224	0.0003898798	0.0006622309
22712	22713	22714	22715	22716	22717
0.0004542023	0.0006269739	0.0006332651	0.0007264485	0.0003794927	0.0004062866
22718	22719	22720	22721	22722	22723

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22724	22725	22726	22727	22728	22729
0.0018024379	0.0028448610	0.0186642127	0.0021275121	0.0015100139	0.0016075683
22730	22731	22732	22733	22734	22735
0.0010729809	0.0013273508	0.0009558450	0.0005961236	0.0009951443	0.0005082868
22736	22737	22738	22739	22740	22741
0.0008287489	0.0004523038	0.0009824702	0.0004447521	0.0004507602	0.0006682667
22742	22743	22744	22745	22746	22747
0.0015960321	0.0007250491	0.0004664917	0.0007685265	0.0003970471	0.0004625882
22748	22749	22750	22751	22752	22753
0.0004740480	0.0003778267	0.0004981796	0.0009489032	0.0007332050	0.0003887839
22754	22755	22756	22757	22758	22759
0.0006077479	0.0003938250	0.0003832317	0.0509967644	0.0003995089	0.0003896344
22760	22761	22762	22763	22764	22765
0.0024298473	0.0013392697	0.0029715584	0.0031424690	0.0032095725	0.0032834338
22766	22767	22768	22769	22770	22771
0.0029938388	0.0029545443	0.0010724440	0.0076941858	0.0005590573	0.0012955245
22772	22773	22774	22775	22776	22777
0.0005682388	0.0004744526	0.0004722829	0.0004830542	0.0008104695	0.0005084876
22778	22779	22780	22781	22782	22783
0.0007032852	0.0013317981	0.0011326326	0.0035379771	0.0011473322	0.0010736833
22784	22785	22786	22787	22788	22789
0.0008490845	0.0045222456	0.0007232790	0.0005667463	0.0006467560	0.0008217445
22790	22791	22792	22793	22794	22795
0.0008448013	0.0005255890	0.0005367543	0.0006114916	0.0009783692	0.0012209937
22796	22797	22798	22799	22800	22801
0.0007910931	0.0005114059	0.0005767806	0.0008415641	0.0005809128	0.0007353232
22802	22803	22804	22805	22806	22807
0.0009163679	0.0004844041	0.0005069210	0.0004838856	0.0005994479	0.0004939735
22808	22809	22810	22811	22812	22813
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22814	22815	22816	22817	22818	22819
0.0008369972	0.0010971033	0.0006996765	0.0008889475	0.0008451227	0.0075819372
22820	22821	22822	22823	22824	22825
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22826	22827	22828	22829	22830	22831
0.0022091677	0.0010710256	0.0011774354	0.0009812290	0.0019055605	0.0009934822
22832	22833	22834	22835	22836	22837
0.0013608815	0.0016233973	0.0016304587	0.0010806063	0.0010777300	0.0007326320
22838	22839	22840	22841	22842	22843
0.0020651680	0.0006119909	0.0005813609	0.0009987886	0.0007931680	0.0007010471
22844	22845	22846	22847	22848	22849
0.0008032244	0.0012330648	0.0007781510	0.0009545935	0.0010037639	0.0011693517

22850	22851	22852	22853	22854	22855
0.0010707824	0.0012340269	0.0014506231	0.0077955856	0.0008236088	0.0013103850
22856	22857	22858	22859	22860	22861
0.0011131151	0.0006806036	0.0007863405	0.0005590205	0.0005463089	0.0059264053
22862	22863	22864	22865	22866	22867
0.0025704642	0.0023921888	0.0024912543	0.0032898507	0.0170377006	0.0027919810
22868	22869	22974	22975	22976	22977
0.0039951995	0.0029006503	0.0012366357	0.0025840226	0.0022276814	0.0017445801
22978	22979	22980	22981	22982	22983
0.0013167759	0.0011544948	0.0011575237	0.0011367533	0.0023127137	0.0009224742
22984	22985	22986	22987	22988	22989
0.0013563605	0.0010750387	0.0012079144	0.0009438947	0.0014803231	0.0016086628
22990	22991	22992	22993	22994	22995
0.0018571731	0.0013874734	0.0010821601	0.0010833508	0.0011481903	0.0008679914
22996	22997	22998	22999	23000	23001
0.0032948411	0.0009342798	0.0009229753	0.0008039390	0.0011973227	0.0008079646
23002	23003	23004	23005	23006	23007
0.0008271111	0.0011845885	0.0010625943	0.0015994658	0.0420444411	0.0108439293
23008	23009	23010	23011	23012	23013
0.0025524808	0.0017081219	0.0032115511	0.0020208204	0.0013581892	0.0026229162
23014	23015	23016	23017	23018	23019
0.0151888735	0.0019493392	0.0017166931	0.0012224771	0.0014896010	0.0015551078
23020	23021	23022	23023	23024	23025
0.0019651583	0.0014759713	0.0177294923	0.0012276365	0.0042160479	0.0014130502
23026	23027	23028	23029	23030	23031
0.0015391773	0.0022833849	0.0012052563	0.0028247812	0.0017552873	0.0013380687
23033	23034	23035	23036	23037	23038
0.0029052576	0.0026093456	0.0070937930	0.0007152542	0.0008825133	0.0006191684
23039	23040	23041	23042	23043	23044
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23045	23046	23047	23048	23049	23050
0.0005700436	0.0003841733	0.0003895844	0.0006291401	0.0006412368	0.0003845846
23051	23052	23053	23054	23055	23056
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23057	23058	23059	23060	23061	23062
0.0008278607	0.0008111486	0.0008114570	0.0015334640	0.0023470904	0.0024546945
23063	23064	23065	23066	23067	23068
0.0012557332	0.0009692605	0.0014346980	0.0007410875	0.0005460761	0.0004986748
23069	23070	23071	23072	23073	23074
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23075	23076	23077	23078	23079	23080
0.0004083532	0.0005890015	0.0005518682	0.0006353489	0.0015155060	0.0006353251
23081	23082	23083	23084	23085	23086

0.0006174293	0.0045756696	0.0020431406	0.0021229944	0.0021004698	0.0021399588
23087	23088	23089	23090	23091	23092
0.0021915095	0.0019429527	0.0018408245	0.0013316190	0.0028874694	0.0017511689
23093	23094	23095	23096	23097	23098
0.0016137729	0.0015452263	0.0014691160	0.0025355776	0.0020969471	0.0021451716
23099	23100	23101	23102	23103	23104
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23105	23106	23110	23111	23112	23113
0.0034345097	0.0016859426	0.0086935557	0.0017124311	0.0032146799	0.0016635905
23114	23115	23116	23117	23118	23119
0.0017519998	0.0009779527	0.0010472115	0.0009606223	0.0010093423	0.0010194483
23120	23121	23122	23123	23124	23125
0.0011713275	0.0019950357	0.0018293868	0.0012614362	0.0014045095	0.0009082208
23126	23127	23128	23129	23130	23131
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23132	23133	23134	23135	23136	23137
0.0008892715	0.0007548905	0.0020913315	0.0014481482	0.0013022899	0.0014288564
23138	23139	23140	23141	23142	23143
0.0010329226	0.0012861134	0.0020398504	0.0020367777	0.0010967835	0.0013561361
23144	23145	23146	23147	23148	23149
0.0014861958	0.0011667529	0.0013102611	0.0011785811	0.0010182800	0.0007734077
23150	23151	23152	23153	23154	23155
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23156	23157	23158	23159	23160	23161
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23162	23163	23164	23165	23166	23167
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23168	23169	23170	23171	23172	23173
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23174	23175	23176	23177	23178	23179
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23180	23181	23182	23183	23184	23185
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23186	23187	23188	23189	23190	23191
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23192	23193	23194	23195	23196	23197
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23198	23199	23200	23201	23202	23203
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23204	23205	23206	23207	23208	23209
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23210	23211	23212	23213	23214	23215
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23216	23217	23218	23219	23220	23221
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23222	23223	23224	23225	23226	23227
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23228	23229	23230	23231	23232	23233
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23234	23235	23236	23237	23238	23239
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23240	23241	23242	23243	23244	23245
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23246	23247	23248	23249	23250	23251
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23258	23259	23260	23261	23262	23263
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23270	23271	23272	23273	23274	23275
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23276	23277	23278	23279	23280	23281
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23282	23283	23284	23285	23286	23287
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23288	23289	23290	23291	23373	23374
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23375	23376	23377	23378	23379	23380
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23381	23382	23383	23384	23385	23386
0.0015700632	0.0013163024	0.0020982146	0.0012254923	0.0023182028	0.0008203502
23387	23388	23389	23390	23391	23392
0.0008157779	0.0011736055	0.0016530793	0.0016287975	0.0009258942	0.0008434651
23393	23394	23395	23396	23397	23398
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23399	23400	23401	23402	23403	23404
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23405	23406	23407	23408	23409	23410
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23411	23412	23413	23414	23415	23416
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23417	23418	23419	23420	23421	23422
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23423	23424	23425	23426	23427	23428

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23429	23430	23431	23432	23433	23434
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23435	23436	23437	23438	23439	23440
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23441	23442	23443	23444	23445	23446
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23447	23448	23449	23450	23451	23452
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23453	23454	23455	23456	23457	23458
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23465	23466	23467	23468	23469	23470
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23471	23472	23473	23474	23475	23476
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23477	23478	23479	23480	23481	23482
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23483	23484	23485	23486	23487	23488
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23489	23490	23491	23492	23493	23494
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23495	23496	23497	23498	23499	23500
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23501	23502	23503	23504	23505	23506
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23507	23508	23509	23510	23511	23512
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23513	23514	23515	23516	23517	23518
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23519	23520	23521	23522	23523	23524
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23525	23526	23527	23528	23529	23530
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23531	23532	23533	23534	23535	23536
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23537	23538	23539	23540	23541	23542
0.0010030092	0.0004694012	0.0019097456	0.0008835932	0.0014070240	0.0004650215
23543	23544	23545	23546	23547	23548
0.0004445469	0.0004585035	0.0008834712	0.0004715970	0.0007752871	0.0004829795
23549	23550	23551	23552	23553	23554
0.0004640977	0.0007139666	0.0006142561	0.0004040615	0.0003872149	0.0008005359

23555	23556	23557	23558	23559	23560
0.0045362361	0.0027068069	0.0026149366	0.0027992197	0.0042546783	0.0032709872
23561	23562	23563	23564	23565	23566
0.0030784763	0.0011801200	0.0011095887	0.0008865879	0.0006047999	0.0004780494
23567	23568	23569	23570	23571	23572
0.0035145078	0.0019258670	0.0010601843	0.0013016277	0.0008958972	0.0014513105
23573	23574	23575	23576	23577	23578
0.0011246788	0.0010948343	0.0006820123	0.0007560590	0.0006497366	0.0007179044
23579	23580	23581	23582	23583	23584
0.0006910278	0.0007639653	0.0007455497	0.0006655294	0.0005808585	0.0011000256
23585	23586	23587	23588	23589	23590
0.0012170377	0.0006643362	0.0005086457	0.0009177141	0.0005042914	0.0007302446
23591	23592	23593	23594	23595	23596
0.0006873005	0.0006939809	0.0031453891	0.0081005427	0.0008166792	0.0010686586
23597	23598	23599	23600	23601	23602
0.0023100295	0.0008718804	0.0015514245	0.0012973612	0.0009027380	0.0015869357
23603	23604	23605	23606	23607	23608
0.0011760635	0.0013037258	0.0202515683	0.0013727546	0.0014138779	0.0012764794
23609	23610	23611	23612	23613	23614
0.0011795778	0.0008345083	0.0005852138	0.0008362655	0.0009031994	0.0005521290
23615	23616	23617	23618	23619	23620
0.0007046619	0.0010563711	0.0030443847	0.0011693999	0.0010642974	0.0013971029
23621	23622	23623	23624	23625	23626
0.0013147663	0.0010578750	0.0062183877	0.0028914431	0.0023806699	0.0029813043
23627	23717	23718	23719	23720	23721
0.0025620060	0.0023243937	0.0011685110	0.0011529741	0.0017120521	0.0014464135
23722	23723	23724	23725	23726	23727
0.0012652592	0.0015358524	0.0013128334	0.0011677229	0.0010805716	0.0017207279
23728	23729	23730	23731	23732	23733
0.0088567825	0.0019099677	0.0017813366	0.0009077585	0.0010277961	0.0008111270
23734	23735	23736	23737	23738	23739
0.0016821556	0.0039910880	0.0042116273	0.0017581049	0.0015113582	0.0015450026
23740	23741	23742	23743	23744	23746
0.0013580389	0.0033817881	0.0016363508	0.0013826090	0.0015979976	0.0064836808
23747	23748	23749	23750	23751	23752
0.0121403606	0.0457931635	0.0070481228	0.0073808357	0.0006221828	0.0005552369
23753	23754	23755	23756	23757	23758
0.0007544430	0.0005000078	0.0006070035	0.0009240287	0.0011486473	0.0005710687
23759	23760	23761	23762	23763	23764
0.0003898584	0.0004098185	0.0004053704	0.0004113697	0.0005919789	0.0011237941
23765	23766	23767	23768	23769	23770
0.0027295704	0.0035410733	0.0030741699	0.0011869625	0.0027634640	0.0017764806
23771	23772	23773	23774	23775	23776

0.0013926784	0.0009460244	0.0007096251	0.0006278236	0.0007112771	0.0021883629
23777	23778	23779	23780	23781	23782
0.0019597040	0.0004146591	0.0005050696	0.0003960541	0.0004185576	0.0004243164
23783	23784	23785	23786	23787	23788
0.0006965054	0.0004046612	0.0128171047	0.0088504002	0.0026307010	0.0028506506
23789	23790	23791	23792	23793	23794
0.0028133145	0.0024130722	0.0017301781	0.0020018587	0.0015163821	0.0011755106
23795	23796	23797	23798	23799	23800
0.0014009323	0.0013670989	0.0029656818	0.0016958386	0.0029890785	0.0021212614
23801	23802	23803	23804	23805	23806
0.0014411594	0.0018037148	0.0022343878	0.0022534846	0.0026055680	0.0016221135
23807	23808	23809	23810	23811	23812
0.0064713043	0.0013014932	0.0010890589	0.0029383203	0.0014623954	0.0015108469
23813	23814	23815	23816	23817	23818
0.0010549063	0.0011941262	0.0010235499	0.0009824916	0.0013456211	0.0010303245
23819	23820	23821	23822	23823	23824
0.0015442611	0.0011542694	0.0011607967	0.0009869364	0.0030307068	0.0009785087
23825	23826	23827	23828	23829	23830
0.0014454197	0.0011376968	0.0018009325	0.0102056803	0.0016838462	0.0005527174
23831	23832	23833	23834	23835	23836
0.0020955611	0.0020674632	0.0012874057	0.0014389712	0.0010064490	0.0021377701
23837	23838	23839	23840	23841	23842
0.0010619563	0.0014057328	0.0010530453	0.0014853614	0.0020686441	0.0009717660
23843	23844	23845	23846	23847	23848
0.0007225847	0.0005351425	0.0006325839	0.0008301601	0.0008133919	0.0012776922
23849	23850	23851	23852	23853	23854
0.0009328226	0.0009659085	0.0010281766	0.0013160154	0.0006694140	0.0018703745
23855	23856	23857	23858	23859	23860
0.0006765396	0.0010674448	0.0005285223	0.0004677729	0.0006908557	0.0007733087
23861	23862	23863	23864	23865	23866
0.0015106370	0.0014411289	0.0010222464	0.0010984409	0.0007534766	0.0004863938
23867	23868	23869	23870	23871	23872
0.0004665440	0.0007527362	0.0007521613	0.0004486451	0.0006974383	0.0007936046
23873	23874	23875	23876	23877	23878
0.0006776312	0.0004137370	0.0004693545	0.0004644201	0.0005954210	0.0003887462
23879	23880	23881	23882	23883	23884
0.0004706438	0.0003836075	0.0006042547	0.0006051926	0.0006220945	0.0004021350
23885	23886	23887	23888	23889	23890
0.0003937144	0.0003971576	0.0003942507	0.0006272102	0.0007244569	0.0026313968
23891	23892	23893	23895	23896	23897
0.0019361119	0.0026705239	0.0032691797	0.0029613700	0.0018567045	0.0013449383
23898	23899	23900	23901	23902	23903
0.0007941002	0.0005636016	0.0005666983	0.0005993657	0.0005025431	0.0005206614

23904	23905	23906	23907	23908	23909
0.0027633466	0.0007421362	0.0004964589	0.0008091596	0.0010769945	0.0006942929
23910	23911	23912	23913	23914	23915
0.0009426138	0.0013169331	0.0013417902	0.0015722846	0.0014111566	0.0007287457
23916	23917	23918	23919	23920	23921
0.0022734242	0.0008524006	0.0007051608	0.0006531349	0.0032755159	0.0006117857
23922	23923	23924	23925	23926	23927
0.0005278695	0.0005014277	0.0007467618	0.0005718064	0.0005978804	0.0008033347
23928	23929	23930	23931	23932	23933
0.0007586902	0.0028013857	0.0006061278	0.0005793365	0.0005750287	0.0007013582
23934	23935	23936	23937	23938	23939
0.0005906952	0.0005039850	0.0006801224	0.0005031992	0.0004940538	0.0011202701
23940	23942	23943	23944	23945	23946
0.0012508838	0.0013522575	0.0007801527	0.0009584966	0.0006653578	0.0007453859
23947	23948	23949	23950	23951	23952
0.0015910738	0.0023506192	0.0086113132	0.0008867820	0.0015832551	0.0082988025
23953	23954	23955	23956	23957	23958
0.0018306583	0.0009164401	0.0011209933	0.0019465571	0.0006782830	0.0006013012
23959	23960	23961	23962	23963	23964
0.0007889026	0.0007099751	0.0013820821	0.0008336633	0.0008273274	0.0011433036
23965	23966	23967	23968	23969	23970
0.0012204898	0.0010450342	0.0016056169	0.0032030026	0.0028680110	0.0028134911
24066	24067	24068	24069	24070	24071
0.0017346937	0.0013782008	0.0082279327	0.0019426548	0.0013073048	0.0014983681
24072	24073	24074	24075	24076	24077
0.0021829824	0.0017934026	0.0042355764	0.0020108344	0.0016481594	0.0020455488
24078	24079	24080	24081	24082	24083
0.0024894005	0.0014530672	0.0011810280	0.0022459311	0.0008182385	0.0008073413
24084	24085	24086	24087	24088	24089
0.0031743026	0.0010244873	0.0010206762	0.0008294010	0.0008835227	0.0011755522
24090	24091	24092	24093	24094	24095
0.0008360134	0.0011173699	0.0049231159	0.0017401288	0.0030330107	0.0016381707
24096	24097	24098	24099	24100	24101
0.0026658973	0.0041834143	0.0013547506	0.0014775641	0.0014382485	0.0040033542
24102	24103	24104	24105	24106	24107
0.0013492219	0.0014851234	0.0021854240	0.0013778093	0.0014845057	0.0019646873
24109	24110	24111	24112	24113	24114
0.0072083306	0.0039490082	0.0017292894	0.0011245112	0.0004929945	0.0004322009
24115	24116	24117	24118	24119	24120
0.0006562447	0.0004858275	0.0004131755	0.0004936701	0.0003914703	0.0176679272
24121	24122	24123	24124	24125	24126
0.0037184476	0.0014369538	0.0015039500	0.0014984654	0.0016013220	0.0006187239
24127	24128	24129	24130	24131	24132

0.0014734090	0.0007902470	0.0005549146	0.0004613222	0.0006366366	0.0005181224
24133	24134	24135	24136	24137	24138
0.0004998350	0.0008320650	0.0010702539	0.0024809776	0.0012906351	0.0084686121
24139	24140	24141	24142	24143	24144
0.0024531649	0.0106375189	0.0024013827	0.0025336118	0.0029235898	0.0030710831
24145	24146	24147	24148	24149	24150
0.0023239868	0.0012424672	0.0011867874	0.0015391579	0.0023393305	0.0018584074
24151	24152	24153	24154	24155	24156
0.0022081435	0.0019810738	0.0025765270	0.0016859644	0.0027114110	0.0020455327
24157	24158	24159	24161	24162	24163
0.0017771014	0.0032849394	0.0014685555	0.0026213974	0.0012828332	0.0025641367
24164	24165	24166	24167	24168	24169
0.0014315554	0.0014500210	0.0015354014	0.0009845103	0.0013134513	0.0014459456
24170	24171	24172	24173	24174	24175
0.0027853344	0.0006775855	0.0010612653	0.0008427314	0.0011687432	0.0019693668
24176	24177	24178	24179	24180	24181
0.0010475409	0.0025238036	0.0010816821	0.0017586169	0.0018262802	0.0019951857
24182	24183	24184	24185	24186	24187
0.0014296571	0.0010628000	0.0010540866	0.0005917795	0.0007031683	0.0005397941
24188	24189	24190	24191	24192	24193
0.0008033018	0.0006981480	0.0008118294	0.0029300267	0.0009179560	0.0013702709
24194	24195	24196	24197	24198	24199
0.0006634726	0.0006405099	0.0007125212	0.0006344211	0.0004331033	0.0005114196
24200	24201	24202	24203	24204	24205
0.0006224275	0.0011103936	0.0017351196	0.0021787082	0.0004732492	0.0004158238
24206	24207	24208	24209	24210	24211
0.0004754939	0.0007853578	0.0004739155	0.0016518827	0.0004508876	0.0005201366
24212	24213	24214	24215	24216	24217
0.0005180199	0.0007857025	0.0006893662	0.1396993325	0.0008194823	0.0003951556
24218	24219	24220	24221	24222	24223
0.0006159375	0.0065615533	0.0110804852	0.0037549914	0.0027989022	0.0005774488
24224	24225	24226	24227	24228	24229
0.0006223999	0.0029232070	0.0012681446	0.0017390338	0.0005982061	0.0008351784
24230	24231	24232	24233	24234	24235
0.0009128791	0.0031113374	0.0008486599	0.0022660226	0.0009880257	0.0006314520
24236	24237	24238	24239	24240	24241
0.0005847311	0.0009177832	0.0028013690	0.0006128217	0.0006861045	0.0009960155
24242	24243	24244	24245	24246	24247
0.0006361774	0.0012777769	0.0019245886	0.0007767135	0.0006558497	0.0010606774
24248	24249	24250	24251	24252	24253
0.0005987735	0.0009812769	0.0011242029	0.0017055918	0.0023068023	0.0017136744
24254	24255	24256	24257	24258	24259
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24260	24261	24262	24263	24264	24266
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24267	24268	24269	24270	24271	24272
0.0050027013	0.0033404238	0.0053415547	0.0027759335	0.0024616113	0.0028160943
24273	24274	24275	24276	24352	24353
0.0025516989	0.0024515781	0.0028506246	0.0024854734	0.0016492473	0.0016184955
24354	24355	24356	24357	24358	24359
0.0014267869	0.0015344871	0.0023042408	0.0026966383	0.0015319190	0.0021303557
24360	24361	24362	24363	24364	24365
0.0016871078	0.0045324828	0.0014541924	0.0025266537	0.0020105154	0.0010564264
24366	24367	24368	24369	24370	24371
0.0008899447	0.0012113396	0.0008373116	0.0010983947	0.0016619660	0.0017754556
24372	24373	24374	24375	24376	24377
0.0021502854	0.0026198664	0.0016983291	0.0014096918	0.0026268098	0.0014724764
24378	24379	24380	24381	24382	24383
0.0519430207	0.0030660664	0.0088543089	0.0457820239	0.0069352308	0.0021650625
24384	24385	24386	24387	24388	24389
0.0007108929	0.0006543181	0.0004212103	0.0004671534	0.0004208132	0.0010482772
24390	24391	24392	24393	24394	24395
0.0010611932	0.0009435711	0.0013410778	0.0012662238	0.0024308739	0.0010617302
24396	24397	24398	24399	24400	24401
0.0015751751	0.0036284036	0.0008494057	0.0004812449	0.0008614847	0.0005208172
24402	24403	24404	24405	24406	24407
0.0008148391	0.0021443799	0.0026239301	0.0019717761	0.0019930717	0.0019635604
24408	24409	24410	24411	24412	24413
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24414	24415	24416	24417	24418	24419
0.0019151408	0.0016305852	0.0014923107	0.0014278645	0.0031153198	0.0018594310
24420	24421	24422	24423	24424	24425
0.0018820471	0.0023091441	0.0010833569	0.0014851070	0.0010632248	0.0024690835
24426	24427	24428	24429	24430	24431
0.0009741541	0.0006655088	0.0006977027	0.0010741734	0.0010965494	0.0016069006
24432	24433	24434	24435	24436	24437
0.0010011503	0.0009131285	0.0011405463	0.0009005867	0.0015787433	0.0007257553
24438	24439	24440	24441	24442	24443
0.0007945534	0.0007776380	0.0005604292	0.0009122296	0.0027359255	0.0062534544
24444	24445	24446	24447	24448	24449
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24450	24451	24452	24453	24454	24455
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24456	24457	24458	24459	24460	24461
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24462	24463	24464	24465	24466	24467

