

Problem Statement 1:

For x_1, x_2, \dots, x_n

(i) Average = $\frac{\sum_{i=1}^n x_i}{n}$

(ii) Standard deviation is the square root of $(\frac{\sum_{i=1}^n x_i^2}{n} - average^2)$

Using The Following R code

```
> #Assignment 2 stats 1
>
> #Problem 1
>
> price = c(1550,1700,900,850,1000,950)
>
> # Mean
>
> mean_price = mean(x = price)
>
> mean_price
[1] 1158.333
>
> #Variance
> var = var(x = price)
>
> #Standard deviation
> std = sqrt(x = var)
> std
[1] 367.99
>
```

Answers

(i) Average price = \$1158.33

(ii) Standard deviation = \$367.99

Problem Statement 2

For x_1, x_2, \dots, x_n

(i) Variance = $(\frac{\sum_{i=1}^n x_i^2}{n} - mean^2)$ where mean = $\frac{\sum_{i=1}^n x_i}{n}$

```
> #Problem 2
>
> trees = c(3,21,98,203,17,9)
>
> #Variance
> var_trees = var(trees)
> var_trees
[1] 6219.9
```



Answer

$$\text{Variance} = 6219.9 \text{ feet}^2$$

Problem Statement 3

Let X be the random variable number subjects a student has failed.

$$\text{Probability a student fails 0 subjects } P(X = 0) = \frac{80}{100}$$

$$\text{Probability a student fails 1 subjects } P(X = 1) = \frac{10}{100}$$

$$\text{Probability a student fails 0 subjects } P(X = 2) = \frac{7}{100}$$

$$\text{Probability a student fails 0 subjects } P(X = 3) = \frac{3}{100}$$

Answer

For x_i the probability distribution function $f(x_i)$

x_i	0	1	2	3
$f(x_i)$	0.8	0.1	0.07	0.03