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24468	24469	24470	24471	24472	24473
0.0007566762	0.0008146994	0.0013049612	0.0027088865	0.0038294233	0.0020198233
24474	24475	24476	24477	24478	24479
0.0006207111	0.0005723620	0.0006497018	0.0006259585	0.0012254734	0.0008740134
24480	24481	24482	24483	24484	24485
0.0011339429	0.0026658082	0.0019765962	0.0023217293	0.0019844924	0.0033327177
24486	24487	24488	24489	24490	24491
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24492	24493	24494	24495	24496	24497
0.0058682839	0.0010188100	0.0009084638	0.0009030148	0.0010854310	0.0018121052
24498	24499	24500	24501	24502	24503
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24504	24505	24506	24507	24508	24510
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24511	24512	24583	24584	24585	24586
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24587	24588	24589	24590	24591	24592
0.0013886432	0.0011366347	0.0014180730	0.0014503069	0.0017487285	0.0010450479
24593	24594	24595	24596	24597	24598
0.0018954321	0.0019149399	0.0019059188	0.0014738263	0.0009263484	0.0011533962
24599	24600	24601	24602	24603	24604
0.0016294862	0.0022551022	0.0019571221	0.0032285381	0.0019064960	0.0014057551
24605	24606	24607	24608	24609	24610
0.0015346503	0.0023455704	0.0012898985	0.0016081044	0.0006566430	0.0007919408
24611	24612	24613	24614	24615	24616
0.0004801177	0.0006283190	0.0004907029	0.0005553316	0.0529527304	0.0073648819
24617	24618	24619	24620	24621	24622
0.0014872245	0.0010567439	0.0009240120	0.0018091719	0.0005213221	0.0004929425
24623	24624	24625	24626	24627	24628
0.0004791336	0.0005136755	0.0003902549	0.0007949551	0.0008003090	0.0024430801
24629	24630	24631	24632	24633	24634
0.0007945066	0.0022554520	0.0027533818	0.0031249642	0.0025099901	0.0020993924
24635	24636	24637	24638	24639	24640
0.0014245991	0.0013964335	0.0018435188	0.0015240283	0.0015053486	0.0017253178
24641	24642	24643	24644	24645	24646
0.0015436332	0.0017686385	0.0084294708	0.0016846820	0.0040501346	0.0019932942
24647	24648	24649	24650	24651	24652
0.0023219436	0.0019971018	0.0019463748	0.0015010289	0.0026385741	0.0019113953
24653	24654	24655	24656	24657	24658
0.0015630429	0.0009897392	0.0013929138	0.0012102004	0.0006533887	0.0018583253
24659	24660	24661	24662	24663	24664
0.0008642576	0.0021135463	0.0008971316	0.0011028933	0.0008317805	0.0005601418

24665	24666	24667	24668	24669	24670
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24671	24672	24673	24674	24675	24676
0.0007368833	0.0007613255	0.0014455738	0.0006506237	0.0008947358	0.0003878166
24677	24678	24679	24680	24681	24682
0.0082202253	0.0009939924	0.0010146053	0.0023944329	0.0009095075	0.0014527142
24683	24684	24685	24686	24687	24688
0.0009929148	0.0004506729	0.0004279570	0.0005795875	0.0004568338	0.0009326892
24689	24690	24691	24692	24693	24694
0.0004030329	0.0005223043	0.0005085252	0.0007465354	0.0007086352	0.0006224187
24695	24696	24697	24698	24699	24700
0.0031788373	0.0032884452	0.0093555643	0.0170027269	0.0008065388	0.0009931234
24701	24702	24703	24704	24705	24706
0.0011133009	0.0006084194	0.0007685457	0.0004967193	0.0022128941	0.0013999672
24707	24708	24709	24710	24711	24712
0.0016127384	0.0010351131	0.0010926575	0.0008783664	0.0009322627	0.0009705128
24713	24714	24715	24716	24717	24718
0.0006496979	0.0009386655	0.0005891448	0.0005737095	0.0006241091	0.0009573205
24719	24720	24721	24722	24723	24724
0.0008278452	0.0006934544	0.0007176910	0.0038446253	0.0008166770	0.0014037258
24725	24726	24727	24728	24729	24730
0.0025495581	0.0009420085	0.0007015335	0.0011389863	0.0006019959	0.0007946739
24731	24732	24733	24734	24735	24736
0.0015871589	0.0007483811	0.0009573836	0.0007757483	0.0014110614	0.0066263111
24737	24738	24739	24790	24791	24792
0.0184649834	0.0024774006	0.0027520429	0.0032734583	0.0011680383	0.0013226435
24793	24794	24795	24796	24797	24798
0.0012861069	0.0026452025	0.0016992803	0.0017719952	0.0019087902	0.0016358160
24799	24800	24801	24802	24803	24804
0.0019718542	0.0012175169	0.0011769909	0.0011592771	0.0012298703	0.0016771985
24805	24806	24807	24808	24809	24810
0.0012955373	0.0011908562	0.0009333332	0.0008196022	0.0008468548	0.0016377662
24811	24812	24813	24814	24815	24816
0.0008605756	0.0009484910	0.0012086897	0.0126074069	0.0020943871	0.0020608304
24817	24818	24819	24820	24821	24822
0.0011405728	0.0030365901	0.0151072420	0.0102930463	0.0157512985	0.0016909194
24823	24824	24825	24826	24827	24828
0.0017077607	0.0016526315	0.0014903958	0.0025424115	0.0035323463	0.0016546080
24829	24830	24831	24832	24833	24834
0.0011221980	0.0020353321	0.0019420924	0.0014395604	0.0031479564	0.0418349647
24835	24836	24837	24838	24839	24840
0.0059107632	0.0068002342	0.0007594594	0.0030156991	0.0007891624	0.0006020153
24841	24842	24843	24844	24845	24846

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24847	24848	24849	24850	24851	24852
0.0003913259	0.0003920613	0.0004168523	0.0004095586	0.0007308110	0.0163672941
24854	24855	24856	24857	24858	24859
0.0017403378	0.0008466430	0.0008793615	0.0013551643	0.0012795659	0.0017178098
24860	24861	24862	24863	24864	24865
0.0008453739	0.0005720633	0.0006954524	0.0004679211	0.0005072103	0.0005127865
24866	24867	24868	24869	24870	24871
0.0006870882	0.0004061090	0.0005261963	0.0004972663	0.0004378840	0.0004150561
24872	24873	24874	24875	24876	24877
0.0008904396	0.0004159852	0.0003970566	0.0024632848	0.0088462384	0.0026539459
24878	24879	24880	24881	24882	24883
0.0020808252	0.0020672551	0.0127083700	0.0162608939	0.0025377141	0.0026624103
24884	24885	24886	24887	24888	24889
0.0019890307	0.0021737811	0.0020564596	0.0024178553	0.0069539250	0.0020382942
24890	24891	24892	24893	24894	24895
0.0020833032	0.0023843770	0.0011898306	0.0011959823	0.0016212558	0.0024400786
24896	24897	24898	24899	24900	24901
0.0029796118	0.0025092063	0.0018636273	0.0036206219	0.0018936562	0.0018362423
24902	24903	24904	24905	24906	24907
0.0018055387	0.0016442266	0.0014978733	0.0015545704	0.0011756704	0.0013555905
24908	24909	24910	24911	24912	24913
0.0013672948	0.0024681270	0.0011642060	0.0011694025	0.0012243459	0.0010014313
24914	24915	24916	24917	24918	24919
0.0010192495	0.0013195363	0.0013808451	0.0015198426	0.0021406691	0.0005915227
24920	24921	24922	24923	24924	24925
0.0009615548	0.0011814009	0.0010560236	0.0012394312	0.0010178598	0.0019824463
24926	24927	24928	24929	24930	24931
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24932	24933	24934	24935	24936	24937
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24938	24939	24940	24941	24942	24943
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24944	24945	24946	24947	24948	24949
0.0009377580	0.0006816638	0.0007469348	0.0006522944	0.0006680008	0.0005177474
24950	24951	24952	24953	24954	24955
0.0006457331	0.0073933989	0.0083437343	0.0010456502	0.0008123285	0.0008113582
24956	24957	24958	24959	24960	24961
0.0009236578	0.0006894995	0.0017096648	0.0012733854	0.0014847083	0.0013131296
24962	24963	24964	24965	24966	24967
0.0009852793	0.0013369772	0.0006923717	0.0004604498	0.0005693532	0.0014186894
24968	24969	24970	24971	24972	24973
0.0006587956	0.0006522261	0.0003944084	0.0004378681	0.0004224604	0.0004687695

24974	24975	24976	24977	24978	24979
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24980	24981	24982	24983	24984	24985
0.0004260505	0.0004300728	0.0030313428	0.0030922969	0.0038418581	0.0051344697
24986	24987	24988	24989	24990	24991
0.0018016184	0.0006834938	0.0005130993	0.0009079046	0.0005218090	0.0115547848
24992	24993	24994	24995	24996	24997
0.0011757152	0.0010551801	0.0011810682	0.0030891825	0.0012894759	0.0009480879
24998	24999	25000	25001	25002	25003
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25004	25005	25006	25007	25008	25009
0.0004895367	0.0007860193	0.0007116412	0.0006978116	0.0010363676	0.0020117899
25010	25011	25012	25013	25014	25015
0.0005857994	0.0058606276	0.0010881658	0.0076014385	0.0008119314	0.0008441867
25016	25017	25018	25019	25020	25021
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25022	25023	25024	25025	25026	25027
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25034	25035	25036	25037	25038	25039
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25040	25041	25042	25043	25044	25130
0.0012175857	0.0007020674	0.0034396998	0.0032371964	0.0024302840	0.0016991152
25131	25132	25133	25134	25135	25136
0.0016991152	0.0014518050	0.0029086303	0.0015728394	0.0015589937	0.0022807333
25137	25138	25139	25140	25141	25142
0.0021625785	0.0032726783	0.0014109240	0.0016166929	0.0012790328	0.0016011962
25143	25144	25145	25146	25147	25148
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25149	25150	25151	25152	25153	25154
0.0014273997	0.0010575058	0.0033701020	0.0010040661	0.0012540028	0.0010363472
25155	25156	25157	25158	25159	25160
0.0008183176	0.0011151854	0.0009318933	0.0011321501	0.0011932050	0.0010408101
25161	25162	25163	25164	25165	25166
0.0011070464	0.0024316646	0.0046660985	0.0514501313	0.0122356655	0.0015502618
25167	25168	25169	25170	25171	25172
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25173	25174	25175	25176	25177	25178
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25179	25180	25181	25182	25183	25184
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25185	25186	25188	25189	25190	25191

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25192	25193	25194	25195	25196	25197
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25198	25199	25200	25201	25202	25203
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25204	25205	25206	25207	25208	25209
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25210	25211	25212	25213	25214	25215
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25216	25217	25218	25219	25220	25221
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25222	25223	25224	25225	25226	25227
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25228	25229	25230	25231	25232	25233
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25234	25235	25236	25237	25238	25239
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25240	25241	25242	25243	25244	25245
0.0023314231	0.0024306588	0.0023660925	0.0017357597	0.0021796800	0.0022503019
25246	25247	25248	25249	25250	25251
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25252	25253	25254	25255	25256	25257
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25258	25259	25260	25261	25262	25263
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25264	25265	25266	25267	25268	25269
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25270	25271	25272	25273	25274	25277
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25278	25279	25280	25281	25282	25283
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25284	25285	25286	25287	25288	25289
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25290	25291	25292	25293	25294	25295
0.0018209163	0.0010100413	0.0034348750	0.0010575221	0.0006216613	0.0020198392
25296	25297	25298	25299	25300	25301
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25302	25303	25304	25305	25306	25307
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25308	25309	25310	25311	25312	25313
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25326	25327	25328	25329	25330	25331
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25339	25340	25341	25342	25343	25344
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25345	25346	25347	25348	25349	25350
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25369	25370	25371	25372	25373	25374
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25375	25376	25377	25378	25379	25380
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25381	25382	25383	25384	25385	25386
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25387	25388	25389	25390	25391	25392
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25393	25394	25395	25396	25397	25398
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25405	25406	25407	25408	25409	25410
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25447	25448	25449	25450	25451	25452

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25459	25460	25461	25462	25463	25464
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25465	25466	25467	25468	25469	25579
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25580	25581	25582	25583	25584	25585
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25586	25587	25588	25589	25590	25591
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25592	25593	25594	25595	25596	25597
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25598	25599	25600	25601	25602	25603
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25604	25605	25606	25607	25608	25609
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25616	25617	25618	25619	25620	25621
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25628	25629	25630	25631	25632	25633
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25640	25641	25642	25643	25644	25645
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25652	25653	25654	25655	25656	25657
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25658	25659	25660	25661	25662	25663
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25664	25665	25666	25667	25668	25669
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25670	25671	25672	25673	25674	25675
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25676	25677	25678	25679	25680	25681
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25682	25683	25684	25685	25686	25687
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25694	25695	25696	25697	25698	25699
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25700	25701	25702	25703	25704	25705
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25712	25713	25714	25715	25716	25717
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25718	25719	25720	25721	25722	25723
0.0021059399	0.0012130234	0.0011774911	0.0018361049	0.0025950749	0.0015859657
25724	25725	25726	25727	25728	25729
0.0016860670	0.0015247412	0.0014592709	0.0015019026	0.0013405547	0.0015025707
25730	25731	25732	25733	25734	25735
0.0017817659	0.0016287505	0.0017022433	0.0016980334	0.0015654023	0.0020876526
25736	25737	25738	25739	25740	25741
0.0020285227	0.0020114610	0.0018915986	0.0016838623	0.0021867532	0.0015749788
25742	25743	25744	25745	25748	25749
0.0017911532	0.0015369648	0.0014703323	0.0016352687	0.0034640329	0.0018706001
25750	25751	25752	25753	25754	25755
0.0024126785	0.0011145542	0.0024730613	0.0015811120	0.0013523060	0.0010175131
25756	25757	25758	25759	25760	25761
0.0020473904	0.0006191178	0.0007766434	0.0005754425	0.0009037439	0.0019720677
25762	25763	25764	25765	25766	25767
0.0030907809	0.0009731463	0.0009823435	0.0009581901	0.0010747352	0.0009594063
25768	25769	25770	25771	25772	25773
0.0026592639	0.0013019542	0.0014074661	0.0022302351	0.0028956774	0.0009917379
25774	25775	25776	25777	25778	25779
0.0019312055	0.0008181437	0.0007025660	0.0008396026	0.0007731894	0.0005938387
25780	25781	25782	25783	25784	25785
0.0006149713	0.0007262220	0.0008099418	0.0015101071	0.0012429801	0.0005662593
25786	25787	25788	25789	25790	25791
0.0005886641	0.0083504019	0.0018457408	0.0017062450	0.0017927941	0.0004875782
25792	25793	25794	25795	25796	25797
0.0006549798	0.0016435024	0.0006539914	0.0005223665	0.0020133070	0.0004052305
25798	25799	25800	25801	25802	25803
0.0007625151	0.0006667466	0.0018856043	0.0010445820	0.0008899898	0.0009897230
25804	25805	25806	25807	25808	25809
0.0010935885	0.0078759405	0.0028206272	0.0010001143	0.0015318578	0.0015113481
25810	25811	25812	25813	25814	25815
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25816	25817	25818	25819	25820	25821

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25822	25823	25824	25825	25826	25827
0.0006638580	0.0004037146	0.0004138652	0.0005893896	0.0004036668	0.0004904684
25828	25829	25830	25831	25832	25833
0.0005280027	0.0004778271	0.0006443425	0.0006446928	0.0005120002	0.0006518832
25834	25835	25836	25837	25838	25839
0.0028359198	0.0004048488	0.0004057573	0.0006179502	0.0006366813	0.0006784347
25840	25841	25842	25843	25844	25845
0.0012229286	0.0034435122	0.0036045225	0.0051521197	0.0027897801	0.0048128550
25846	25847	25848	25849	25851	25852
0.0035887137	0.0037048375	0.0027885034	0.0027572698	0.0008236718	0.0005305333
25853	25854	25855	25856	25857	25858
0.0005792359	0.0005539747	0.0005209659	0.0005330336	0.0076262457	0.0008355189
25859	25860	25861	25862	25863	25864
0.0006973705	0.0076561346	0.0076931396	0.0024438634	0.0076165680	0.0013597604
25865	25866	25867	25868	25869	25870
0.0020260719	0.0022467654	0.0011504692	0.0016694483	0.0010269944	0.0011534713
25871	25872	25873	25874	25875	25876
0.0011757515	0.0012291996	0.0006364236	0.0009335329	0.0007754202	0.0005983692
25877	25878	25879	25880	25881	25882
0.0008545298	0.0006873559	0.0006442517	0.0006709775	0.0006271787	0.0006827570
25883	25884	25885	25886	25887	25888
0.0006425241	0.0005767998	0.0005849997	0.0005866193	0.0006672464	0.0006243991
25889	25890	25891	25892	25893	25894
0.0005210538	0.0004994887	0.0006816921	0.0005187259	0.0005466225	0.0007172530
25895	25896	25897	25898	25900	25901
0.0007298233	0.0009971499	0.0010181635	0.0017352501	0.0021422225	0.0011036101
25902	25903	25904	25905	25906	25907
0.0009016876	0.0011520671	0.0007560666	0.0006194254	0.0080251006	0.0009446598
25908	25909	25910	25911	25912	25913
0.0013668403	0.0011464844	0.0015976673	0.0009944302	0.0009063965	0.0008608452
25914	25915	25916	25917	25918	25919
0.0016387089	0.0017153949	0.0010072299	0.0008588832	0.0009915548	0.0029470655
25920	25921	25922	25923	25924	25925
0.0011199273	0.0012146429	0.0008156057	0.0006000093	0.0046988435	0.0026173028
25926	25927	25928	25929	25930	25931
0.0009928031	0.0026272472	0.0007254026	0.0008332007	0.0007827391	0.0005810566
25932	25933	25934	25935	25936	25937
0.0010071779	0.0007896089	0.0008478615	0.0024263656	0.0031103717	0.0017355080
25938	25939	25940	25941	25942	25943
0.0015628246	0.0009674896	0.0006033262	0.0008551663	0.0009950875	0.0007590026
25944	25945	25946	25947	25948	25949
0.0013161273	0.0028506245	0.0028109021	0.0094249531	0.0030010275	0.0027641934

25950	25951	25952	25953	26071	26072
0.0028934622	0.0028859270	0.0023034169	0.0028277306	0.0016402270	0.0012449146
26073	26074	26075	26076	26077	26078
0.0011545027	0.0013239103	0.0025991279	0.0016853016	0.0016026942	0.0016220190
26079	26080	26081	26082	26083	26084
0.0015581313	0.0022037546	0.0012697632	0.0012192269	0.0015342197	0.0017204175
26085	26086	26087	26088	26089	26090
0.0013341872	0.0023770055	0.0013902123	0.0014564244	0.0021517790	0.0008457305
26091	26092	26093	26094	26095	26096
0.0017359727	0.0017359727	0.0027816372	0.0016404837	0.0017448683	0.0008892901
26097	26098	26099	26100	26101	26102
0.0008658360	0.0008250797	0.0008665912	0.0010382090	0.0008448741	0.0011956698
26103	26104	26105	26106	26107	26108
0.0008245784	0.0011927590	0.0008366498	0.0013010200	0.0010823135	0.0062437669
26109	26110	26111	26112	26113	26114
0.0114190177	0.0016000532	0.0019791005	0.0015955960	0.0017318031	0.0020860714
26115	26116	26117	26118	26119	26120
0.0015482191	0.0014474997	0.0010425065	0.0012209174	0.0034755044	0.0031638657
26121	26122	26123	26124	26125	26126
0.0101667558	0.0014970811	0.0014134464	0.0022078356	0.0020815862	0.0015803580
26127	26128	26129	26130	26131	26134
0.0012939621	0.0015455574	0.0024057484	0.0011712898	0.0019679469	0.0052398871
26135	26136	26137	26138	26139	26140
0.0037801268	0.0073591707	0.0082865737	0.0023023990	0.0004782581	0.0007258642
26141	26142	26143	26144	26145	26146
0.0006297872	0.0010292854	0.0018187405	0.0004852755	0.0014969633	0.0009150723
26147	26148	26149	26150	26151	26152
0.0005234394	0.0004696547	0.0005048139	0.0008344048	0.0009218682	0.0007007632
26153	26154	26155	26156	26157	26158
0.0004820243	0.0004368660	0.0004226024	0.0005951265	0.0004889521	0.0006464330
26159	26160	26161	26162	26163	26164
0.0010477795	0.0004349352	0.0006568968	0.0004121343	0.0004218476	0.0005021476
26165	26166	26167	26168	26169	26170
0.0007184559	0.0004981629	0.0029099304	0.0004304020	0.0004272403	0.0004014608
26171	26172	26173	26174	26175	26176
0.0007343268	0.0007738932	0.0004079570	0.0008687250	0.0004137292	0.0004243350
26177	26178	26179	26180	26181	26182
0.0006525072	0.0018058754	0.0010380992	0.0008907653	0.0011342802	0.0015233182
26183	26184	26185	26186	26187	26188
0.0024293542	0.0020874126	0.0025214018	0.0118439934	0.0007080175	0.0004981632
26189	26190	26191	26192	26193	26194
0.0004881887	0.0005090273	0.0004572398	0.0004509696	0.0006616881	0.0005021073
26195	26196	26197	26198	26199	26200

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26201	26202	26203	26204	26205	26206
0.0004101008	0.0006980352	0.0004093000	0.0006111789	0.0005121681	0.0010196893
26207	26208	26209	26210	26211	26212
0.0004135947	0.0010491490	0.0026828775	0.0009774570	0.0014382814	0.0023554291
26213	26214	26215	26216	26217	26218
0.0020550604	0.0021289643	0.0027396367	0.0021800435	0.0021734291	0.0022069918
26219	26220	26221	26222	26223	26224
0.0028363154	0.0025695774	0.0028198867	0.0021380767	0.0019911380	0.0020234855
26225	26226	26227	26228	26229	26230
0.0075583266	0.0020345598	0.0012520769	0.0012278732	0.0023360580	0.0027010787
26231	26232	26233	26234	26235	26236
0.0028166488	0.0016860573	0.0023457341	0.0016213318	0.0011927763	0.0023849318
26237	26238	26239	26240	26241	26242
0.0022256542	0.0020071247	0.0023201222	0.0024998967	0.0019067201	0.0026333739
26243	26244	26245	26246	26247	26248
0.0024246555	0.0018097858	0.0016290144	0.0015059140	0.0013637615	0.0018811084
26249	26250	26251	26252	26253	26254
0.0012203973	0.0011041997	0.0021360530	0.0017782649	0.0015780788	0.0021340381
26255	26256	26257	26258	26259	26260
0.0010462059	0.0010047199	0.0009697093	0.0010995588	0.0011871343	0.0010072407
26261	26262	26263	26264	26265	26266
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26267	26268	26269	26270	26271	26272
0.0010849131	0.0009640329	0.0018566156	0.0007691362	0.0009458563	0.0006960645
26273	26274	26275	26276	26277	26278
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26279	26280	26281	26282	26283	26284
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26285	26286	26287	26288	26289	26290
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26291	26292	26293	26294	26295	26296
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26297	26298	26299	26300	26301	26302
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26303	26304	26305	26306	26307	26308
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26309	26310	26311	26312	26313	26314
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26315	26316	26317	26318	26319	26320
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26321	26322	26323	26324	26325	26326
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26333	26334	26335	26336	26337	26338
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26339	26340	26341	26342	26343	26344
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26345	26346	26347	26348	26349	26350
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26351	26352	26353	26354	26355	26356
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26357	26358	26359	26360	26361	26362
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26363	26364	26365	26366	26367	26368
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26369	26370	26371	26372	26373	26374
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26375	26376	26377	26378	26379	26380
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26381	26382	26383	26384	26385	26386
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26387	26388	26389	26390	26391	26392
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26393	26394	26395	26396	26397	26398
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26406	26407	26408	26409	26410	26411
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26418	26419	26420	26421	26422	26423
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26424	26425	26426	26427	26428	26429
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26430	26431	26432	26433	26434	26435
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26448	26449	26450	26451	26452	26453
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26454	26455	26456	26457	26458	26459

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26460	26461	26462	26463	26464	26465
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26466	26467	26468	26469	26470	26471
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26472	26473	26474	26475	26476	26477
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26478	26479	26480	26481	26482	26484
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26485	26486	26487	26488	26489	26620
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26621	26622	26623	26624	26625	26626
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26627	26628	26629	26630	26631	26632
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26633	26634	26635	26636	26637	26638
0.0013496883	0.0023717494	0.0020807683	0.0020396387	0.0014814489	0.0008242216
26639	26640	26641	26642	26643	26644
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26645	26646	26647	26648	26649	26650
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26651	26652	26653	26654	26655	26656
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26657	26658	26659	26660	26661	26662
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26663	26664	26665	26666	26667	26668
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26669	26670	26671	26672	26674	26675
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26676	26677	26678	26679	26680	26681
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26682	26683	26684	26685	26686	26687
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26688	26689	26690	26691	26692	26693
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26694	26695	26696	26697	26698	26699
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26700	26701	26702	26703	26704	26705
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26706	26707	26708	26709	26710	26711
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26712	26713	26714	26715	26716	26717
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26718	26719	26720	26721	26722	26723
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26724	26725	26726	26727	26728	26729
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26730	26731	26732	26733	26734	26735
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26736	26737	26738	26739	26740	26741
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26742	26743	26744	26745	26746	26747
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26748	26749	26750	26751	26752	26753
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26754	26755	26756	26758	26759	26760
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26761	26762	26763	26764	26765	26766
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26767	26768	26769	26770	26771	26772
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26775	26776	26777	26778	26779	26780
0.0070234057	0.0016765711	0.0013681216	0.0009803079	0.0013762434	0.0013637560
26781	26782	26783	26784	26785	26786
0.0012108557	0.0010193736	0.0013322836	0.0009948374	0.0012699253	0.0010344075
26787	26788	26789	26790	26791	26792
0.0025380802	0.0009686536	0.0006983770	0.0011230663	0.0010261301	0.0008631275
26793	26794	26795	26796	26797	26798
0.0016325856	0.0012412872	0.0005633577	0.0009912152	0.0016590753	0.0020732477
26799	26800	26801	26802	26803	26804
0.0010305750	0.0031611673	0.0008899825	0.0014644702	0.0010643730	0.0032718440
26805	26806	26807	26808	26809	26810
0.0018414486	0.0007183968	0.0009810521	0.0009786500	0.0008807648	0.0009052471
26811	26812	26813	26814	26815	26816
0.0005916699	0.0006841728	0.0018096455	0.0011550285	0.0009682356	0.0008532259
26817	26818	26819	26820	26821	26822
0.0018344705	0.0067448154	0.0012047917	0.0009774037	0.0005733020	0.0007899354
26823	26824	26825	26826	26827	26828
0.0007248736	0.0004932239	0.0007092711	0.0005614660	0.0008413010	0.0004387033
26829	26830	26831	26832	26833	26834
0.0004834157	0.0004211687	0.0003962635	0.0004421806	0.0020089115	0.0007040809
26835	26836	26837	26838	26839	26840
0.0033237844	0.0023763033	0.0009134028	0.0010782077	0.0015608921	0.0011297092
26841	26842	26843	26844	26845	26846
0.0015872378	0.0014175596	0.0019426959	0.0011418050	0.0009468327	0.0007929867
26847	26848	26849	26850	26851	26852

0.0007972848	0.0004804298	0.0006288980	0.0005789360	0.0005413789	0.0004694438
26853	26854	26855	26856	26857	26858
0.0004664154	0.0009028627	0.0004704165	0.0007057735	0.0004676719	0.0005917357
26859	26860	26861	26862	26863	26864
0.0005221318	0.0004227407	0.0008812102	0.0006996624	0.0003985880	0.0016259236
26865	26866	26867	26868	26869	26870
0.0003947038	0.0004225978	0.0003962416	0.0006575695	0.0008311117	0.0004036378
26871	26872	26873	26874	26875	26876
0.0004171462	0.0006558673	0.0006428251	0.0011945146	0.0277618193	0.0023607226
26877	26878	26879	26880	26881	26882
0.0155682916	0.0018588080	0.0028809158	0.0030893751	0.0029605093	0.0027734793
26883	26884	26885	26886	26887	26888
0.0086890552	0.0012212123	0.0007765182	0.0030054869	0.0006479679	0.0006153665
26889	26890	26891	26892	26893	26894
0.0008246525	0.0009608905	0.0017914355	0.0005836230	0.0005310677	0.0012399623
26895	26896	26897	26898	26899	26900
0.0007236009	0.0004887595	0.0007653767	0.0005118584	0.0171508786	0.0006574901
26901	26902	26903	26904	26905	26906
0.0022256417	0.0011537175	0.0016661861	0.0015528306	0.0016481772	0.0021670713
26907	26908	26909	26910	26911	26912
0.0036488645	0.0009349759	0.0011154997	0.0005773847	0.0009375719	0.0020976912
26913	26914	26915	26916	26917	26918
0.0006204634	0.0013784607	0.0005106930	0.0011439374	0.0005933270	0.0005225782
26919	26920	26921	26922	26923	26924
0.0005206196	0.0005013900	0.0006030056	0.0007604363	0.0005048588	0.0009270403
26925	26926	26927	26928	26929	26930
0.0005120688	0.0007020017	0.0007259895	0.0007024066	0.0007166604	0.0008926728
26931	26932	26933	26934	26935	26936
0.0015629498	0.0016735988	0.0059465493	0.0020374970	0.0010993742	0.0006399566
26937	26938	26939	26940	26941	26942
0.0008912228	0.0010038319	0.0031251130	0.0009367608	0.0009691346	0.0006218522
26943	26944	26945	26946	26947	26948
0.0121436115	0.0037132818	0.0008626097	0.0011320357	0.0025815438	0.0017879699
26949	26950	26951	26952	26953	26954
0.0016829918	0.0014011300	0.0009285974	0.0014358643	0.0009068081	0.0034061111
26955	26956	26957	26958	26959	26960
0.0010130261	0.0010633782	0.0010292547	0.0028843025	0.0009597695	0.0007547471
26961	26962	26963	26964	26965	26966
0.0006988387	0.0010237401	0.0008257442	0.0007809285	0.0008475530	0.0010374212
26967	26968	26969	26970	26971	26972
0.0031010612	0.0010144874	0.0008764355	0.0008770038	0.0008732063	0.0007052438
26973	26974	26975	26976	26977	26978
0.0005861412	0.0006019944	0.0026298519	0.0027732237	0.0023951773	0.0095308896

26979	26980	26981	26982	27102	27103
0.0029939535	0.0024395228	0.0757293593	0.0044048186	0.0011975658	0.0011560529
27104	27105	27106	27107	27108	27109
0.0013428324	0.0031735727	0.0016289878	0.0015162065	0.0014280590	0.0014495282
27110	27111	27112	27113	27114	27115
0.0017934993	0.0015772149	0.0009757023	0.0008264628	0.0008270334	0.0013634335
27116	27117	27118	27119	27120	27121
0.0017805791	0.0018112334	0.0017315849	0.0009027948	0.0019064314	0.0010387414
27122	27123	27124	27125	27126	27127
0.0008592595	0.0008563482	0.0009287235	0.0008512482	0.0011059995	0.0011731041
27128	27129	27130	27131	27132	27133
0.0008590224	0.0012884356	0.0012063333	0.0008559982	0.0014839772	0.0016951905
27134	27135	27136	27137	27138	27139
0.0085333030	0.0018948241	0.0016077841	0.0022520804	0.0017698397	0.0013107434
27140	27141	27142	27143	27144	27145
0.0025941748	0.0020017496	0.0015979164	0.0013736509	0.0018586039	0.0017968099
27146	27147	27148	27149	27150	27151
0.0208388950	0.0012219743	0.0012360284	0.0016412410	0.0016967439	0.0012214623
27152	27153	27154	27155	27156	27157
0.0031929870	0.0023292486	0.0014137310	0.0019152668	0.0014586101	0.0015687822
27158	27159	27160	27161	27162	27164
0.0015216675	0.0016393186	0.0169312920	0.0059402453	0.0036831983	0.0078651911
27165	27166	27167	27168	27169	27170
0.0008805430	0.0009436161	0.0024522428	0.0005349015	0.0006696850	0.0016449079
27171	27172	27173	27174	27175	27176
0.0005463043	0.0022044150	0.0005010658	0.0004921958	0.0005006530	0.0008614090
27177	27178	27179	27180	27181	27182
0.0033320389	0.0010447019	0.0016708028	0.0005056813	0.0005926598	0.0004278822
27183	27184	27185	27186	27187	27188
0.0008469400	0.0006104305	0.0004224064	0.0004224589	0.0007327440	0.0004267682
27189	27190	27191	27192	27193	27194
0.0004336069	0.0008281771	0.0004120504	0.0053623079	0.0024442530	0.0010815809
27195	27196	27197	27198	27199	27200
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27201	27202	27203	27204	27205	27206
0.0007409664	0.0039359782	0.0006458334	0.0005086739	0.0006543719	0.0004572684
27207	27208	27209	27210	27211	27212
0.0014914729	0.0004578927	0.0005079612	0.0004083201	0.0004532948	0.0008103750
27213	27214	27215	27216	27217	27218
0.0004032766	0.0018006338	0.0007228446	0.0017046367	0.0005664457	0.0004313876
27219	27220	27221	27222	27223	27224
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27225	27226	27227	27228	27229	27230

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27231	27232	27233	27235	27236	27237
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27238	27239	27240	27241	27242	27243
0.0011859751	0.0018074798	0.0026461804	0.0017328152	0.0011921892	0.0016039091
27244	27245	27246	27247	27248	27249
0.0024107380	0.0015905844	0.0015539167	0.0015463489	0.0015893220	0.0012677586
27250	27251	27252	27253	27254	27255
0.0012950354	0.0016604222	0.0026035981	0.0026610143	0.0024266155	0.0014667020
27256	27257	27258	27259	27260	27261
0.0018390277	0.0018438812	0.0020915651	0.0017543503	0.0015179698	0.0090417421
27262	27263	27264	27265	27266	27267
0.0011636175	0.0024794360	0.0013650284	0.0009918083	0.0010430926	0.0009785658
27268	27269	27270	27271	27272	27273
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27274	27275	27276	27277	27278	27279
0.0010368357	0.0010065133	0.0013586210	0.0010213865	0.0013516395	0.0010389421
27280	27281	27282	27283	27284	27285
0.0012316551	0.0012602761	0.0010174648	0.0024837833	0.0017192620	0.0006660989
27286	27287	27288	27289	27290	27291
0.0006799792	0.0009109785	0.0018082785	0.0020379429	0.0009979134	0.0010589211
27292	27293	27294	27295	27296	27297
0.0087663465	0.0010450905	0.0010511921	0.0015549550	0.0020446773	0.0009358655
27298	27299	27300	27301	27302	27303
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27304	27305	27306	27307	27308	27309
0.0009755455	0.0008843923	0.0022827372	0.0007958490	0.0007666891	0.0018124221
27310	27311	27312	27313	27314	27315
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27316	27317	27318	27319	27320	27321
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27322	27323	27324	27325	27326	27327
0.0009723146	0.0018625378	0.0008056620	0.0005247156	0.0006969914	0.0007459407
27328	27329	27330	27331	27332	27333
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27334	27335	27336	27337	27338	27339
0.0007677454	0.0005349661	0.0004327140	0.0004357025	0.0024901527	0.0008927320
27340	27341	27342	27343	27344	27345
0.0015977046	0.0171311574	0.0011339557	0.0022973361	0.0013263122	0.0015884796
27346	27347	27348	27349	27350	27351
0.0015145516	0.0009611420	0.0006199784	0.0006328260	0.0016482196	0.0004581905
27352	27353	27354	27355	27356	27357
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27358	27359	27360	27361	27362	27363
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27364	27365	27366	27367	27368	27369
0.0014426744	0.0004778119	0.0004720373	0.0004467126	0.0004736584	0.0005442907
27370	27371	27372	27373	27374	27375
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27376	27377	27378	27379	27380	27381
0.0004425422	0.0005162488	0.0006250506	0.0007114574	0.0005110442	0.0004099106
27382	27383	27384	27385	27386	27387
0.0006321030	0.0006310813	0.0007227503	0.0014853294	0.0023658767	0.0011184961
27388	27389	27390	27391	27392	27393
0.0069368375	0.0057667205	0.0036566335	0.0026873233	0.0029945062	0.0030329376
27394	27395	27396	27397	27398	27399
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27400	27401	27402	27403	27404	27405
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27406	27407	27408	27409	27410	27411
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27412	27413	27414	27415	27416	27417
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27418	27419	27420	27421	27422	27423
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27424	27425	27426	27427	27428	27429
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27430	27431	27432	27433	27434	27435
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27436	27437	27438	27439	27440	27441
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27442	27443	27444	27445	27446	27447
0.0005165031	0.0005796699	0.0006966588	0.0009494945	0.0005045243	0.0005018585
27448	27449	27450	27451	27452	27453
0.0012668815	0.0006343773	0.0006415924	0.0007275260	0.0008133397	0.0007038808
27454	27455	27456	27457	27458	27459
0.0008203887	0.0007324593	0.0012404611	0.0010102967	0.0008678578	0.0008990077
27460	27461	27462	27463	27464	27465
0.0008308068	0.0011581997	0.0006524807	0.0013816178	0.0010978488	0.0008953071
27466	27467	27468	27469	27470	27471
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27472	27473	27474	27475	27476	27477
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27478	27479	27480	27481	27482	27483
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27484	27485	27486	27487	27488	27489

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27490	27491	27492	27493	27495	27496
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27497	27498	27499	27500	27501	27502
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27503	27504	27505	27620	27621	27622
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27623	27624	27625	27626	27627	27628
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27629	27630	27631	27632	27633	27634
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27635	27636	27637	27638	27639	27640
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27641	27642	27643	27644	27645	27646
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27647	27648	27649	27650	27651	27652
0.0012278487	0.0015324767	0.0019886130	0.0039143100	0.0031700319	0.0016276283
27653	27654	27655	27656	27657	27658
0.0020729978	0.0018038290	0.0016578972	0.0018112952	0.0016750292	0.0032678612
27659	27660	27661	27662	27663	27664
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27665	27666	27667	27668	27669	27670
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27671	27672	27673	27674	27675	27676
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27677	27678	27679	27680	27681	27682
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27683	27684	27685	27686	27687	27688
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27689	27690	27691	27692	27693	27694
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27695	27696	27697	27698	27699	27700
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27701	27702	27703	27704	27705	27706
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27707	27708	27709	27710	27711	27712
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27714	27715	27716	27717	27718	27719
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27720	27721	27722	27723	27724	27725
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27726	27727	27728	27729	27730	27731
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27732	27733	27734	27735	27736	27737
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27738	27739	27740	27741	27742	27743
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27744	27745	27746	27747	27748	27749
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27750	27751	27752	27753	27754	27755
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27756	27757	27758	27759	27760	27761
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27762	27763	27764	27765	27766	27767
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27768	27769	27770	27771	27772	27773
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27774	27775	27776	27777	27778	27779
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27780	27781	27782	27783	27784	27785
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27786	27787	27788	27789	27790	27791
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27792	27793	27794	27795	27796	27797
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27799	27800	27801	27802	27803	27804
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27805	27806	27807	27808	27809	27810
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27811	27812	27813	27814	27815	27816
0.0004422365	0.0006606624	0.0004351985	0.0006407624	0.0011983619	0.0011150101
27817	27818	27819	27820	27821	27822
0.0023756467	0.0040573261	0.0015686884	0.0015926590	0.0009302209	0.0013228626
27823	27824	27825	27826	27827	27828
0.0010897010	0.0014131413	0.0007820136	0.0007546243	0.0026415352	0.0004607880
27829	27830	27831	27832	27833	27834
0.0006769436	0.0005975473	0.0004863911	0.0004217844	0.0004321306	0.0004680154
27835	27836	27837	27838	27839	27840
0.0007313732	0.0006805554	0.0008878633	0.0016307991	0.0004027402	0.0004262143
27841	27842	27843	27844	27845	27846
0.0005151460	0.0004865998	0.0018253389	0.0004910025	0.0004083742	0.0004309313
27847	27848	27849	27850	27851	27852
0.0005164919	0.0016949457	0.0005124026	0.0006388174	0.0007105263	0.0007199683
27853	27854	27855	27856	27857	27859
0.0006290426	0.0115013838	0.0005928317	0.0171383220	0.0037055398	0.0211068592
27860	27861	27862	27863	27864	27865

0.0008570643	0.0006148457	0.0006616370	0.0007711464	0.0007488255	0.0006626400
27866	27867	27868	27869	27870	27871
0.0029915029	0.0004965142	0.0005207553	0.0008147340	0.0008169015	0.0011314156
27872	27873	27874	27875	27876	27877
0.0029212492	0.0030527554	0.0009763639	0.0025490358	0.0010600348	0.0005818444
27878	27879	27880	27881	27882	27883
0.0022598773	0.0005151860	0.0007646499	0.0005431303	0.0005933253	0.0006742278
27884	27885	27886	27887	27888	27889
0.0005931190	0.0005998086	0.0007330054	0.0005030218	0.0007032951	0.0006900423
27890	27891	27892	27893	27894	27895
0.0005570050	0.0007068704	0.0005257781	0.0007325180	0.0007124874	0.0007053486
27896	27897	27898	27899	27900	27901
0.0007052621	0.0007115484	0.0018533367	0.0009503796	0.0012048839	0.0012257022
27902	27903	27904	27905	27906	27907
0.0020974473	0.0007651130	0.0007663567	0.0008402700	0.0076952929	0.0007759805
27908	27909	27910	27911	27912	27913
0.0009341800	0.0013521335	0.0011692043	0.0024735147	0.0008644655	0.0011575925
27914	27915	27916	27917	27918	27919
0.0009838681	0.0011846115	0.0021108407	0.0018505850	0.0015271497	0.0012891720
27920	27921	27922	27923	27924	27925
0.0009524486	0.0009885963	0.0019099280	0.0011502354	0.0010075479	0.0010685048
27926	27927	27928	27929	27930	27931
0.0008715599	0.0009133216	0.0008083925	0.0007596452	0.0008075778	0.0016043345
27932	27933	27934	27935	27936	27937
0.0007342149	0.0012624247	0.0010401243	0.0009612697	0.0008127166	0.0007086826
27938	27939	27940	28038	28039	28040
0.0107471767	0.0027156245	0.0024282677	0.0024148337	0.0015908352	0.0017693878
28041	28042	28043	28044	28045	28046
0.0017858814	0.0021625280	0.0016205036	0.0013558700	0.0023750905	0.0011700081
28047	28048	28049	28050	28051	28052
0.0012700895	0.0014516767	0.0013367635	0.0017028594	0.0013279318	0.0013318614
28053	28054	28055	28056	28057	28058
0.0016626201	0.0019798209	0.0013287493	0.0020336526	0.0008619113	0.0014443601
28059	28060	28061	28062	28063	28064
0.0017323931	0.0016106228	0.0019131803	0.0021530377	0.0009049549	0.0009575417
28065	28066	28067	28068	28069	28070
0.0009601889	0.0008299541	0.0012145887	0.0008497555	0.0024216061	0.0034094546
28071	28072	28073	28074	28075	28076
0.0030614894	0.0016270889	0.0201870517	0.0012582432	0.0014680246	0.0014871615
28077	28078	28079	28080	28081	28082
0.0027132290	0.0150859597	0.0015499054	0.0019178306	0.0018520496	0.0012537136
28083	28084	28085	28086	28087	28088
0.0014711574	0.0032391462	0.0014400519	0.0030392810	0.0011865392	0.0015493733

28089	28090	28091	28092	28093	28094
0.0033776115	0.0076519824	0.0075188353	0.0084560414	0.0070046197	0.0084638902
28095	28096	28097	28098	28099	28100
0.0067936080	0.0068243743	0.0011353837	0.0005204320	0.0015985760	0.0010519446
28101	28102	28103	28104	28105	28106
0.0005152559	0.0005248453	0.0004914722	0.0004916109	0.0004644011	0.0010822280
28107	28108	28109	28110	28111	28112
0.0004990220	0.0004389699	0.0004447261	0.0007382996	0.0004924492	0.0004235783
28113	28114	28115	28116	28117	28118
0.0005491409	0.0006611629	0.0009731673	0.0004311958	0.0004215042	0.0006822579
28119	28120	28121	28122	28123	28124
0.0004852460	0.0035045776	0.0086666434	0.0015820435	0.0027957186	0.1399923915
28125	28126	28127	28128	28129	28130
0.0009192589	0.0008138850	0.0010927032	0.0005540408	0.0006572705	0.0036316318
28131	28132	28133	28134	28135	28136
0.0018593532	0.0007585539	0.0004316060	0.0007878813	0.0007753456	0.0005613307
28137	28138	28139	28140	28141	28142
0.0004770759	0.0022111641	0.0008566462	0.0008388307	0.0007105579	0.0007447040
28143	28144	28145	28146	28147	28148
0.0008406863	0.0006520869	0.0007933896	0.0013421720	0.0045843485	0.0021896667
28149	28150	28151	28152	28153	28154
0.0022939672	0.0022135512	0.0162415869	0.0048713967	0.0023920327	0.0021604110
28155	28156	28157	28158	28159	28160
0.0019086690	0.0017362387	0.0031990387	0.0022808999	0.0014207041	0.0012104973
28161	28162	28163	28164	28165	28166
0.0014605427	0.0013692074	0.0013827674	0.0013781221	0.0016168013	0.0015930447
28167	28168	28169	28170	28171	28172
0.0015533385	0.0018303500	0.0016282610	0.0044302951	0.0017591228	0.0016109212
28173	28174	28175	28176	28177	28178
0.0020671758	0.0025278311	0.0025468833	0.0022836693	0.0024177145	0.0017894809
28179	28180	28181	28182	28183	28184
0.0042212764	0.0020429077	0.0026325936	0.0019188532	0.0022101177	0.0018558567
28185	28186	28187	28188	28189	28190
0.0015040327	0.0014708812	0.0021296762	0.0025857853	0.0017746719	0.0016413910
28191	28192	28193	28194	28195	28196
0.0015454665	0.0015598885	0.0021950726	0.0011317435	0.0019249369	0.0012979109
28197	28198	28199	28200	28201	28202
0.0011751100	0.0025444648	0.0010162788	0.0019897266	0.0012148954	0.0025307279
28203	28204	28205	28206	28207	28208
0.0010147590	0.0121438846	0.0018489070	0.0018114191	0.0007359937	0.0007126213
28209	28210	28211	28212	28213	28214
0.0005862253	0.0179324945	0.0014199855	0.0011725300	0.0015688360	0.0009623442
28215	28216	28217	28218	28219	28220

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28221	28222	28223	28224	28225	28226
0.0029392746	0.0006981329	0.0029333648	0.0011125652	0.0007337802	0.0008346090
28227	28228	28229	28230	28231	28232
0.0007504038	0.0010200960	0.0013159303	0.0008468814	0.0009809176	0.0019656452
28233	28234	28235	28236	28237	28238
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28239	28240	28241	28242	28243	28244
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28245	28246	28247	28248	28249	28250
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28251	28252	28253	28254	28255	28256
0.0004276210	0.0004706189	0.0004710265	0.0004928129	0.0004103801	0.0004001511
28257	28258	28259	28260	28261	28262
0.0004052082	0.0007405126	0.0006503527	0.0006159565	0.0004364691	0.0004244519
28263	28264	28265	28266	28267	28268
0.0004333415	0.0008263308	0.0007167615	0.0010502521	0.0006284509	0.0012009386
28269	28270	28271	28272	28273	28274
0.00141118464	0.0040631046	0.0035442247	0.0034723264	0.0033470896	0.0034174030
28275	28276	28277	28278	28279	28280
0.0036692824	0.0035476352	0.0566652827	0.0032002935	0.0008268720	0.0054268002
28281	28282	28283	28284	28285	28286
0.0019842349	0.0006123106	0.0007391614	0.0016523964	0.0007819929	0.0008886315
28287	28288	28289	28290	28291	28292
0.0007886724	0.0007603606	0.0008828403	0.0021598852	0.0006372077	0.0005377295
28293	28294	28295	28296	28297	28298
0.0008118839	0.0007182255	0.0007182255	0.0009958157	0.0031425811	0.0010659035
28299	28300	28301	28302	28303	28304
0.0009071074	0.0010791136	0.0009168657	0.0011682619	0.0028718134	0.0013564946
28305	28306	28307	28308	28309	28310
0.0010980670	0.0011251812	0.0006761275	0.0028412874	0.0010418169	0.0009561413
28311	28312	28313	28314	28315	28316
0.0018319816	0.0006077829	0.0005899595	0.0016196327	0.0009272805	0.0009248931
28317	28318	28319	28320	28321	28322
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28323	28324	28325	28326	28327	28328
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28329	28330	28331	28332	28333	28334
0.0008971410	0.0010456645	0.0009099023	0.0006902181	0.0008907900	0.0011085341
28335	28336	28337	28338	28339	28340
0.0007882648	0.0008626801	0.0016794467	0.0026207716	0.0034153123	0.0014073807
28341	28342	28343	28344	28345	28346
0.0014222251	0.0080682307	0.0007836861	0.0011637952	0.0005683217	0.0011344986

28347	28348	28349	28350	28351	28352
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28353	28354	28355	28442	28443	28444
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28445	28446	28447	28448	28449	28450
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28451	28452	28453	28454	28455	28456
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28457	28458	28459	28460	28461	28462
0.0013770017	0.0013653196	0.0015249423	0.0013229115	0.0009068126	0.0009591650
28463	28464	28465	28466	28467	28468
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28469	28470	28471	28472	28473	28474
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28475	28476	28477	28478	28479	28480
0.0016075596	0.0040224737	0.0020506202	0.0026498461	0.0115857122	0.0035606360
28481	28482	28483	28484	28485	28486
0.0012871787	0.0019316894	0.0188110149	0.0020819434	0.0034163390	0.0020513374
28487	28488	28489	28490	28491	28493
0.0014276571	0.0051254435	0.0031749390	0.0013635047	0.0019097331	0.0066953617
28494	28495	28496	28497	28498	28499
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28500	28501	28502	28503	28504	28505
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28506	28507	28508	28509	28510	28511
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28512	28513	28514	28515	28516	28517
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28518	28519	28520	28521	28522	28523
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28524	28525	28526	28527	28528	28529
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28530	28531	28532	28533	28534	28535
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28536	28537	28538	28539	28541	28542
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28543	28544	28545	28546	28547	28548
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28549	28550	28551	28552	28553	28554
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28555	28556	28557	28558	28559	28560
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28561	28562	28563	28564	28565	28566

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28567	28568	28569	28570	28572	28573
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28574	28575	28576	28577	28578	28579
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28580	28581	28582	28583	28584	28585
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28586	28587	28588	28589	28590	28591
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28592	28593	28594	28595	28596	28597
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28598	28599	28600	28601	28602	28603
0.0115117221	0.0024938911	0.0009890017	0.0009086361	0.0019800003	0.0017151490
28604	28605	28606	28607	28608	28609
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28610	28611	28613	28614	28615	28616
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28617	28618	28619	28620	28621	28622
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28623	28624	28625	28626	28627	28628
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28629	28630	28631	28632	28633	28634
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28635	28636	28637	28638	28639	28640
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28641	28642	28643	28644	28645	28646
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28647	28648	28649	28650	28651	28652
0.0006492386	0.0004408200	0.0004274005	0.0008096046	0.0005237093	0.0029414320
28653	28654	28655	28656	28657	28658
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28659	28660	28661	28662	28663	28664
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28665	28666	28667	28668	28669	28670
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28671	28672	28673	28674	28675	28676
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28677	28678	28679	28680	28681	28682
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28683	28684	28685	28686	28687	28688
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28689	28690	28691	28692	28693	28694
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28695	28696	28697	28698	28699	28700
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28701	28702	28703	28704	28705	28706
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28707	28708	28709	28710	28711	28712
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28713	28714	28715	28716	28717	28718
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28719	28720	28721	28722	28723	28724
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28725	28726	28727	28728	28729	28730
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28731	28732	28733	28734	28735	28736
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28737	28738	28739	28816	28817	28818
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28819	28820	28821	28822	28823	28824
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28825	28826	28827	28828	28829	28830
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28831	28832	28833	28834	28835	28836
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28837	28838	28839	28840	28841	28842
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28849	28850	28851	28852	28853	28854
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28861	28862	28863	28864	28865	28866
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28867	28868	28869	28870	28871	28872
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28873	28874	28875	28876	28877	28878
0.0006565518	0.0005072800	0.0006480932	0.0005292544	0.0014906486	0.0004303184
28879	28880	28881	28882	28883	28884
0.0004982194	0.0004813664	0.0010073212	0.0006611621	0.0024038884	0.0006891094
28885	28886	28887	28888	28889	28890
0.0006917987	0.0006857548	0.0006572760	0.0162756718	0.0028461465	0.0009476172
28891	28892	28893	28894	28895	28896
0.0013031300	0.0012871378	0.0015378236	0.0026363547	0.0016283099	0.0005728389
28897	28898	28899	28900	28901	28902

0.0010145402	0.0023852563	0.0028304477	0.0006165059	0.0009158408	0.0004228659
28903	28904	28905	28906	28907	28908
0.0005924546	0.0004924779	0.0005132692	0.0005308027	0.0006620869	0.0004300915
28909	28910	28911	28912	28913	28914
0.0006634353	0.0006661797	0.0006600296	0.0012951680	0.0029848234	0.0022004989
28915	28916	28917	28918	28919	28920
0.0019847825	0.0023587222	0.0020206108	0.0107426789	0.0020892798	0.0020938673
28921	28922	28923	28924	28925	28926
0.0020116156	0.0013254686	0.0013591658	0.0019734919	0.0034366291	0.0019157332
28927	28928	28929	28930	28931	28932
0.0015231696	0.0015078867	0.0030863332	0.0022589465	0.0015905546	0.0012324815
28933	28934	28935	28936	28937	28938
0.0015395763	0.0015481905	0.0012216825	0.0013350474	0.0016553784	0.0020561655
28939	28940	28941	28942	28943	28944
0.0023841587	0.0017557504	0.0017636850	0.0024429012	0.0018308721	0.0018118547
28945	28946	28947	28949	28950	28951
0.0029133859	0.0027647336	0.0014986109	0.0016494747	0.0013870763	0.0011060761
28952	28953	28954	28955	28956	28957
0.0010744310	0.0010099968	0.0013249658	0.0012141242	0.0011337495	0.0010515382
28958	28959	28960	28961	28962	28963
0.0012106702	0.0009955006	0.0010301042	0.0010260327	0.0009231260	0.0018003775
28964	28965	28966	28967	28968	28969
0.0008633945	0.0006123027	0.1401736128	0.0008610104	0.0008881955	0.0013223237
28970	28971	28972	28973	28974	28975
0.0009297177	0.0014766420	0.0024208215	0.0027005081	0.0011845225	0.0007787067
28976	28977	28978	28979	28980	28981
0.0010968842	0.0007908534	0.0009280122	0.0007370841	0.0007527954	0.0007826752
28982	28983	28984	28985	28986	28987
0.0124995852	0.0011004899	0.0008439060	0.0005764866	0.0008069504	0.0061362756
28988	28989	28990	28991	28992	28993
0.0009236170	0.0031786665	0.0017931569	0.0008824562	0.0007033248	0.0006759763
28994	28995	28996	28997	28998	28999
0.0004225510	0.0006687973	0.0004457886	0.0074044850	0.0010208491	0.0007677563
29000	29001	29002	29003	29004	29005
0.0075588839	0.0009997010	0.0019881019	0.0114862251	0.0023367082	0.0010004302
29006	29007	29008	29009	29010	29011
0.0007224877	0.0010773868	0.0006562909	0.0004337024	0.0004296901	0.0004248934
29012	29013	29014	29015	29016	29017
0.0005626064	0.0005516077	0.0008205010	0.0004212231	0.0006443333	0.0004336063
29018	29019	29020	29021	29022	29023
0.0006509176	0.0006420935	0.0007816682	0.0006559396	0.0006412750	0.0007737229
29024	29025	29026	29027	29028	29029
0.0013610218	0.0027542108	0.0026994474	0.0039256307	0.0035337341	0.0028452630

29030	29031	29032	29033	29034	29035
0.0010136303	0.0017202731	0.0021755270	0.0011966637	0.0007338803	0.0005504046
29036	29037	29038	29039	29040	29041
0.0009337112	0.0007628112	0.0018072826	0.0006519121	0.0005210142	0.0007125684
29042	29043	29044	29045	29046	29047
0.0025316439	0.0010595637	0.0017365027	0.0013992625	0.0011286048	0.0011438478
29048	29049	29050	29051	29052	29053
0.0009308308	0.0007841942	0.0006962730	0.0007896621	0.0021520439	0.0007329708
29054	29055	29056	29057	29058	29059
0.0008677852	0.0005233358	0.0006201241	0.0005187790	0.0005233927	0.0005040861
29060	29061	29062	29063	29064	29065
0.0007282933	0.0007229787	0.0007909715	0.0021716595	0.0013865423	0.0012183409
29066	29067	29068	29069	29070	29071
0.0011379079	0.0007018534	0.0006854443	0.0006383342	0.0012128934	0.0010729798
29072	29073	29074	29075	29076	29077
0.0008857922	0.0010856048	0.0009052853	0.0009052853	0.0012949761	0.0009575052
29078	29079	29080	29081	29082	29083
0.0011447420	0.0018081344	0.0010854421	0.0009706980	0.0009534020	0.0007772555
29084	29085	29086	29087	29088	29089
0.0019285436	0.0018082752	0.0012363586	0.0011340785	0.0008514862	0.0008843847
29090	29091	29092	29093	29094	29095
0.0010011333	0.0009989125	0.0012005400	0.0009288526	0.0017968154	0.0006989942
29097	29098	29099	29100	29101	29102
0.0091815767	0.0036680603	0.0050320895	0.0029380557	0.0023519125	0.0026353739
29103	29104	29105	29106	29192	29193
0.0021934009	0.0022253853	0.0031384834	0.0033637182	0.0013473845	0.0012582902
29194	29195	29196	29197	29198	29199
0.0013413363	0.0011474844	0.0011655239	0.0112840420	0.0011592655	0.0011940477
29200	29201	29202	29203	29204	29205
0.0012505384	0.0011823896	0.0015108339	0.0020104771	0.0017164223	0.0015702562
29206	29207	29208	29209	29210	29211
0.0011042758	0.0021346360	0.0029359218	0.0017552813	0.0011066675	0.0011326861
29212	29213	29214	29215	29216	29217
0.0009493830	0.0010127486	0.0009843170	0.0010483377	0.0008624376	0.0014918977
29218	29219	29220	29221	29222	29223
0.0041134009	0.0014759795	0.0018616950	0.0014561989	0.0017794728	0.0015327240
29224	29225	29226	29227	29228	29229
0.0017415338	0.0030531926	0.0022622236	0.0086587809	0.0015283949	0.0011675613
29230	29231	29232	29233	29234	29235
0.0014194142	0.0078346698	0.0007417072	0.0007678920	0.0006787064	0.0006714198
29236	29237	29238	29239	29240	29241
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29242	29243	29244	29245	29246	29247

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29248	29249	29250	29251	29252	29253
0.0011070829	0.0016452376	0.0008267081	0.0007234883	0.0009530105	0.0005170525
29254	29255	29256	29257	29258	29259
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29260	29261	29262	29263	29264	29265
0.0005981297	0.0004211016	0.0006767321	0.0013614193	0.0012566168	0.0020257709
29266	29267	29268	29269	29270	29271
0.0022751371	0.0024562449	0.0104677842	0.0020398042	0.0043187094	0.0020293153
29272	29273	29274	29275	29276	29277
0.0130525783	0.0012954967	0.0016001790	0.0012111837	0.0012772339	0.0011955735
29278	29279	29280	29281	29282	29283
0.0013924201	0.0016315028	0.0025698633	0.0020523579	0.0015996851	0.0016681353
29284	29285	29286	29287	29288	29289
0.0016808381	0.0017618364	0.0014646301	0.0019625850	0.0012622733	0.0015414679
29290	29291	29292	29293	29294	29295
0.0017825623	0.0019638855	0.0019876056	0.0039790480	0.0010068196	0.0010117118
29296	29297	29298	29299	29300	29301
0.0010158727	0.0009958182	0.0014880271	0.0010358826	0.0009447961	0.0012105747
29302	29303	29304	29305	29306	29307
0.0007613142	0.0005843265	0.0020802545	0.0014048257	0.0009794385	0.0009036356
29308	29309	29310	29311	29312	29313
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29314	29315	29316	29317	29318	29319
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29321	29322	29323	29324	29325	29326
0.0078495579	0.0011481086	0.0019663569	0.0008405812	0.0007028788	0.0004644826
29327	29328	29329	29330	29331	29332
0.0008333278	0.0187735698	0.0015390377	0.0014216687	0.0014784551	0.0032622523
29333	29334	29335	29336	29337	29338
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29339	29340	29341	29342	29343	29344
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29345	29346	29347	29348	29349	29350
0.0006646464	0.0007241686	0.0170211334	0.0058987678	0.0018922491	0.0028883401
29351	29352	29353	29354	29355	29356
0.0034372812	0.0034898193	0.0033331308	0.0025367745	0.0026805883	0.0076729208
29357	29358	29359	29360	29361	29363
0.0029291536	0.0008124438	0.0005762000	0.0005273714	0.0011380934	0.0006167137
29364	29365	29366	29367	29368	29369
0.0009667502	0.0005902383	0.0005883512	0.0005302777	0.0005137407	0.0005230247
29370	29371	29372	29373	29374	29375
0.0007161321	0.0016221138	0.0012152704	0.0007387952	0.0006622510	0.0010874643

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0.0025830131	0.0012329418	0.0009011431	0.0008979724	0.0009249388	0.0020807087
29382	29383	29384	29385	29386	29387
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29388	29389	29390	29391	29392	29393
0.0009586026	0.0011651478	0.0007983086	0.0038503233	0.0025224641	0.0030201598
29394	29395	29396	29462	29463	29464
0.0028444204	0.0025039315	0.0024909028	0.0016748751	0.0024055803	0.0016131724
29465	29466	29467	29468	29469	29470
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29471	29472	29473	29474	29475	29476
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29477	29478	29479	29480	29481	29482
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29483	29484	29485	29486	29487	29488
0.0008550681	0.0008475328	0.0016666834	0.0028377369	0.0020625312	0.0029062719
29489	29490	29491	29492	29493	29494
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29495	29496	29497	29498	29499	29500
0.0063420385	0.0078480755	0.0458048428	0.0016567638	0.0015996640	0.0007876055
29501	29502	29503	29504	29505	29506
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29507	29508	29509	29510	29511	29512
0.0007169269	0.0004867767	0.0004490732	0.0004458996	0.0007246217	0.0005552384
29513	29514	29515	29516	29517	29518
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29519	29520	29521	29522	29523	29524
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29525	29526	29527	29528	29529	29530
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29531	29532	29533	29534	29535	29536
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29537	29538	29539	29540	29541	29542
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29543	29544	29545	29546	29547	29548
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29549	29550	29551	29552	29553	29555
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29556	29557	29558	29559	29560	29561
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29562	29563	29564	29565	29566	29567
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29568	29569	29570	29571	29572	29573

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29574	29575	29576	29577	29578	29579
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29580	29581	29582	29583	29584	29585
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29586	29587	29588	29589	29590	29591
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29592	29593	29594	29595	29596	29597
0.0015103362	0.0007574925	0.0005110101	0.0006412160	0.0004461796	0.0006474890
29598	29599	29600	29601	29602	29603
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29610	29611	29612	29613	29614	29615
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29616	29617	29618	29619	29621	29622
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29623	29624	29625	29626	29627	29628
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29635	29636	29637	29638	29639	29640
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29641	29642	29643	29644	29645	29646
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29647	29648	29649	29650	29651	29652
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29653	29654	29655	29656	29657	29658
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29659	29660	29661	29662	29663	29664
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29665	29666	29667	29668	29669	29670
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29753	29754	29755	29756	29757	29758
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29783	29784	29785	29786	29787	29788
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29789	29790	29791	29792	29793	29794
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29795	29796	29797	29798	29799	29800
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29813	29814	29815	29816	29817	29818
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29819	29820	29821	29822	29823	29824
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29825	29826	29827	29828	29829	29830
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29831	29832	29833	29834	29835	29836
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29837	29838	29839	29840	29841	29842
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29843	29844	29845	29846	29847	29848
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29849	29850	29851	29852	29853	29854
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29855	29856	29857	29858	29859	29860
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29861	29862	29863	29864	29865	29866
0.0015212958	0.0022374132	0.0016130264	0.0014376132	0.0016491940	0.0036987738
29867	29868	29869	29870	29871	29872
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29873	29874	29875	29876	29877	29878
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29879	29880	29882	29883	29884	29885
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29886	29887	29888	29889	29890	29891
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29892	29893	29894	29895	29896	29897
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29898	29899	29900	29901	29902	29903
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29904	29905	29906	29907	29908	29909

0.0006881755	0.0019220611	0.0019496367	0.0019613580	0.0010647406	0.0007744381
29910	29911	29912	29913	29914	29915
0.0012091191	0.0026856828	0.0014947580	0.0009169874	0.0009254421	0.0010910664
29916	29917	29918	29919	29920	29921
0.0015122567	0.0010934518	0.0013373087	0.0013910129	0.0010990295	0.0019488596
29922	29923	29924	29925	29926	29927
0.0010977872	0.0008291955	0.0007623514	0.0008629550	0.0009115872	0.0008134158
29928	29929	29930	29931	29932	29933
0.0011166246	0.0005928196	0.0010397788	0.0006536232	0.0006535950	0.0010605840
29934	29935	29936	29937	29938	29939
0.0011910708	0.0007410922	0.0028154511	0.0016193521	0.0030780888	0.0018901986
29940	29941	29942	29943	29944	29945
0.0011826874	0.0007030866	0.0007061553	0.0008084858	0.0006711315	0.0005205397
29946	29947	29948	29949	29950	29951
0.0016827801	0.0007793382	0.0006006860	0.0004296387	0.0074389013	0.0008044482
29952	29953	29954	29955	29956	29957
0.0023004876	0.0023490324	0.0037712155	0.0017141568	0.0013101337	0.0011181082
29958	29959	29960	29961	29962	29963
0.0022608036	0.0005561943	0.0008423397	0.0018819340	0.0004929183	0.0005137455
29964	29965	29966	29967	29968	29969
0.0007364185	0.0007413335	0.0005430561	0.0008219124	0.0004950022	0.0006214474
29970	29971	29972	29973	29974	29975
0.0005145907	0.0004147612	0.0004773153	0.0007241065	0.0007588698	0.0004345151
29976	29977	29978	29979	29980	29981
0.0005896168	0.0006483499	0.0006514881	0.0032056348	0.0028032637	0.0045110876
29982	29983	29984	29985	29986	29987
0.0005989400	0.0013525639	0.0005623078	0.0006769783	0.0005978724	0.0005175179
29988	29989	29990	29991	29992	29993
0.0006247315	0.0006370884	0.0009263876	0.0009138610	0.0011871673	0.0016771319
29994	29995	29996	29997	29998	29999
0.0013729656	0.0016533031	0.0017142153	0.0015180312	0.0012260673	0.0007950305
30000	30001	30002	30003	30004	30005
0.0006525908	0.0006267567	0.0005342839	0.0005990788	0.0010829437	0.0016849049
30006	30007	30008	30009	30010	30011
0.0005163311	0.0005194204	0.0010126250	0.0010850017	0.0008127705	0.0011320445
30012	30013	30014	30015	30016	30017
0.0006700156	0.0008139803	0.0009536925	0.0007333330	0.0009807780	0.0006656086
30018	30019	30020	30021	30022	30023
0.0008029669	0.0018950500	0.0009815992	0.0009325725	0.0012473428	0.0116880048
30024	30025	30026	30027	30028	30029
0.0017684284	0.0015488314	0.0012251485	0.0099592386	0.0020703995	0.0015346539
30030	30031	30032	30033	30034	30035
0.0013497781	0.0025768627	0.0013119863	0.0117477933	0.0005546543	0.0008431085

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0.0011420484	0.0010630555	0.0010953236	0.0008134297	0.0008284605	0.0008284605
30042	30043	30044	30045	30046	30047
0.0016513973	0.0012776886	0.0016150720	0.0011331048	0.0011243231	0.0022624640
30048	30049	30050	30051	30052	30053
0.0031091483	0.0029339937	0.0165454457	0.0026825558	0.0051215506	0.0035064702
30054	30168	30169	30170	30171	30172
0.0037626736	0.0015333487	0.0015643864	0.0018134420	0.0015991526	0.0031972092
30173	30174	30175	30176	30177	30178
0.0017096886	0.0036192914	0.0016527500	0.0015875032	0.0013626773	0.0012271273
30179	30180	30181	30182	30183	30184
0.0011607049	0.0017211434	0.0014426650	0.0017166757	0.0012671593	0.0012285886
30185	30186	30187	30188	30189	30190
0.0009134333	0.0011356389	0.0015713145	0.0015684569	0.0017085077	0.0011237776
30191	30192	30193	30194	30195	30196
0.0008667991	0.0008516830	0.0008468620	0.0008528341	0.0009769891	0.0010887812
30197	30198	30199	30200	30201	30202
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0.0012285080	0.0026287928	0.0098600262	0.0025115956	0.0018401631	0.0031232110
30209	30210	30211	30212	30213	30214
0.0015375140	0.0017238099	0.0125872517	0.0049724149	0.0028050777	0.0021365794
30215	30216	30217	30218	30219	30220
0.0019511763	0.0030714021	0.0012296293	0.0012760312	0.0027996399	0.0038261744
30221	30222	30224	30225	30226	30227
0.0088889757	0.0068063258	0.0008527405	0.0034595882	0.0012668040	0.0010195455
30228	30229	30230	30231	30232	30233
0.0008239751	0.0011308890	0.0005385787	0.0005083117	0.0008519965	0.0005247939
30234	30235	30236	30237	30238	30239
0.0004555407	0.0005406435	0.0012166783	0.0005267051	0.0005978576	0.0004917331
30240	30241	30242	30243	30244	30245
0.0005090176	0.0004577120	0.0008342787	0.0004462330	0.0006603715	0.0004298575
30246	30247	30248	30249	30250	30251
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30252	30253	30254	30255	30256	30257
0.0007838024	0.0025423713	0.0179211804	0.0011301775	0.0020997574	0.0018269030
30258	30259	30260	30261	30262	30263
0.0014292727	0.0014118008	0.0025509210	0.0008410257	0.0005682807	0.0005603624
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0.0009883238	0.0005082530	0.0009890113	0.0005323210	0.0008193664	0.0004951971
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30276	30277	30278	30279	30280	30281

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30282	30283	30284	30285	30286	30287
0.0004414052	0.0006845249	0.0007506733	0.0013201605	0.0046136597	0.0020866813
30288	30289	30290	30291	30292	30293
0.0025759389	0.0021446399	0.0046930110	0.0028509629	0.0029920404	0.0028675899
30294	30295	30296	30297	30298	30299
0.0043500016	0.0016202450	0.0013399447	0.0030476479	0.0017564649	0.0021809804
30300	30301	30302	30303	30304	30305
0.0015157889	0.0014191692	0.0014556960	0.0021730913	0.0015085713	0.0024694158
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0.0016502266	0.0026056715	0.0016186424	0.0021337009	0.0025066008	0.0022992583
30312	30313	30314	30315	30316	30317
0.0021073830	0.0017752074	0.0114673703	0.0017103628	0.0017342806	0.0017552609
30318	30319	30321	30322	30323	30324
0.0023304604	0.0038689260	0.0017687285	0.0028745133	0.0014944064	0.0026314182
30325	30326	30327	30328	30329	30330
0.0015486236	0.0014598583	0.0010432033	0.0014171296	0.0010831299	0.0011138746
30331	30332	30333	30334	30335	30336
0.0014177952	0.0015762623	0.0009967458	0.0010271856	0.0010520252	0.0011095723
30337	30338	30339	30340	30341	30342
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30367	30368	30369	30370	30371	30372
0.0019869478	0.0021053826	0.0031449361	0.0011525011	0.0032632958	0.0013768400
30373	30374	30375	30376	30377	30378
0.0014508464	0.0017201174	0.0010202939	0.0008115881	0.0006971293	0.0010992512
30379	30380	30381	30382	30383	30384
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30385	30386	30387	30388	30389	30390
0.0007866979	0.0006843159	0.0018074212	0.0009678647	0.0030170494	0.0009852686
30391	30392	30393	30394	30395	30396
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30397	30398	30399	30400	30401	30402
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30403	30404	30405	30406	30407	30408
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30421	30422	30423	30424	30425	30426
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0.0016536851	0.0005114745	0.0008293916	0.0006371203	0.0007848210	0.0004299916
30433	30434	30435	30436	30437	30438
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30439	30440	30441	30442	30443	30444
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30445	30446	30447	30448	30449	30450
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30451	30452	30453	30454	30455	30456
0.0023855834	0.0009998509	0.0020350350	0.0026118012	0.0044718442	0.0031660850
30457	30458	30459	30460	30461	30462
0.0033441005	0.0035029912	0.0033806841	0.0034218102	0.0083647575	0.0030596557
30463	30464	30465	30466	30467	30468
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30469	30470	30471	30472	30473	30474
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30475	30476	30477	30478	30479	30480
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30481	30482	30483	30484	30485	30486
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30487	30488	30489	30490	30491	30492
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30688	30689	30690	30691	30692	30693
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30760	30761	30762	30763	30764	30765
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30784	30785	30786	30787	30788	30789
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30880	30881	30882	30883	30884	30885
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30892	30893	30894	30895	30896	30897
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0.0007608818	0.0008441239	0.0008120272	0.0007737790	0.0014649564	0.0015403935
30947	30948	30949	30950	30951	30952
0.0006034973	0.0021681658	0.0005116281	0.0005272418	0.0006528833	0.0006772776
30953	30954	30955	30956	30957	30958
0.0005558310	0.0006725502	0.0015042519	0.0004387107	0.0004584785	0.0005019110
30959	30960	30961	30962	30963	30964
0.0028298518	0.0029059951	0.0009965448	0.0012804770	0.0012074799	0.0025371621
30965	30966	30967	30968	30969	30970
0.0013624278	0.0015656176	0.0013393076	0.0011283921	0.0007414626	0.0006366236
30971	30972	30973	30974	30975	30976
0.0007779803	0.0015651834	0.0005622710	0.0005308989	0.0005498165	0.0008702632
30977	30978	30979	30980	30981	30982
0.0005049107	0.0004444853	0.0006989320	0.0008223221	0.0020189448	0.0005255218
30983	30984	30985	30986	30987	30988
0.0004684792	0.0004400707	0.0004688742	0.0005077451	0.0006252752	0.0004194764
30989	30990	30991	30992	30993	30994
0.0005188571	0.0007395151	0.0005244448	0.0029590463	0.0006774531	0.0005239437
30995	30996	30997	30998	30999	31000
0.0004436987	0.0004358807	0.0007268885	0.0005441720	0.0004387003	0.0004625147
31001	31002	31003	31004	31005	31006
0.0004416460	0.0010968465	0.0004304560	0.0004626310	0.0004673511	0.0007400439
31007	31008	31009	31010	31011	31012
0.0006584284	0.0007586587	0.0006719543	0.0006481626	0.0006830569	0.0005276597
31013	31014	31015	31016	31017	31018
0.0009492456	0.0021157978	0.0015408600	0.0014263865	0.0009970808	0.0033240439
31019	31020	31021	31022	31023	31024
0.0031444229	0.0027763083	0.0027822420	0.0027765654	0.0027743296	0.0187409914
31025	31026	31027	31028	31029	31030
0.0181086469	0.0009245296	0.0006221635	0.0007258267	0.0005123462	0.0005518310
31031	31032	31033	31034	31035	31036
0.0006702376	0.0030439048	0.0011316904	0.0013349380	0.0012608817	0.0010325305
31037	31038	31039	31040	31041	31042
0.0010655493	0.0011106887	0.0011587556	0.0009991927	0.0011568950	0.0008496036
31043	31044	31046	31047	31048	31049
0.0007996312	0.0006577168	0.0010996709	0.0008356657	0.0016970783	0.0006613985

31050	31051	31052	31053	31054	31055
0.0006428164	0.0008631112	0.0006451881	0.0006126412	0.0005260644	0.0005254173
31056	31057	31058	31059	31060	31061
0.0005264996	0.0007327171	0.0018971645	0.0006282411	0.0007748212	0.0019112372
31062	31063	31064	31065	31066	31067
0.0010518437	0.0010862518	0.0011957589	0.0019737632	0.0009823495	0.0013518530
31068	31069	31070	31071	31072	31073
0.0031867601	0.0010534547	0.0012715782	0.0016645491	0.0015948902	0.0096944510
31074	31075	31076	31077	31078	31079
0.0015499330	0.0013172451	0.0014265083	0.0009488530	0.0010471439	0.0020751965
31080	31081	31082	31083	31084	31085
0.0010192880	0.0014394894	0.0023232439	0.0016602733	0.0009854011	0.0006681313
31086	31087	31088	31089	31090	31091
0.0078728826	0.0008558954	0.0005624540	0.0007347284	0.0005591575	0.0006981428
31092	31093	31094	31095	31096	31097
0.0008609553	0.0011888363	0.0007951404	0.0006843817	0.0007736079	0.0013751619
31098	31099	31100	31101	31102	31103
0.0013692743	0.0011989166	0.0011092199	0.0060476843	0.0038832432	0.0100942690
31104	31105	31106	31107	31108	31109
0.0046686174	0.0025004545	0.0027220428	0.0026406578	0.0029110364	0.0107549382
31110	31111	31112	31113	31247	31248
0.0034490440	0.0033799856	0.0046367850	0.0024089942	0.0015669742	0.0017338803
31249	31250	31251	31252	31253	31254
0.0015067773	0.0020926579	0.0023434021	0.0019081314	0.0017072765	0.0017348746
31255	31256	31257	31258	31259	31260
0.0012270516	0.0015724100	0.0011722701	0.0011893870	0.0017085337	0.0013379418
31261	31262	31263	31264	31265	31266
0.0013376248	0.0015017115	0.0184979068	0.0024313608	0.0020512161	0.0020199531
31267	31268	31269	31270	31271	31272
0.0070008877	0.0016046645	0.0013248134	0.0010994781	0.0009420505	0.0008580460
31273	31274	31275	31276	31277	31278
0.0019220888	0.0017677058	0.0013436348	0.0009866321	0.0023859713	0.0011580864
31279	31280	31281	31282	31283	31284
0.0008775527	0.0008562465	0.0010651650	0.0009931924	0.0008509133	0.0012173236
31285	31286	31287	31288	31289	31290
0.0010685879	0.0012433684	0.0008864479	0.0008695393	0.0009495592	0.0018995958
31291	31292	31293	31294	31295	31296
0.0014186148	0.0012639205	0.0019357200	0.0018565437	0.0018115662	0.0014974713
31297	31298	31299	31300	31301	31302
0.0019909039	0.0017072444	0.0016185500	0.0012483281	0.0122477022	0.0025689945
31303	31304	31305	31306	31307	31308
0.0038991961	0.0025283985	0.0018083089	0.0043630977	0.0023080153	0.0017683951
31309	31310	31311	31312	31313	31314

0.0012548662	0.0014272815	0.0014521818	0.0016401145	0.0018389909	0.0014005100
31315	31316	31317	31318	31319	31320
0.0064010584	0.0060752982	0.0068690838	0.0027180706	0.0015827251	0.0006066174
31321	31322	31323	31324	31325	31326
0.0015055964	0.0014976834	0.0008547719	0.0005288010	0.0006485558	0.0010545156
31327	31328	31329	31330	31331	31332
0.0008664488	0.0006784888	0.0005329333	0.0008696808	0.0011489184	0.0009782062
31333	31334	31335	31336	31337	31338
0.0007553311	0.0004404954	0.0004537881	0.0010902762	0.0004479359	0.0004932646
31339	31340	31341	31342	31343	31344
0.0004268659	0.0004426453	0.0004421801	0.0004396628	0.0004439071	0.0004847315
31345	31346	31347	31348	31349	31350
0.0008596131	0.0007004644	0.0147840285	0.0018016814	0.0018836185	0.0019496937
31351	31352	31353	31354	31355	31356
0.0019701325	0.0013764837	0.0115261356	0.0011544618	0.0020480425	0.0006801101
31357	31358	31359	31360	31361	31362
0.0006368780	0.0016851064	0.0008017657	0.0005954116	0.0005887494	0.0011930971
31363	31364	31365	31366	31367	31368
0.0009004309	0.0004424270	0.0008359530	0.0005088610	0.0009867646	0.0005166499
31369	31370	31371	31372	31373	31374
0.0005067818	0.0005036939	0.0004420578	0.0015184595	0.0010903626	0.0006072701
31375	31376	31377	31378	31379	31380
0.0004382359	0.0007253413	0.0004429504	0.0006947698	0.0010840641	0.0004469931
31381	31382	31383	31384	31385	31386
0.0006652311	0.0010795538	0.0014678381	0.0019961710	0.0019932318	0.0025347232
31389	31390	31391	31392	31393	31394
0.0070882255	0.0018153327	0.0025603070	0.0026178367	0.0016614770	0.0015373876
31395	31396	31397	31398	31399	31400
0.0023031426	0.0025088295	0.0016649183	0.0021616064	0.0017718254	0.0021975627
31401	31402	31403	31404	31405	31406
0.0013063344	0.0023789711	0.0013600870	0.0013286522	0.0023672458	0.0017118408
31407	31408	31409	31410	31411	31412
0.0017227669	0.0061107462	0.0021893359	0.0023092028	0.0023732214	0.0017212838
31413	31414	31415	31416	31417	31419
0.0017001389	0.0016362423	0.0016910963	0.0026186727	0.0015404771	0.0027788012
31420	31421	31422	31423	31424	31425
0.0017068394	0.0016714323	0.0012504120	0.0010016991	0.0010156032	0.0013455776
31426	31427	31428	31429	31430	31431
0.0014623662	0.0015892545	0.0012692948	0.0012549308	0.0012352256	0.0012439948
31432	31433	31434	31435	31436	31437
0.0010170446	0.0012219569	0.0010323612	0.0012369524	0.0014813796	0.0010597566
31438	31439	31440	31441	31442	31443
0.0013852261	0.0019603113	0.0018233918	0.0018253844	0.0011092100	0.0008376924

31444	31445	31446	31447	31448	31449
0.0016124267	0.0016377211	0.0006932186	0.0011696341	0.0007113456	0.0006117491
31450	31451	31452	31453	31454	31455
0.0007074307	0.0007391087	0.0007632728	0.0007718906	0.0006435542	0.0009689475
31456	31457	31458	31459	31460	31461
0.0016374053	0.0010240899	0.0008871800	0.0012732567	0.0012153652	0.0020903712
31462	31463	31464	31465	31466	31467
0.0010646249	0.0010142878	0.0009404042	0.0009200524	0.0009225747	0.0010221372
31468	31469	31470	31471	31472	31473
0.0015558011	0.0015054862	0.0009048156	0.0009148159	0.0008878717	0.0009236780
31474	31475	31476	31477	31478	31479
0.0023090304	0.0009208214	0.0009964641	0.0007869713	0.0007559498	0.0008692268
31480	31481	31482	31483	31484	31485
0.0010502960	0.0009097574	0.0007751087	0.0010549122	0.0013285370	0.0007962589
31486	31487	31488	31489	31490	31491
0.0032820551	0.0011803465	0.0010605338	0.0013043216	0.0009174428	0.0012679957
31492	31493	31494	31495	31496	31497
0.0008044470	0.0009616929	0.0005924676	0.0011228227	0.0008748492	0.0007503280
31498	31499	31500	31501	31502	31503
0.0008302145	0.0010255779	0.0009028265	0.0011355527	0.0017977963	0.0007070778
31504	31505	31506	31507	31508	31509
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31510	31511	31512	31513	31514	31515
0.0074321262	0.0014294667	0.0008987235	0.0008294479	0.0024976405	0.0021495552
31516	31517	31518	31519	31520	31521
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31522	31523	31524	31525	31526	31527
0.0022717132	0.0006284004	0.0006143952	0.0006726647	0.0010773886	0.0004558211
31528	31529	31530	31531	31532	31533
0.0006010749	0.0007443597	0.0006864348	0.0005144058	0.0004237270	0.0004269393
31534	31535	31536	31537	31538	31539
0.0008225405	0.0008352866	0.0006984945	0.0004356226	0.0004822586	0.0007635033
31540	31541	31542	31543	31544	31545
0.0007419548	0.0007261055	0.0004289543	0.0004689803	0.0004694521	0.0006574872
31546	31547	31548	31549	31550	31551
0.0027716301	0.0007623807	0.0010732306	0.0006516510	0.0006683968	0.0006572653
31552	31553	31554	31555	31556	31557
0.0017486148	0.0065895342	0.0030058721	0.0185369004	0.0028053778	0.0038036080
31558	31559	31560	31561	31562	31563
0.0031380507	0.0026945002	0.0104895020	0.0025687648	0.0026696409	0.0009044460
31564	31565	31566	31567	31568	31569
0.0013855852	0.0012049703	0.0009039770	0.0009299847	0.0007838754	0.0031244835
31570	31571	31572	31573	31574	31575

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31576	31577	31578	31579	31580	31581
0.0021334350	0.0011729194	0.0011744091	0.0007387180	0.0016074422	0.0018600701
31582	31583	31584	31585	31586	31587
0.0015554438	0.0011395069	0.0010494490	0.0013099226	0.0007989214	0.0007843853
31588	31589	31590	31591	31592	31593
0.0007512685	0.0007070895	0.0007674539	0.0006305938	0.0008784462	0.0008820350
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0.0005829122	0.0006670533	0.0007820507	0.0005477048	0.0006721442	0.0008106925
31600	31601	31602	31603	31604	31605
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31606	31607	31608	31609	31610	31611
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31612	31613	31614	31615	31616	31617
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31618	31619	31620	31621	31622	31623
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31624	31625	31626	31627	31628	31629
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31630	31631	31632	31633	31634	31635
0.0012235252	0.0010949784	0.0017211003	0.0015075611	0.0009765599	0.0014952489
31636	31637	31638	31639	31640	31641
0.0023393226	0.0009511573	0.0033864800	0.0015333647	0.0018217548	0.0008656885
31642	31643	31644	31645	31646	31647
0.0008010377	0.0009625036	0.0007989325	0.0007406338	0.0008060439	0.0007458660
31648	31649	31650	31651	31652	31653
0.0006106852	0.0007071055	0.0008302735	0.0007432909	0.0010571861	0.0017236209
31654	31655	31656	31657	31658	31659
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31660	31661	31662	31663	31664	31665
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31666	31667	31668	31669	31670	31792
0.0024651546	0.0026645907	0.0028640600	0.0026998424	0.0023552138	0.0017342441
31793	31794	31795	31796	31797	31798
0.0012898234	0.0012979437	0.0013828966	0.0013670091	0.0017172383	0.0037510455
31799	31800	31801	31802	31803	31804
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31805	31806	31807	31808	31809	31810
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31811	31812	31813	31814	31815	31816
0.0014413939	0.0013835322	0.0013446231	0.0016279499	0.0066218714	0.0013255252
31817	31818	31819	31820	31821	31822
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31823	31824	31825	31826	31827	31828
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31829	31830	31831	31832	31834	31835
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31836	31837	31838	31839	31840	31841
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31842	31843	31844	31845	31846	31847
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31848	31849	31850	31851	31852	31853
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31854	31855	31856	31857	31858	31859
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31860	31861	31862	31863	31864	31865
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31866	31867	31868	31869	31870	31871
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31872	31873	31874	31875	31876	31877
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31878	31879	31880	31881	31882	31883
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31884	31885	31886	31887	31888	31889
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31890	31891	31892	31893	31894	31895
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31896	31897	31898	31899	31900	31901
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31902	31903	31904	31905	31906	31907
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31908	31909	31910	31911	31912	31913
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31914	31915	31916	31917	31918	31919
0.0006698805	0.0010972125	0.0016114521	0.0021873821	0.0021882551	0.0030810251
31920	31921	31922	31923	31924	31925
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31926	31927	31928	31929	31930	31931
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31932	31933	31934	31935	31936	31937
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31938	31939	31940	31941	31942	31943
0.0025170042	0.0016849908	0.0018774133	0.0016801556	0.0017512240	0.0015021442
31944	31945	31946	31947	31948	31949
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31962	31963	31964	31965	31966	31967
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31968	31969	31970	31971	31972	31973
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31974	31975	31976	31977	31978	31979
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31980	31981	31982	31983	31984	31985
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31986	31987	31988	31989	31990	31991
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31992	31993	31994	31995	31996	31997
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31998	31999	32000	32001	32002	32003
0.0015671085	0.0021137041	0.0017789860	0.0011140571	0.0010066015	0.0011527200
32004	32005	32006	32007	32008	32009
0.0010695889	0.0010644214	0.0014685641	0.0010369846	0.0010530906	0.0010018286
32010	32011	32012	32013	32014	32015
0.0007845064	0.0008730142	0.0005909667	0.0008094048	0.0009175574	0.0077726993
32016	32017	32018	32019	32020	32021
0.0006893385	0.0006531809	0.0006647746	0.0008022144	0.0008849228	0.0008240484
32022	32023	32024	32025	32026	32027
0.0010240795	0.0009571135	0.0009795418	0.0012458236	0.0020848878	0.0010554641
32028	32029	32030	32031	32032	32033
0.0011953241	0.0010057030	0.0011194464	0.0010336954	0.0009243785	0.0114727924
32034	32035	32036	32037	32038	32039
0.0114985223	0.0011553106	0.0011440681	0.0017505127	0.0011516878	0.0010481832
32040	32041	32042	32043	32044	32045
0.0005037429	0.0005599041	0.0004540691	0.0015202915	0.0004704020	0.0022425236
32046	32047	32048	32049	32050	32051
0.0006193286	0.0004666847	0.0005441156	0.0004790289	0.0004588849	0.0006086285
32052	32053	32054	32055	32056	32057
0.0007351818	0.0004273181	0.0007616275	0.0005822426	0.0014540143	0.0028648602
32058	32059	32060	32061	32062	32063
0.0170601063	0.0012864746	0.0010043179	0.0008512642	0.0008644423	0.0013995353
32064	32065	32066	32067	32068	32069
0.0014069899	0.0013636218	0.0011047098	0.0009731442	0.0011652609	0.0006991811
32070	32071	32072	32073	32074	32075
0.0005324955	0.0016210266	0.0005540026	0.0007676287	0.0006823352	0.0006101130
32076	32077	32078	32079	32080	32081
0.0004957728	0.0005009066	0.0005623595	0.0004622119	0.0006351626	0.0077172073

32082	32083	32084	32085	32086	32087
0.0007357501	0.0005432841	0.0007457864	0.0007074610	0.0005127094	0.0004612993
32088	32089	32090	32091	32092	32093
0.0006636713	0.0004471193	0.0007566291	0.0004549522	0.0004344328	0.0009169805
32094	32095	32096	32097	32098	32099
0.0005291073	0.0004353789	0.0009170340	0.0006747086	0.0019372717	0.0414855712
32100	32101	32102	32103	32104	32105
0.0057833558	0.0060761092	0.0030729903	0.0527232144	0.0027716041	0.0027360090
32106	32107	32108	32109	32110	32111
0.0032166390	0.0020600162	0.0006066682	0.0009324297	0.0085392860	0.0006448646
32112	32113	32114	32115	32116	32117
0.0005595695	0.0008447054	0.0021714153	0.0009469017	0.0008736792	0.0011751732
32118	32119	32120	32121	32122	32123
0.0016294814	0.0011472033	0.0022237813	0.0022615878	0.0014726292	0.0010039765
32124	32125	32126	32127	32128	32129
0.0008725793	0.00100555995	0.0009915770	0.0078993525	0.0009558940	0.0009036244
32130	32131	32132	32133	32134	32135
0.0007850190	0.0007064714	0.0008319273	0.0006839569	0.0006997249	0.0021650079
32136	32137	32138	32139	32140	32141
0.0008681552	0.0007871798	0.0008350410	0.0005286246	0.0006593257	0.0006995381
32142	32143	32144	32145	32146	32147
0.0005342378	0.0005236848	0.0005219746	0.0005557086	0.0007428945	0.0007309745
32148	32149	32150	32151	32152	32153
0.0007547229	0.0007546941	0.0081769347	0.0009001686	0.0012691899	0.0014107340
32154	32155	32156	32157	32158	32159
0.0011407356	0.0006574247	0.0006154110	0.0009671214	0.0010708553	0.0007073558
32160	32161	32162	32163	32164	32165
0.0009735684	0.0009435550	0.0009288012	0.0037285325	0.0016815494	0.0017129152
32166	32167	32168	32169	32170	32171
0.0017612379	0.0013839075	0.0012889426	0.0015748289	0.0010175146	0.0011078201
32172	32173	32174	32175	32176	32177
0.0009900911	0.0030093604	0.0009190273	0.0013319768	0.0011579175	0.0009302394
32178	32179	32180	32181	32182	32183
0.0007475245	0.0008077267	0.0022644393	0.0008594831	0.0012269882	0.0014753615
32184	32185	32186	32187	32188	32189
0.0011098088	0.0011878686	0.0009334665	0.0010090674	0.0010259624	0.0008916515
32190	32191	32192	32193	32194	32195
0.0009986790	0.0013894191	0.0007458816	0.0065333570	0.0034033803	0.0026805133
32196	32197	32198	32199	32200	32201
0.0027005672	0.0029644186	0.0024261320	0.0023893096	0.0028420922	0.0025323696
32202	32203	32204	32233	32324	32325
0.0028054314	0.0045016429	0.0036915190	0.0015255863	0.0086447984	0.0014834476
32326	32327	32328	32329	32330	32331

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32332	32333	32334	32335	32336	32337
0.0027290831	0.0017332260	0.0017062790	0.0016171240	0.0020741439	0.0015683093
32338	32339	32340	32341	32342	32343
0.0016442413	0.0013163412	0.0014794892	0.0011848293	0.0013380194	0.0010470171
32344	32345	32346	32347	32348	32349
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32350	32351	32352	32353	32354	32355
0.0016918094	0.0015263784	0.0019160831	0.0010910143	0.0008642581	0.0008642581
32356	32357	32358	32359	32360	32361
0.0012847974	0.0017958575	0.0008632966	0.0008765187	0.0019812232	0.0008616596
32362	32363	32364	32365	32366	32367
0.0008732331	0.0012430094	0.0012315899	0.0017871934	0.0029551377	0.0017552717
32368	32369	32370	32371	32372	32373
0.0019869614	0.0015184447	0.0016727603	0.0014792552	0.0016656716	0.0015305965
32374	32375	32376	32377	32378	32379
0.0029616692	0.0101105084	0.0015713983	0.0174351461	0.0013773014	0.0016217531
32380	32381	32382	32383	32384	32385
0.0017144265	0.0032159014	0.0441635092	0.0014192862	0.0012905861	0.0010762762
32386	32387	32388	32389	32390	32391
0.0021143112	0.0025590617	0.0014473042	0.0016116718	0.0040977043	0.0015782131
32392	32393	32394	32395	32396	32397
0.0014965252	0.0012296062	0.0012408940	0.0145723359	0.0026316202	0.0017211258
32398	32399	32400	32401	32402	32403
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32404	32405	32406	32407	32408	32409
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32410	32411	32412	32413	32414	32415
0.0005483101	0.0006830051	0.0010993713	0.0005496966	0.0004720657	0.0004871363
32416	32417	32418	32419	32420	32421
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32422	32423	32424	32425	32426	32427
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32428	32429	32430	32431	32432	32433
0.0013673255	0.0009569364	0.0063118869	0.0024040526	0.0140447462	0.0015612392
32434	32435	32436	32437	32438	32439
0.0017510103	0.0016299107	0.0007476795	0.0005585092	0.0006881617	0.0004451982
32440	32441	32442	32443	32444	32445
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32446	32447	32448	32449	32450	32451
0.0004730737	0.0005447963	0.0004347879	0.0008495965	0.0005396973	0.0075990137
32452	32453	32454	32455	32456	32457
0.0009166380	0.0007667606	0.0004511208	0.0006735425	0.0006832639	0.0009675735

32458	32459	32460	32461	32462	32463
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32464	32465	32466	32467	32468	32469
0.0019674833	0.0019955791	0.1406609310	0.0021910317	0.0019401294	0.0021249739
32470	32471	32472	32473	32474	32475
0.0037918005	0.0018016596	0.0022286419	0.0018057890	0.0021391986	0.0029567046
32476	32477	32478	32479	32480	32481
0.0027064110	0.0027942661	0.0022421929	0.0026283380	0.0027510183	0.0034502861
32482	32483	32484	32485	32486	32487
0.0021756362	0.0133255508	0.0016368743	0.0023137301	0.0018360974	0.0012933201
32488	32489	32490	32491	32492	32493
0.0012920827	0.0014217041	0.0023711010	0.0027269108	0.0018984964	0.0041178233
32494	32495	32496	32497	32498	32499
0.0017611372	0.0015422798	0.0022375717	0.0014858459	0.0014997779	0.0014867449
32500	32501	32502	32503	32504	32505
0.0017343036	0.0012288079	0.0012622035	0.0012320488	0.0013359543	0.0013359543
32506	32507	32508	32509	32510	32511
0.0014246926	0.0021194603	0.0016219558	0.0022518595	0.0017398305	0.0023437340
32512	32513	32514	32515	32516	32517
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32518	32519	32520	32521	32522	32523
0.0012395267	0.0039741949	0.0017547365	0.0014907861	0.0014281856	0.0035577665
32524	32525	32526	32527	32528	32529
0.0019125589	0.0019692781	0.0019692781	0.0012215679	0.0025075642	0.0013822026
32530	32531	32532	32533	32534	32535
0.0010555556	0.0016112937	0.0012482238	0.0010500537	0.0010218847	0.0010334711
32536	32537	32538	32539	32540	32541
0.0010348900	0.0010244639	0.0022007455	0.0025559333	0.0010665582	0.0013806988
32542	32543	32544	32545	32546	32547
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32554	32555	32556	32557	32558	32559
0.0006609420	0.0008809333	0.0012809328	0.0010186491	0.0012256140	0.0009975466
32560	32561	32562	32563	32564	32565
0.0022051598	0.0012036239	0.0114762215	0.0023641866	0.0009580602	0.0009235107
32566	32567	32568	32569	32570	32571
0.0010829138	0.0009652216	0.0018021296	0.0016063764	0.0009430630	0.0008639672
32572	32573	32574	32575	32576	32577
0.0007574107	0.0008970349	0.0008153052	0.0008325094	0.0009156948	0.0008061342
32578	32579	32580	32581	32582	32583
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32584	32585	32586	32587	32588	32589

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32590	32591	32592	32593	32594	32595
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32596	32597	32598	32599	32600	32601
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32602	32603	32604	32605	32606	32607
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32608	32609	32610	32611	32612	32613
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32614	32615	32616	32617	32618	32619
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32620	32621	32622	32623	32624	32625
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32626	32627	32628	32629	32630	32631
0.0004820207	0.0007469085	0.0004562527	0.0006246267	0.0005326465	0.0006907788
32632	32633	32634	32635	32636	32637
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32638	32639	32640	32641	32642	32643
0.0006556282	0.0004558257	0.0008502518	0.0021122214	0.0007606404	0.0010819634
32644	32645	32646	32647	32648	32649
0.0012516640	0.0013393174	0.0031838132	0.0027221450	0.0031796441	0.0026883441
32650	32651	32652	32653	32654	32655
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32656	32657	32658	32659	32660	32661
0.0037850644	0.0032362814	0.0026488121	0.0020344722	0.0012480403	0.0010418039
32662	32663	32664	32665	32666	32667
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32668	32669	32670	32671	32672	32673
0.0010953889	0.0010745483	0.0010122250	0.0020061599	0.0009373421	0.0012266424
32674	32675	32676	32677	32678	32679
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32680	32681	32682	32683	32684	32685
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32686	32687	32688	32689	32690	32691
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32692	32693	32694	32695	32696	32697
0.0006317641	0.0008251612	0.0006211531	0.0006210042	0.0008347416	0.0008349229
32698	32699	32700	32701	32702	32703
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32704	32705	32706	32707	32708	32709
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32710	32711	32712	32713	32714	32715
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32716	32717	32718	32719	32720	32721
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32728	32729	32730	32731	32732	32733
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32746	32747	32748	32749	32750	32751
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32752	32753	32754	32755	32756	32757
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32758	32759	32761	32762	32869	32870
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32871	32872	32873	32874	32875	32876
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32877	32878	32879	32880	32881	32882
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32883	32884	32885	32886	32887	32888
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32889	32890	32891	32892	32893	32894
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32895	32896	32897	32898	32899	32900
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32901	32902	32903	32904	32905	32906
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32907	32908	32909	32910	32911	32912
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32913	32914	32915	32916	32917	32918
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32919	32920	32921	32922	32923	32924
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32925	32926	32927	32928	32929	32930
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32943	32944	32945	32946	32947	32948
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32949	32950	32951	32952	32953	32954

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32955	32956	32957	32958	32959	32960
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32961	32962	32963	32964	32965	32966
0.0027003380	0.0005240324	0.0005102033	0.0007354497	0.0005392356	0.0004638148
32967	32968	32969	32970	32971	32972
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32973	32974	32975	32976	32977	32978
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32979	32980	32981	32982	32983	32984
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32985	32986	32987	32988	32989	32990
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32991	32992	32993	32994	32995	32996
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33003	33004	33005	33006	33007	33008
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33015	33016	33017	33018	33019	33020
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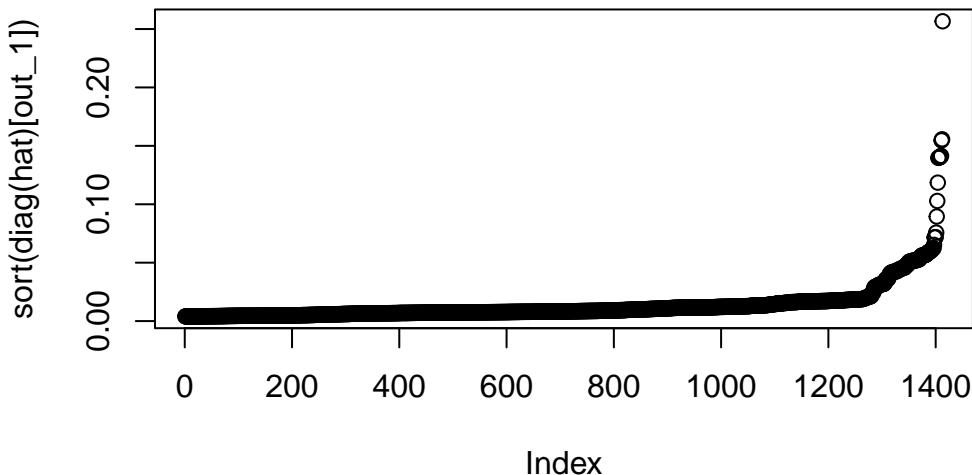
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34023	34024	34025	34026	34027	34028
0.0025026803	0.0010379927	0.0006384779	0.0009577845	0.0011646940	0.0020048669
34029	34030	34031	34032	34033	34034
0.0011409127	0.0032750784	0.0010868123	0.0026429760	0.0014432369	0.0025421759
34035	34036	34037	34038	34039	34040
0.0015189300	0.0014636512	0.0010317570	0.0009948219	0.0009039560	0.0009503768
34041	34042	34043	34044	34045	34046
0.0008052471	0.0025029374	0.0008856301	0.0009979865	0.0005841050	0.0006607551
34047	34048	34049	34050	34051	34052
0.0008134259	0.0010235251	0.0011529592	0.0006181822	0.0015619311	0.0017361136
34053	34054	34055	34056	34057	34058
0.0012061635	0.0416747486	0.0029564720	0.0048980434	0.0030172129	0.0031552607
34059	34060	34162	34163	34164	34165
0.0029816537	0.0025750464	0.0015139226	0.0019534793	0.0019534208	0.0031873588

34166	34167	34168	34169	34170	34171
0.0019527418	0.0016330064	0.0015291283	0.0015666117	0.0017218568	0.0013776998
34172	34173	34174	34175	34176	34177
0.0013682744	0.0017396917	0.0014803900	0.0018632214	0.0029146219	0.0010471892
34178	34179	34180	34181	34182	34183
0.0019218332	0.0019970301	0.0011116957	0.0078943813	0.0009016080	0.0010180781
34184	34185	34186	34187	34188	34189
0.0016239020	0.0017893742	0.0015875999	0.0016365167	0.0010538288	0.0009778094
34190	34191	34192	34193	34194	34195
0.0008894698	0.0015423749	0.0022967185	0.0012386388	0.0011513294	0.0017701118
34196	34197	34198	34199	34200	34201
0.0008921369	0.0027436848	0.0012082910	0.0012881584	0.0150339019	0.0046769639
34202	34203	34204	34205	34206	34207
0.0018145579	0.0024644350	0.0011814446	0.0029832236	0.0017623243	0.0037320263
34208	34209	34210	34211	34212	34213
0.0015392482	0.0014393149	0.0027236956	0.0021444698	0.0020778743	0.0078806154
34214	34215	34216	34217	34218	34219
0.0457212946	0.0075091770	0.0007023945	0.0009007738	0.0006992997	0.0005713220
34220	34221	34222	34223	34224	34225
0.0008357052	0.0010792156	0.0008274318	0.0005156022	0.0006969699	0.0004535217
34226	34227	34228	34229	34230	34231
0.0004637817	0.0004732405	0.0004602045	0.0007819131	0.0010738211	0.0009100956
34232	34233	34234	34235	34236	34237
0.0020919594	0.0010055207	0.0015610944	0.0185758149	0.0032045125	0.0017157449
34238	34239	34240	34241	34242	34243
0.0007054629	0.0006296023	0.0005644768	0.0007874963	0.0004873904	0.0005862182
34244	34245	34246	34247	34248	34249
0.0004640103	0.0004609011	0.0011155080	0.0086934670	0.0032745902	0.0020726531
34250	34251	34252	34253	34254	34256
0.0021088143	0.0017883020	0.0022192033	0.0020418579	0.0022312730	0.0017214593
34257	34258	34259	34260	34261	34262
0.0013951387	0.0034803376	0.0015986560	0.0023970013	0.0019134419	0.0016654255
34263	34264	34265	34266	34267	34268
0.0016198798	0.0034756261	0.0012737388	0.0013077091	0.0037701726	0.0014852595
34269	34270	34271	34272	34273	34274
0.0016052832	0.0024527351	0.0021070543	0.0013160933	0.0015389945	0.0019361118
34275	34276	34277	34278	34279	34280
0.0024190387	0.0026198623	0.0023536410	0.0020280111	0.0018520584	0.0025855294
34281	34282	34283	34284	34286	34287
0.0024940439	0.0049071774	0.0018275557	0.0015514211	0.0010703682	0.0010404790
34288	34289	34290	34291	34292	34293
0.0012271465	0.0016054489	0.0010486816	0.0013343907	0.0012690426	0.0013987984
34294	34295	34296	34297	34298	34299

0.0010624644	0.0010393818	0.0012519469	0.0012464787	0.0007283272	0.0013222692
34300	34301	34302	34303	34304	34305
0.0078924392	0.0008331577	0.0007405220	0.0006184702	0.0007463529	0.0008765401
34306	34307	34308	34309	34310	34311
0.0006458125	0.0012491062	0.0013988077	0.0009670747	0.0018853019	0.0021026401
34312	34313	34314	34315	34316	34317
0.0015248319	0.0026130914	0.0018309840	0.0012404849	0.0009620747	0.0008854616
34318	34319	34320	34321	34322	34323
0.0009162893	0.0007244095	0.0009740268	0.0010425345	0.0020636328	0.0007352912
34324	34325	34326	34327	34328	34329
0.0008228366	0.0008718386	0.0019465552	0.0011638266	0.0007534280	0.0006450233
34330	34331	34332	34333	34334	34335
0.0004434460	0.0006063373	0.0004749732	0.0018670280	0.0027751531	0.0015259859
34336	34337	34338	34339	34340	34341
0.0010859805	0.0009927636	0.0010300272	0.0010729464	0.0013599457	0.0006131736
34342	34343	34344	34345	34346	34347
0.0005515866	0.0005925409	0.0005191639	0.0005151482	0.0008214474	0.0007133662
34348	34349	34350	34351	34352	34353
0.0007224314	0.0004551667	0.0005288744	0.0004398717	0.0006441838	0.0004406841
34354	34355	34356	34357	34358	34359
0.0004428645	0.0005474442	0.0008597797	0.0004548184	0.0004520164	0.0004562328
34360	34361	34362	34363	34364	34365
0.0008806025	0.0007556608	0.0011213457	0.0028705763	0.0038630337	0.0034599706
34366	34367	34368	34369	34370	34371
0.0035127036	0.0031455259	0.0037257080	0.0028054386	0.0030858698	0.0031822001
34372	34373	34374	34375	34376	34379
0.0028999553	0.0035514103	0.0034713513	0.0029858139	0.0026804211	0.0078952888
34380	34381	34382	34383	34384	34385
0.0006374588	0.0018515122	0.0008417530	0.0005908674	0.0005328521	0.0005683079
34386	34387	34388	34389	34390	34391
0.0005491964	0.0022079405	0.0007498813	0.0007801238	0.0008491555	0.0007408436
34392	34393	34394	34395	34396	34397
0.0028092630	0.0012636729	0.0010557411	0.0021278653	0.0009907459	0.0011290188
34398	34399	34400	34401	34402	34403
0.0030147307	0.0013293492	0.0009923828	0.0007249387	0.0007653594	0.0007652525
34404	34405	34406	34407	34408	34409
0.0006353054	0.0005758634	0.0009639163	0.0006998193	0.0011401006	0.0005338962
34410	34411	34412	34413	34414	34415
0.0007178299	0.0013958635	0.0006252902	0.0007427420	0.0005578802	0.0007519574
34416	34417	34418	34419	34420	34421
0.0007455533	0.0030851448	0.0010536593	0.0009828372	0.0032508325	0.0012793433
34422	34423	34424	34425	34426	34427
0.0014547367	0.0018906645	0.0011188708	0.0102737824	0.0015756018	0.0015571699

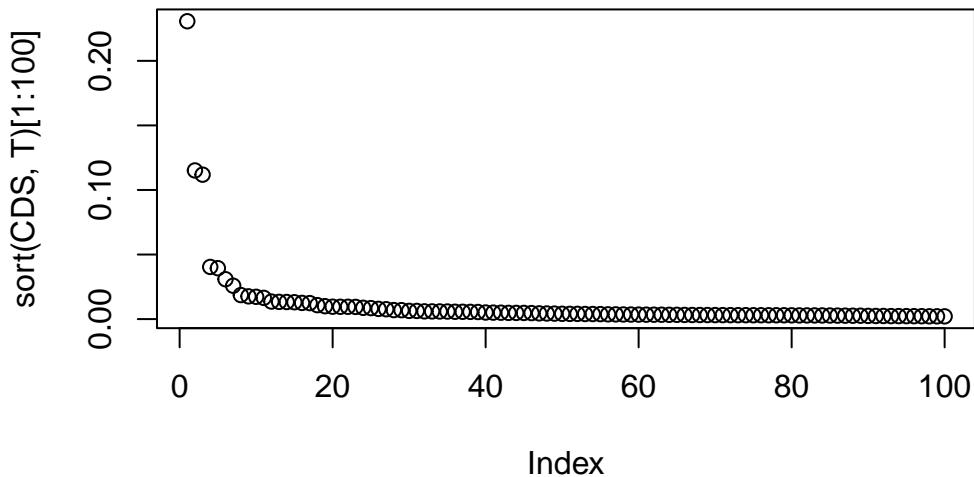
34428	34429	34430	34431	34432	34433
0.0014943377	0.0013317871	0.0025416941	0.0008657668	0.0010080897	0.0022314255
34434	34435	34436	34437	34438	34439
0.0014423447	0.0011645856	0.0009895460	0.0008953706	0.0012108409	0.0173212844
34440	34441	34442	34443	34444	34445
0.0014839022	0.0016462859	0.0062385918	0.0027836111	0.0028424643	0.0027603439
34446	34447	34448	34449	34450	
0.0027019202	0.0051403166	0.0022477967	0.0133300819	0.0072643443	

```
p=ncol(X)
n=nrow(X)
out_1=which(diag(hat)>2*p/n)
plot(sort(diag(hat)[out_1]))
```



```
# I would still look at those after the elbow
```

```
# Cooks distances
CDS=cooks.distance(model2)
plot(sort(CDS,T) [1:100])
```



```
which(CDS>1)
```

```
named integer(0)
```

```
max(CDS)
```

```
[1] 0.2306738
```

```
df_clean4[CDS>1,]
```

```
[1] District   Extwall   Stories    Year_Built Fin_sqft   Units
[7] Bdrms      Fbath     Lotsize    Sale_date  Sale_price d_3
<0 rows> (or 0-length row.names)
```

```
# I would still look at those two values that are far from the other distances
# I would still look at those before the elbow
```

```
# We may only look at numeric values for depth functions - so we can either
```

```

numer=NULL
df_clean4$d_3=as.factor(df_clean4$d_3)
for(i in names(df_clean4)){
  if(!is.factor(df_clean4[1,i])){
    numer=c(numer,i)
  }
}
numer

[1] "Year_Built" "Fin_sqft"    "Lotsize"      "Sale_date"    "Sale_price"

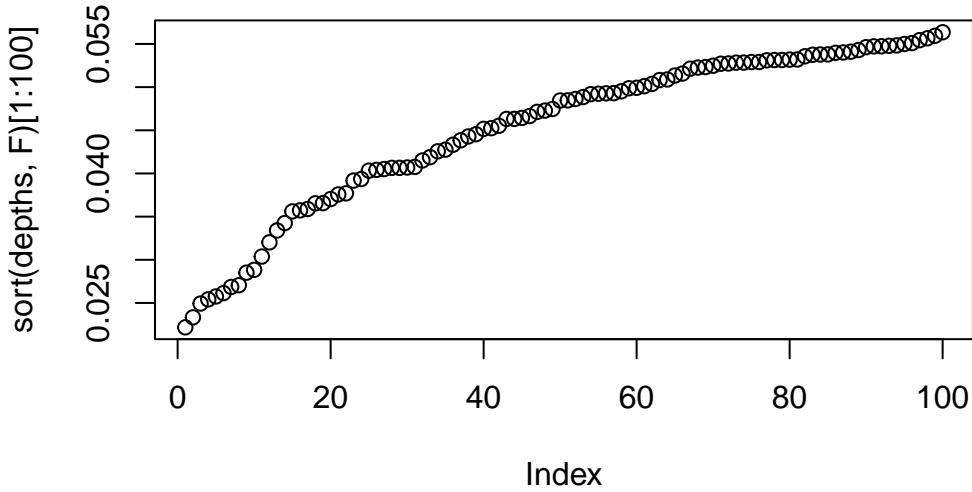
depths=ddalpha::depth.projection(df_clean4[,numer],df_clean4[,numer])
depths<0.1

[1] FALSE FALSE
[13] FALSE FALSE
[25] FALSE FALSE
[37] FALSE FALSE
[49] FALSE FALSE
[61] FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
[73] FALSE FALSE
[85] FALSE FALSE
[97] FALSE FALSE
[109] FALSE FALSE
[121] FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE
[133] FALSE FALSE
[145] FALSE FALSE
[157] FALSE FALSE
[169] FALSE FALSE
[181] FALSE FALSE
[193] FALSE FALSE
[205] FALSE FALSE
[217] FALSE FALSE
[229] FALSE FALSE
[241] FALSE FALSE
[253] FALSE FALSE
[265] FALSE FALSE
[277] FALSE FALSE
[289] FALSE FALSE
[301] FALSE FALSE
[313] FALSE TRUE

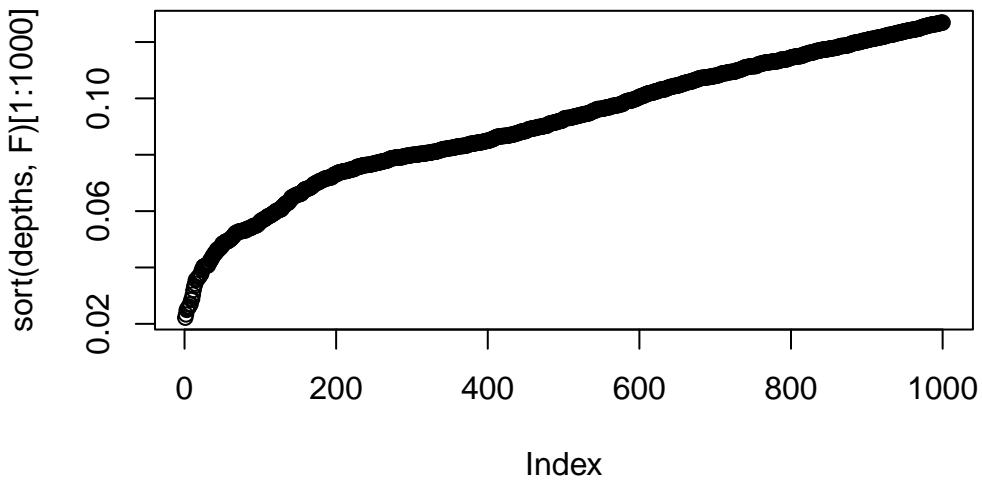
```



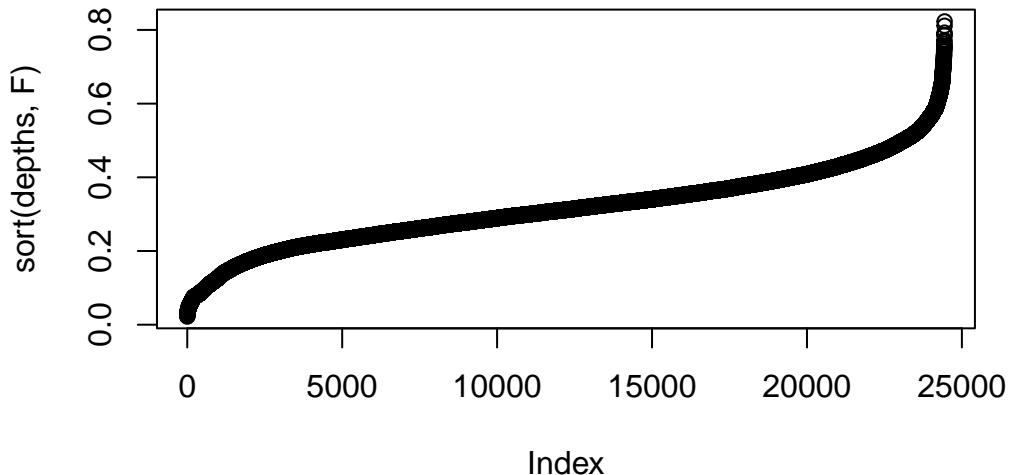
```
plot(sort(depths,F)[1:100])
```



```
# Notice there is a crack around 0.035, I would look at those observations  
plot(sort(depths,F)[1:1000])
```



```
plot(sort(depths,F))
```

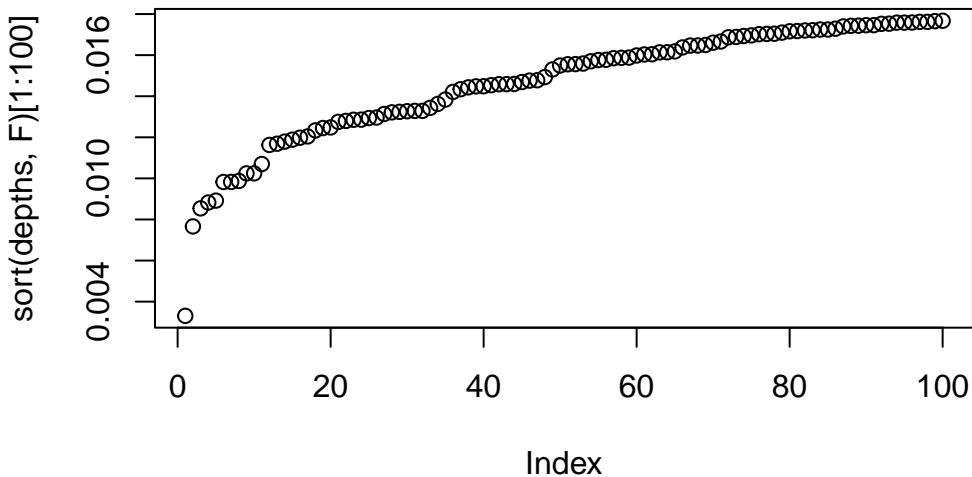


```
# OR  
depths=ddalpha::depth.projection(cbind(X,sqrt(df_clean4$Sale_price)), cbind(X,sqrt(df_clean4$  
depths<0.1
```

```
[1] TRUE TRUE FALSE FALSE TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE  
[13] TRUE FALSE  
[25] FALSE TRUE FALSE TRUE FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE  
[37] FALSE  
[49] FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE  
[61] FALSE FALSE FALSE TRUE TRUE TRUE TRUE FALSE FALSE FALSE FALSE FALSE FALSE  
[73] FALSE  
[85] FALSE  
[97] FALSE  
[109] FALSE  
[121] FALSE FALSE FALSE FALSE FALSE TRUE TRUE TRUE FALSE FALSE FALSE FALSE FALSE  
[133] FALSE  
[145] FALSE  
[157] FALSE  
[169] FALSE  
[181] FALSE FALSE
```



```
plot(sort(depths,F)[1:100])
```



```
which.max(diag(hat))
```

```
16833  
11142
```

```
which.max(CDS)
```

```
16833  
11142
```

```
which.min(depths)
```

```
[1] 11142
```

```
# Hugely expensive home!  
df_clean4[11142,]
```

```

District Extwall Stories Year_Built Fin_sqft Units Bdrms Fbath Lotsize
16833      3   Brick     2       2005      5746     1     5     4    47045
Sale_date Sale_price d_3
16833    16526  1260000 TRUE

```

```

model3=lm(sqrt(Sale_price)~ District + Extwall +
           Stories + Year_Built + Fin_sqft +
           Units + Bdrms +
           Fbath + log(Lotsize) + Sale_date +d_3*Lotsize-d_3,df_clean4[-which.max(CDS),
           ])

# Compare
s=summary(model3)
summary(model3)

```

Call:

```

lm(formula = sqrt(Sale_price) ~ District + Extwall + Stories +
    Year_Built + Fin_sqft + Units + Bdrms + Fbath + log(Lotsize) +
    Sale_date + d_3 * Lotsize - d_3, data = df_clean4[-which.max(CDS),
    ])

```

Residuals:

Min	1Q	Median	3Q	Max
-321.00	-28.80	1.89	30.34	358.90

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-9.434e+02	4.742e+01	-19.896	< 2e-16 ***
District2	3.197e+01	2.133e+00	14.986	< 2e-16 ***
District3	1.359e+02	4.013e+00	33.857	< 2e-16 ***
District4	-3.220e+01	4.475e+00	-7.194	6.46e-13 ***
District5	9.062e+01	1.837e+00	49.326	< 2e-16 ***
District6	1.212e+01	2.677e+00	4.528	6.00e-06 ***
District7	-5.133e+00	2.295e+00	-2.237	0.025306 *
District8	4.136e+01	2.543e+00	16.266	< 2e-16 ***
District9	6.329e+01	2.300e+00	27.522	< 2e-16 ***
District10	9.751e+01	1.917e+00	50.860	< 2e-16 ***
District11	1.114e+02	1.838e+00	60.590	< 2e-16 ***
District12	2.692e+01	3.110e+00	8.657	< 2e-16 ***
District13	1.095e+02	1.899e+00	57.668	< 2e-16 ***
District14	1.495e+02	1.945e+00	76.848	< 2e-16 ***
District15	-4.212e+01	2.847e+00	-14.794	< 2e-16 ***

ExtwallBlock	-8.205e+00	4.312e+00	-1.903	0.057076	.
ExtwallBrick	8.448e+00	8.573e-01	9.855	< 2e-16	***
ExtwallFiber-Cement	4.313e+01	4.405e+00	9.791	< 2e-16	***
ExtwallFrame	-5.392e+00	1.144e+00	-4.712	2.47e-06	***
ExtwallMasonry / Frame	4.668e+00	2.006e+00	2.327	0.019960	*
ExtwallPrem Wood	2.038e+01	6.582e+00	3.096	0.001962	**
ExtwallStone	1.970e+01	1.803e+00	10.925	< 2e-16	***
ExtwallStucco	6.682e+00	2.512e+00	2.660	0.007812	**
Stories1.5	1.518e+01	1.160e+00	13.091	< 2e-16	***
Stories2	1.950e+01	1.221e+00	15.971	< 2e-16	***
Stories>2	6.858e+00	1.203e+01	0.570	0.568683	
Year_Built	3.667e-01	2.153e-02	17.033	< 2e-16	***
Fin_sqft	7.819e-02	1.185e-03	65.975	< 2e-16	***
Units2	-8.114e+01	1.304e+00	-62.234	< 2e-16	***
Units3	-1.086e+02	4.040e+00	-26.889	< 2e-16	***
Units>3	-4.515e+01	8.622e+00	-5.236	1.65e-07	***
Bdrms1	-5.402e+01	1.981e+01	-2.727	0.006395	**
Bdrms2	-3.909e+01	1.917e+01	-2.039	0.041420	*
Bdrms3	-2.701e+01	1.915e+01	-1.411	0.158267	
Bdrms4	-3.559e+01	1.915e+01	-1.859	0.063086	.
Bdrms5	-3.820e+01	1.920e+01	-1.990	0.046627	*
Bdrms6	-5.453e+01	1.921e+01	-2.838	0.004543	**
Bdrms7	-7.402e+01	1.973e+01	-3.753	0.000175	***
Bdrms8	-6.659e+01	2.012e+01	-3.310	0.000934	***
Bdrms>8	-1.126e+02	2.159e+01	-5.216	1.84e-07	***
Fbath1	5.974e+00	1.149e+01	0.520	0.602960	
Fbath2	2.847e+01	1.150e+01	2.477	0.013261	*
Fbath3	4.665e+01	1.167e+01	3.997	6.43e-05	***
Fbath4	6.142e+01	1.267e+01	4.846	1.26e-06	***
Fbath>4	-1.075e+01	1.599e+01	-0.672	0.501687	
log(Lotsize)	3.582e+01	2.799e+00	12.796	< 2e-16	***
Sale_date	6.622e-03	3.043e-04	21.763	< 2e-16	***
Lotsize	-1.850e-03	3.290e-04	-5.623	1.90e-08	***
d_3TRUE:Lotsize	1.332e-02	6.869e-04	19.386	< 2e-16	***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 51.18 on 24393 degrees of freedom

Multiple R-squared: 0.7267, Adjusted R-squared: 0.7261

F-statistic: 1351 on 48 and 24393 DF, p-value: < 2.2e-16

```
summary(model2)
```

Call:

```
lm(formula = sqrt(Sale_price) ~ District + Extwall + Stories +  
  Year_Built + Fin_sqft + Units + Bdrms + Fbath + log(Lotsize) +  
  Sale_date + d_3 * Lotsize - d_3, data = df_clean4)
```

Residuals:

Min	1Q	Median	3Q	Max
-321.26	-28.88	1.83	30.31	360.39

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-9.602e+02	4.736e+01	-20.277	< 2e-16 ***
District2	3.198e+01	2.135e+00	14.979	< 2e-16 ***
District3	1.447e+02	3.708e+00	39.019	< 2e-16 ***
District4	-3.250e+01	4.478e+00	-7.257	4.07e-13 ***
District5	9.059e+01	1.838e+00	49.282	< 2e-16 ***
District6	1.232e+01	2.678e+00	4.600	4.25e-06 ***
District7	-5.148e+00	2.296e+00	-2.242	0.024989 *
District8	4.163e+01	2.544e+00	16.366	< 2e-16 ***
District9	6.322e+01	2.301e+00	27.477	< 2e-16 ***
District10	9.744e+01	1.918e+00	50.793	< 2e-16 ***
District11	1.112e+02	1.839e+00	60.490	< 2e-16 ***
District12	2.754e+01	3.110e+00	8.857	< 2e-16 ***
District13	1.095e+02	1.900e+00	57.613	< 2e-16 ***
District14	1.497e+02	1.946e+00	76.906	< 2e-16 ***
District15	-4.216e+01	2.849e+00	-14.797	< 2e-16 ***
ExtwallBlock	-8.222e+00	4.315e+00	-1.906	0.056705 .
ExtwallBrick	8.448e+00	8.578e-01	9.848	< 2e-16 ***
ExtwallFiber-Cement	4.270e+01	4.408e+00	9.688	< 2e-16 ***
ExtwallFrame	-5.459e+00	1.145e+00	-4.768	1.87e-06 ***
ExtwallMasonry / Frame	4.695e+00	2.007e+00	2.339	0.019322 *
ExtwallPrem Wood	2.015e+01	6.586e+00	3.060	0.002219 **
ExtwallStone	1.967e+01	1.804e+00	10.906	< 2e-16 ***
ExtwallStucco	6.901e+00	2.513e+00	2.746	0.006043 **
Stories1.5	1.511e+01	1.160e+00	13.024	< 2e-16 ***
Stories2	1.940e+01	1.221e+00	15.882	< 2e-16 ***
Stories>2	4.922e+00	1.203e+01	0.409	0.682581
Year_Built	3.606e-01	2.152e-02	16.759	< 2e-16 ***
Fin_sqft	7.881e-02	1.181e-03	66.744	< 2e-16 ***

```

Units2           -8.159e+01  1.302e+00 -62.658 < 2e-16 ***
Units3          -1.100e+02  4.035e+00 -27.264 < 2e-16 ***
Units>3         -4.615e+01  8.626e+00 -5.350 8.89e-08 ***
Bdrms1          -5.372e+01  1.982e+01 -2.710 0.006725 **
Bdrms2          -3.891e+01  1.918e+01 -2.029 0.042483 *
Bdrms3          -2.700e+01  1.916e+01 -1.409 0.158741
Bdrms4          -3.564e+01  1.916e+01 -1.860 0.062899 .
Bdrms5          -3.845e+01  1.921e+01 -2.002 0.045339 *
Bdrms6          -5.450e+01  1.922e+01 -2.835 0.004587 **
Bdrms7          -7.387e+01  1.974e+01 -3.743 0.000182 ***
Bdrms8          -6.713e+01  2.013e+01 -3.335 0.000855 ***
Bdrms>8         -1.135e+02  2.161e+01 -5.256 1.49e-07 ***
Fbath1          6.170e+00  1.149e+01  0.537 0.591397
Fbath2          2.863e+01  1.150e+01  2.489 0.012803 *
Fbath3          4.760e+01  1.168e+01  4.076 4.60e-05 ***
Fbath4          6.076e+01  1.268e+01  4.791 1.67e-06 ***
Fbath>4         -5.056e+00  1.597e+01 -0.317 0.751598
log(Lotsize)    3.931e+01  2.734e+00 14.382 < 2e-16 ***
Sale_date        6.616e-03  3.045e-04 21.729 < 2e-16 ***
Lotsize          -2.250e-03  3.217e-04 -6.996 2.70e-12 ***
d_3TRUE:Lotsize 1.144e-02  6.042e-04 18.936 < 2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Residual standard error: 51.21 on 24394 degrees of freedom
 Multiple R-squared: 0.727, Adjusted R-squared: 0.7264
 F-statistic: 1353 on 48 and 24394 DF, p-value: < 2.2e-16

```
# Notice that some of the coefficients moved several standard errors!! This is a huge change
sort(abs(model3$coefficients-model2$coefficients)/s$coefficients[,2],T)
```

d_3TRUE:Lotsize	District3	log(Lotsize)
2.7297502981	2.1971866906	1.2489775385
Lotsize	Fin_sqft	Fbath>4
1.2173969751	0.5279266560	0.3557179406
(Intercept)	Units2	Units3
0.3548686150	0.3483112977	0.3440975682
Year_Built	District12	Stories>2
0.2838090549	0.2009250235	0.1609478004
Units>3	District8	ExtwallFiber-Cement
0.1158034935	0.1079176134	0.0979397132
District14	ExtwallStucco	Fbath3

0.0968505363	0.0868090117	0.0811545357
Stories2	District6	District4
0.0809900175	0.0746760059	0.0671275338
District11	Stories1.5	ExtwallFrame
0.0651160136	0.0590571059	0.0589709060
Fbath4	Bdrms>8	District10
0.0522382419	0.0424206397	0.0348954098
ExtwallPrem Wood	District9	Bdrms8
0.0347734841	0.0280150217	0.0269106281
Sale_date	District13	Fbath1
0.0206936434	0.0177781435	0.0170112211
Bdrms1	Fbath2	ExtwallMasonry / Frame
0.0148955698	0.0141436974	0.0136770147
Bdrms5	District5	District15
0.0131294533	0.0122119997	0.0121572452
ExtwallStone	Bdrms2	Bdrms7
0.0115155040	0.0092235530	0.0075798343
District7	ExtwallBlock	District2
0.0063212029	0.0040912402	0.0033830696
Bdrms4	Bdrms6	Bdrms3
0.0025300928	0.0012446363	0.0006895854
ExtwallBrick		
0.0004495469		

How should we treat influential observations? The easiest course of action is removal. If there are many influential observations, then you might want to try robust model fitting methods, which automatically account for outliers and influential observations.

7.1.2 Homework questions

Complete the Chapter 6 textbook questions. :::{#exr-7-4-1} What are the three methods we have learned for detecting influential/leverage points? :::

Exercise 7.1. Compute the hat values, Cook's distances and the depth values for the body weight example. Are there any influential/leverage points/outliers?

Exercise 7.2. Compute the hat values, Cook's distances and the depth values for the cars example. Are there any outliers/influential/leverage points?

Exercise 7.3. Fit a model without location to the real estate data of your choosing. Compute the hat values, Cook's distances and the depth values for the cars example. Are there any

influential/leverage points/outliers? Print out the influential/leverage points/outliers. Why do you think they are outlying? Should we remove them?

\end{document}

References

- Miller, Don M. 1984. "Reducing Transformation Bias in Curve Fitting." *The American Statistician* 38 (2): 124–26. <http://www.jstor.org/stable/2683247>.

8 Introduction to R software

8.1 Some Basics

R is a Statistical Programming language, it consists of 2 types of objects: data and functions.

```
##Data
x<-2
print(x)
```

```
[1] 2
```

```
##function
log(2)
```

```
[1] 0.6931472
```

Data is stored in variables and can take many forms. To store a value in a variable use “`<-`”, above we set the variable `x` equal to 2. There are many data types in R, we will go through some of them.

```
#real numbers
num=29.333
num
```

```
[1] 29.333
```

```
#Some math
#adding and subtraction
2+3-2
```

```
[1] 3
```

```
#multiplying and dividing
num<-5*(10/25)
num
```

```
[1] 2
```

```
#Strings
word<-"hello"
word
```

```
[1] "hello"
```

```
word='hello'
```

8.2 Booleans

Booleans take on either TRUE or FALSE values, and can be very useful in R. You can set booleans to the result of a comparison of two data types, some of the syntax is below:

- <,>,<=,>= corresponds to less than, greater than, less than or equal, greater than or equal
- ==, != equals, not equals
- && , written like a&&b where a and b are booleans, it is TRUE if *both* a and b are TRUE
- || , written like a||b where a and b are booleans, it is TRUE if at least *one of* a and b are TRUE

```
#booleans can be initialize in a variety of ways, for example
#must capitalize the true or false
FALSE
```

```
[1] FALSE
```

```
F
```

```
[1] FALSE
```

```
T
```

```
[1] TRUE
```

```
myBoolean<-TRUE  
myBoolean
```

```
[1] TRUE
```

```
myBoolean2<- 3<4  
myBoolean2
```

```
[1] TRUE
```

```
myBoolean3<-"this"=="that"  
myBoolean3
```

```
[1] FALSE
```

```
## && (and) is TRUE if BOTH input booleans are true  
## || (or) is TRUE if AT LEAST one input boolean is true  
myBoolean4<-myBoolean2&&myBoolean  
myBoolean4
```

```
[1] TRUE
```

8.3 Vectors

Vectors in R are used frequently, they are “lists” or “arrays” of all the same data type.

```
##vectors are created with c(data,data,data)  
myVector<-c(2,3,4,5,6,7,8,9,10)  
myVector
```

```
[1] 2 3 4 5 6 7 8 9 10
```

```

#a:b is a shortcut for a sequence from a to b adding 1
#you can create vectors of sequences using seq(), for more type ?seq in the console
myVector2<-2:10
myVector2

[1] 2 3 4 5 6 7 8 9 10

as.numeric(2:10)

[1] 2 3 4 5 6 7 8 9 10

as.double(2:10)

[1] 2 3 4 5 6 7 8 9 10

myVector2<-rep(NA,l=20)

#These do not have to be numbers, they can be vectors, Strings, booleans...
myVector<-c(myVector,myVector)
myVector

[1] 2 3 4 5 6 7 8 9 10 2 3 4 5 6 7 8 9 10

myVector3<-c("this","is","a","vector","of","strings")
myVector3

[1] "this"      "is"        "a"         "vector"    "of"        "strings"

#access elements with square brackets []
myVector[1]

[1] 2

#more advanced accesssing
#access elements 1 to 5
myVector[1:5]

```

```
[1] 2 3 4 5 6
```

```
#access elements 1, 4 and 6  
myVector[c(1,4,6)]
```

```
[1] 2 5 7
```

```
#access elements that are greater than 2  
myVector[myVector>2]
```

```
[1] 3 4 5 6 7 8 9 10 3 4 5 6 7 8 9 10
```

```
myVector[-c(1,4,6)]
```

```
[1] 3 4 6 8 9 10 2 3 4 5 6 7 8 9 10
```

We can perform mathematical operations and comparisons on vectors

```
x<-1:10  
x
```

```
[1] 1 2 3 4 5 6 7 8 9 10
```

```
#adds 1 to every element  
x+1
```

```
[1] 2 3 4 5 6 7 8 9 10 11
```

```
#this works for comparisons  
x<4
```

```
[1] TRUE TRUE TRUE FALSE FALSE FALSE FALSE FALSE FALSE
```

```
x[x<4]
```

```
[1] 1 2 3
```

```
#multiplies element 1 to element 1 of second vectors  
x*-(1:10)
```

```
[1] -1 -4 -9 -16 -25 -36 -49 -64 -81 -100
```

```
#beware repetition  
x-c(1,2)
```

```
[1] 0 0 2 2 4 4 6 6 8 8
```

```
# mathematical operations on the vector apply to each element  
  
#squares each element  
x^2
```

```
[1] 1 4 9 16 25 36 49 64 81 100
```

```
#log each element  
log(x)
```

```
[1] 0.0000000 0.6931472 1.0986123 1.3862944 1.6094379 1.7917595 1.9459101  
[8] 2.0794415 2.1972246 2.3025851
```

```
#Example: Dot Product  
x<-c(1,2,3)  
y<-c(2,5,8)  
#sum adds the elements of the vector together  
sum(x*y)
```

```
[1] 36
```

8.4 Matrices

You can also use matrices in R.

```
#you can create a matrix with matrix(vector of data,nrow=number of rows,ncol=number of columns)
#You can see it will fill in the data down the columns first
myMatrix<-matrix(1:9,nrow=3,ncol=3); myMatrix
```

```
[,1] [,2] [,3]
[1,]    1    4    7
[2,]    2    5    8
[3,]    3    6    9
```

```
myMatrix
```

```
[,1] [,2] [,3]
[1,]    1    4    7
[2,]    2    5    8
[3,]    3    6    9
```

```
#rbind and cbind add a row or column respectively to the matrix
#you can create matrices with rbind(rowvector1,rowvector2,...), or with cbind(column vector)

myMatrix<-rbind(c(2,3,4),c(3,4,5),c(1,2,3))
myMatrix
```

```
[,1] [,2] [,3]
[1,]    2    3    4
[2,]    3    4    5
[3,]    1    2    3
```

```
myMatrix2<-cbind(c(1,2,3),c(4,5,6),c(7,8,9))
myMatrix2
```

```
[,1] [,2] [,3]
[1,]    1    4    7
[2,]    2    5    8
[3,]    3    6    9
```

```
myMatrix3<-cbind(myMatrix2,c(10,11,12))
myMatrix3
```

```
[,1] [,2] [,3] [,4]
[1,]    1     4     7    10
[2,]    2     5     8    11
[3,]    3     6     9    12
```

```
myMatrix3<-cbind(c(10,11,12),myMatrix2)
```

We can also do Matrix math:

```
#again math functions apply to every element
myMatrix^2
```

```
[,1] [,2] [,3]
[1,]    4     9    16
[2,]    9    16    25
[3,]    1     4     9
```

```
#multiply with '%*%
myMatrix2%*%myMatrix
```

```
[,1] [,2] [,3]
[1,]   21   33   45
[2,]   27   42   57
[3,]   33   51   69
```

```
#we can find the inverse with 'solve()
X<-matrix(c(1,0,1,-2,3,0,1,4,2),nrow=3)
X
```

```
[,1] [,2] [,3]
[1,]    1    -2     1
[2,]    0     3     4
[3,]    1     0     2
```

```
solve(X)
```

```
[,1] [,2] [,3]
[1,] -1.2 -0.8  2.2
[2,] -0.8 -0.2  0.8
[3,]  0.6  0.4 -0.6
```

```
#check dimension  
dim(X)
```

```
[1] 3 3
```

```
#We can also transpose with t()  
t(X)
```

```
[,1] [,2] [,3]  
[1,] 1 0 1  
[2,] -2 3 0  
[3,] 1 4 2
```

```
#Some times to multiply vectors we have to turn them into matrix types  
myVector<-c(1,2,3)  
newM<-matrix(myVector,ncol=1)
```

8.5 Functions

Functions are objects that take an input and transform it into some output, just like in mathematics. We have already seen some, such as `log()`.

They are called with this format `output<-functionName(input)`.

- The input is called *parameters*, and there can be many parameters
- parameters are usually described in the documentation
- the output is what the function *returns*
- functions can only return 1 object, but this includes a list... so it could return many objects in the form of a list object

R has many, many functions, to learn more about a function type `?functionName` and the documentation will come up.

```
#A simple function  
#here the function log is called, with the parameter 2, and the output is stored in the variable x  
x<-log(2)  
x
```

```
[1] 0.6931472
```

```
#A more complicated function
#What are the parameters?
#not rep(a,n) gives a vector of size n where all elements are a
s<-sample(x=1:10,size=4,replace=TRUE,prob=rep(1/10,10))
s
```

```
[1] 8 6 3 10
```

We have seen other people's functions but we can also make our own! Let's see an example first:

```
#recall the dot product example...
dotProd=function(a,b){
  value<-sum(a*b)
  return(value)
}
#calling our function
dotProd(x,y)
```

```
[1] 10.39721
```

What exactly does this code say?

- We stored the function in the variable `dotProd`
- to tell the compiler we are creating a function, we use the keyword `function`
- we specify the parameters in round brackets `()`
- we put the names of the parameters in the `()` only, not what data type we expect them to be
- inside curly brackets, we put the code that the function will run when it is called
- `return()` ends the function, and sends back the variable in the brackets

Back to built in functions... R is a statistical software, what does that mean? It already includes many common statistical functions! For most common distributions there are functions for the pdf, cdf, inverse cdf as well as one to get a sample from that distribution. The syntax is in the format: `dDistName(x,parameters)`, `pDistName(x,parameters)`, `qDistName(x,parameters)` and `rDistName(x,parameters)` respectively. This will make more sense in the example below...

```
#The normal distribution, sd is the standard deviation
#pdf
dnorm(c(2,3,5),mean=0,sd=1)
```

```
[1] 5.399097e-02 4.431848e-03 1.486720e-06
```

```
#cdf  
pnorm(c(2,3,5),mean=0,sd=1)
```

```
[1] 0.9772499 0.9986501 0.9999997
```

```
#inverse cdf  
qnorm(c(0.2,.5,.3),mean=0,sd=1)
```

```
[1] -0.8416212 0.0000000 -0.5244005
```

```
#random sample of size 10  
rnorm(10,mean=0, sd=1)
```

```
[1] 0.6889684 -1.1544376 1.3386315 -1.3848678 0.4728505 0.4885101  
[7] -0.6022450 -2.0711477 0.7386259 -0.4989625
```

8.6 Plotting

R is very good for plotting! There are many types of plots in R, here are some useful plotting functions, this list is not exhaustive...

- `plot(x,y,...)` produces a scatter plot.
- `abline(a=intercept,b=slope,...)`
- `curve(expr,...)` evaluates an expression along a grid to create a curve
- `hist(data)` creates a histogram

Plot functions have many parameters, some include `col` which changes the color and `add` which should be set to `TRUE` if the plot should be added to the existing plot. The best way to learn plots is with examples, I have included a regression example below.

```
#simulate errors  
epsilon<-rnorm(100)  
x<-rexp(100)  
y<-9+2*x+epsilon  
  
#scatter plot with true line  
plot(x,y)
```

```
abline(a=9,b=2,col="blue")

#least squares line
lmm<-lm(y~x)
summary(lmm)
```

Call:
lm(formula = y ~ x)

Residuals:

Min	1Q	Median	3Q	Max
-2.6454	-0.6753	0.1715	0.7739	2.4722

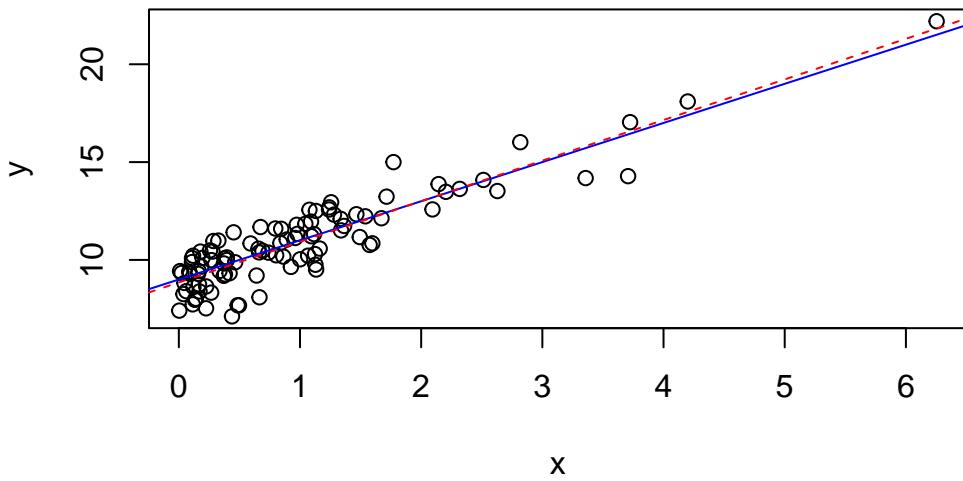
Coefficients:

	Estimate	Std. Error	t value	Pr(> t)							
(Intercept)	8.8508	0.1411	62.74	<2e-16 ***							
x	2.0749	0.1004	20.67	<2e-16 ***							

Signif. codes:	0	'***'	0.001	'**'	0.01	'*'	0.05	'..'	0.1	' '	1

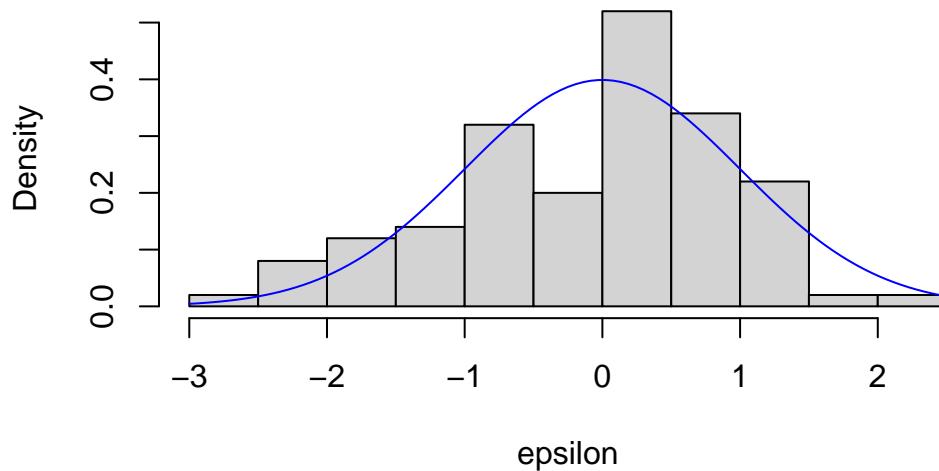
Residual standard error: 1.019 on 98 degrees of freedom
Multiple R-squared: 0.8134, Adjusted R-squared: 0.8115
F-statistic: 427.3 on 1 and 98 DF, p-value: < 2.2e-16

```
abline(lmm$coefficients[1],lmm$coefficients[2],col="red",lty=2)
```



```
#histogram of residuals
hist(epsilon,freq = F)
#x is what you want to evaluate the grid along
curve(dnorm(x),add=T,col="blue")
```

Histogram of epsilon



8.7 If Statements

If statements are essential in programming, and they are a form of ‘Control Structure’. They take the form `if(boolean variable){some task}`.

When the computer runs through the code, it checks if the boolean value is **TRUE**, and if it is, it executes the code in the curly brackets, code in curly brackets is called a *block*. A simple example...

```
jim<-"nice"

if(jim=="nice"){
  alice="nice"
}
```

Placing an `else{some code}` after the if statement will execute the code in it’s block if the code in the above if statement *was not* executed. The if and else must be in the same block so I have surrounded them in curly brackets.

```
jim<-"nice"
##same block
{
```

```
if(jim=="nice"){
  alice="nice"
}
else{
  alice="not nice"
}
alice
```

```
[1] "nice"
```

```
jim<-"mean"
##same block
{
if(jim=="nice"){
  alice="nice"
}
else{
  alice="not nice"
}
alice
```

```
[1] "not nice"
```

You may also use `else if(boolean){block}`, which executes it's block if the above (else) if statement(s) did not execute. See below:

```
jim<-"okay"
##same block
{
if(jim=="nice"){
  alice="nice"
}
else if(jim=="okay"){
  alice="okay"
}
#Here if jim is not okay or nice, then we check if he is neutral.
else if(jim=="neutral"){
  alice="neutral"
}
```

```
else{
  alice="not nice"
}
alice
```

```
[1] "okay"
```

Lastly you may put if statements inside of other if statements, called ‘nested ifs’.

```
jim<-"nice"
##same block

if(jim=="nice"){
  alice=sample(c("nice","not nice"),1)
  if(alice=="nice"){
    print(alice)
  }
  else{
    print(alice)
  }
}
```

```
[1] "not nice"
```

8.8 Loops

Loops execute operations within their blocks repeatedly. There are 2 types of loops you will generally use, for loops and while loops. For loops repeat the block a set number of times, while while loops repeat until a condition is satisfied. You can also nest loops, like if statements.

```
#calculate 2 to the power of ten
x<-1
#this reads for i in 1 to 10, this can be any vector that i loops through, not just a sequence
for(i in 1:10){
  x<-x*2
}

x
```

```
[1] 1024
```

```
for(i in 1:10){  
  x<-x+i  
}  
  
vec=2:5  
  
for(i in vec){  
  x<-x+i  
}  
  
#calculate power of 2 less than 1000  
x<-1  
while(2*x<1000){  
  x<-x*2  
}  
x
```

```
[1] 512
```

```
#nested loop  
for(i in c(10,9,8,7,6,5,4,3,2,1)){  
  v<-NULL  
  for(j in 1:i){  
    v<-c(v,"*")  
  }  
  print(v)  
}
```

```
[1] "*" "*" "*" "*" "*" "*" "*" "*" "*" "*" "*" "  
[1] "*" "*" "*" "*" "*" "*" "*" "*" "*" "*" "  
[1] "*" "*" "*" "*" "*" "*" "*" "*" "*" "  
[1] "*" "*" "*" "*" "*" "*" "*" "*" "*" "  
[1] "*" "*" "*" "*" "*" "*" "*" "*" "  
[1] "*" "*" "*" "*" "*" "  
[1] "*" "*" "*" "*" "  
[1] "*" "*" "*" "  
[1] "*" "*" "  
[1] "*" "
```

You can also use the `replicate` function, which replicates a line of code a specified number of times. This gives a 10 by 5 matrix.

```
replicate(5,rnorm(10))
```

	[,1]	[,2]	[,3]	[,4]	[,5]
[1,]	0.8970135	0.9891686	1.49923030	2.5845955	-0.75172580
[2,]	1.1682606	1.7802516	0.22981340	1.2754994	-1.83964843
[3,]	-0.8245099	0.4150877	1.02937447	-0.2476672	1.00194027
[4,]	-0.5691567	-0.5030022	0.91360999	1.5601216	1.54074980
[5,]	1.5412548	0.4041565	1.24151065	0.8889840	-2.36647124
[6,]	2.1771815	-0.4894092	0.67510094	0.4022771	-0.49192352
[7,]	0.2935978	0.5572741	-0.09434561	-0.6907481	-0.07222968
[8,]	-0.2701303	-1.4260777	0.64212171	0.1877044	-1.02178137
[9,]	1.3673666	0.5208878	0.94573092	0.1487234	1.45730760
[10,]	-0.8195405	-0.4588302	-1.25737316	-0.2264184	0.16047131

Similar functions include `sapply()` and `apply()`. `sapply(X,FUN,...)` applies the function that the parameter `FUN` is set to to individual elements of a vector. `apply(X,MARGIN,FUN,...)` applies `FUN` to the rows or columns depending on what `MARGIN` is set to, 1 for rows and 2 for columns.

8.9 Coverage Probability Example

Here we generate 10000 samples of size 100 from the exponential distribution, with $\lambda = 2$. We calculate 10000 confidence intervals for $1/\lambda$ with $S = \$1\%$, using the normal approximation:

$$\sqrt{n}(\bar{X} - 1/\lambda) \sim N(0, 1/\lambda^2)$$

and interval:

$$(\bar{X} - t_{99}(0.005) * S / \sqrt{n}, \bar{X} + t_{99}(0.005) * S / \sqrt{n})$$

We then check the proportion of intervals that contain the true value of $1/\lambda$.

```
#10000 samples, each of size 100 from the exponential distribution
x<-replicate(10000,rexp(100,rate=2))
#x is 100 by 10000, each column is a sample
dim(x)
```

```
[1] 100 10000
```

```
#calculate sample variances
S_Vector<-apply(x,2,sd);

# S_Vector

#get the t value
tval<-qt(1-0.005,99)
#calculate the means

means<-apply(x,2,mean); length(means)
```

[1] 10000

```
# lower and upper bounds
lower<-means-S_Vector*tval/10
upper<-means+S_Vector*tval/10
intervals<-rbind(lower,upper)
#example interval
intervals[,1]
```

lower	upper
0.3670730	0.7181179

```
#we now check each interval to see if it contains the mean
successes<-0
for(i in 1:ncol(intervals)){
  #if 0.5 is in the interval, add 1
  if((intervals[1,i]<0.5)&&(intervals[2,i]>0.5))
    successes<-successes+1
}
#here is the coverage probability...
coverage.prob<-successes/ncol(intervals)
coverage.prob
```

[1] 0.9837

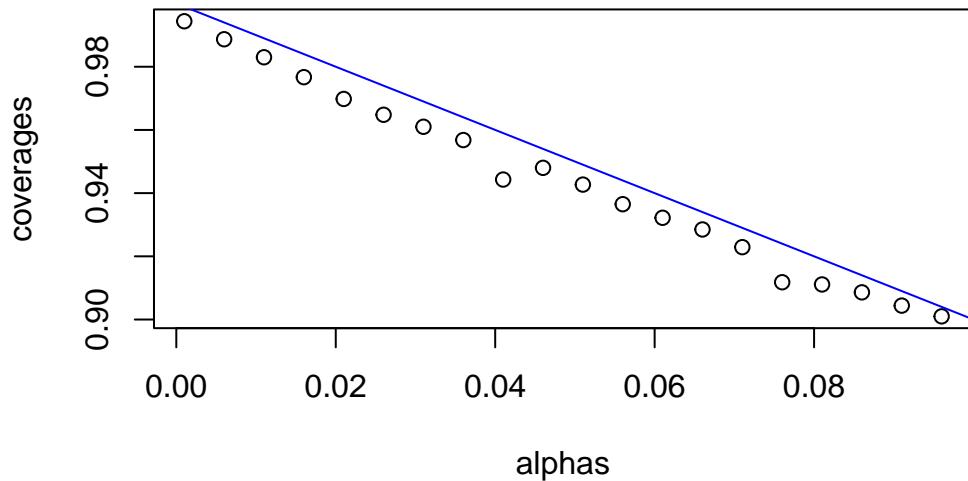
Something more advanced...

```

#Vectorizing the function changes the way the function calculates when it is passed a vector
#it will run the function once per element if it is vectorized instead of passing the vector
getCovProb<-Vectorize(function(alpha){
  #10000 samples, each of size 100 from the exponential distribution
  x<-replicate(10000,rexp(100,rate=2))
  #x is 100 by 10000, each column is a sample
  dim(x)
  #calculate sample variances
  S_Vector<-apply(x,2,sd)
  #get the t value
  tval<-qt(1-alpha/2,99)
  #calculate the means
  means<-apply(x,2,mean)
  # lower and upper bounds
  lower<-means-S_Vector*tval/10
  upper<-means+S_Vector*tval/10
  intervals<-rbind(lower,upper)
  #example interval
  intervals[,1]

  #we now check each interval to see if it contains the mean
  successes<-0
  for(i in 1:ncol(intervals)){
    #if 0.5 is in the interval, add 1
    if((intervals[1,i]<0.5)&(intervals[2,i]>0.5))
      successes<-successes+1
  }
  #here is the coverage probability...
  coverage.prob<-successes/ncol(intervals)
  return(coverage.prob)
})
#here we find the coverage probability for many alphas
alphas<-seq(from=0.001,to=0.1,by=0.005)
coverages<-getCovProb(alphas)
#adds a scatter plot
plot(alphas,coverages)
#adds a line
abline(a=1,b=-1,col="blue")

```



For more information you can visit [here](#). It is also very easy to find tutorials on the web (Youtube is good), you could also look at the book by Lafaye, Drouilhet and Liquet (2013).