1.

```
Call:
lm(formula = TGRAMS ~ SMOKE, data = ncbwt)

Residuals:
    Min      1Q  Median      3Q     Max
-2662.0  -206.5    59.6   343.1  1250.3

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  3285.70      46.28  70.989   <2e-16 ***
SMOKE        -179.92     123.10  -1.462    0.146
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 592.7 on 189 degrees of freedom
Multiple R-squared:  0.01118,   Adjusted R-squared:  0.005944
F-statistic: 2.136 on 1 and 189 DF,  p-value: 0.1455
```

E(Y|SMOKE) = $\beta_0 + \beta_1$SMOKE=3285.7-179.92*smoke

E(Y|Smoker) = 3285.7-179.92*1=3105.78

E(Y|Non-smoker)=3285.7-179.92*0= 3285.7

95% CI for β_0 (3194.4011, 3377.0020) and β_1 (-422.7567,62.9092).

2.

```
Call:
lm(formula = TGRAMS ~ as.factor(RACEMOM), data = ncbwt)

Residuals:
     Min       1Q   Median       3Q      Max
-2575.34  -205.37    61.21   373.06  1268.83

Coefficients:
                    Estimate Std. Error t value Pr(>|t|)
(Intercept)          3267.17      51.24  63.759   <2e-16 ***
as.factor(RACEMOM)2   -68.13      97.60  -0.698    0.486
as.factor(RACEMOM)3   359.40     247.52   1.452    0.148
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 593.2 on 188 degrees of freedom
Multiple R-squared:  0.01493,   Adjusted R-squared:  0.004451
F-statistic: 1.425 on 2 and 188 DF,  p-value: 0.2431
```

E(Birth Weight|Race)= $\boldsymbol{\beta_0 + \beta_1 * Black + \beta_2 * 0ther}$

E(Birth Weight|White) =3267.17-68.13*black+359.4*other

E(Birth Weight|Black) = 3267.17-68.13*1=3199.04

E(Birth Weight|Other) = 3267.17 +359.4*1=3626.57

Hypothesis: Blacks infants have a significantly lower mean birth weight than both white and non-black minority infants.

Ans: Mean birth weight of black infants significantly differs from that for white infants as white infants are the reference group ($p < .0001$). However, non-black minority infants do not significantly differ from the white infants in terms of mean birth weight ($p =$ **0.3165687)**.

3.

```
Call:
lm(formula = TGRAMS ~ SMOKE + GEST, data = ncbwt)

Residuals:
     Min       1Q   Median       3Q      Max
-1360.42  -273.90     8.48   321.40  1467.97

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) -1632.54     449.68  -3.630 0.000365 ***
SMOKE        -159.87      96.39  -1.659 0.098861 .
GEST          127.04      11.58  10.973  < 2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 464 on 188 degrees of freedom
Multiple R-squared:  0.3972,    Adjusted R-squared:  0.3908
F-statistic: 61.94 on 2 and 188 DF,  p-value: < 2.2e-16
```

$$E(Weight/smoke, Gest) = b_0 + b_1 Smoke + b_2 Gest$$

$$E(Weight/smoker, Gest) = \text{-1632.54-159.87*smoke+127.04*gest}$$

$$E(Weight/Non\ smoker, Gest) = \text{-1632.54+127.04*gest}$$

95% CI for the "Smoking Effect" for infants with a given gestational age is -350.0083 and 30.27035.
Thus adjusting for gestational age, we estimate that the mean birth weight of infants born to smoking mothers is between 30.27035g and -350.0083g lower than the mean birth weight of infants born to non-smoking mothers.

Q: What if the effect of gestational age is different for smokers and non-smokers? For example, maybe for smokers an additional week of gestational age does not translate to the same increase in birth weight as it does for non-smokers? What should we do?

A: Add a smoking and gestational age interaction term, ***Smoking*Gest***, which will allow the lines for smokers and nonsmokers to different slopes.

It is like q 4. $E\left(\frac{Weight}{smoker}, Gest\right)$ **= -1899.53+ 1331.07*** $Smoke$ **+ 133.94*** $Gest$ **- 38.64*** $Smoke * Gest$ **=-569.46+95.3*gest**

4.

```
Call:
lm(formula = TGRAMS ~ SMOKE + GEST + SMOKE * GEST, data = ncbwt)

Residuals:
    Min      1Q  Median      3Q     Max
-1251.1  -286.7    13.4   315.0  1479.8

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) -1899.53     495.00  -3.837  0.00017 ***
SMOKE        1331.07    1168.62   1.139  0.25616
GEST          133.94      12.75  10.503  < 2e-16 ***
SMOKE:GEST    -38.64      30.19  -1.280  0.20207
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 463.2 on 187 degrees of freedom
Multiple R-squared:  0.4025,    Adjusted R-squared:  0.3929
F-statistic: 41.98 on 3 and 187 DF,  p-value: < 2.2e-16
```

$E\left(\frac{Weight}{smoker}, Gest\right)$ = -1899.53+ 1331.07∗ $Smoke$+ 133.94* $Gest$- 38.64∗ $Smoke * Gest$
=-569.46+95.3*gest
$E(Weight/Non\ smoker, Gest)$ =-1899.53+ 133.94* $Gest$
Test: H_0: $\beta_{12} = 0$ ha: $\beta_{12} is\ not\ equal\ to\ 0$

```
> anova(c, d)
Analysis of Variance Table

Model 1: TGRAMS ~ SMOKE + GEST
Model 2: TGRAMS ~ SMOKE + GEST + SMOKE * GEST
  Res.Df      RSS Df Sum of Sq      F Pr(>F)
1    188 40477547
2    187 40125896  1    351651 1.6388 0.2021
> e = lm(TGRAMS ~ SMOKE+as.factor(RACEMOM)+GEST)
> summary(e)
```

F=1.6388 and p value=0.2021>0.05 so fail to reject h0 and state that it is equal to 0.

5.

```
Call:
lm(formula = TGRAMS ~ SMOKE + as.factor(RACEMOM) + GEST)

Residuals:
     Min       1Q   Median       3Q      Max
-1372.65  -277.30     6.35   305.41  1449.42

Coefficients:
                   Estimate Std. Error t value Pr(>|t|)
(Intercept)         -1582.26     451.03  -3.508 0.000566 ***
SMOKE                -161.91      96.96  -1.670 0.096628 .
as.factor(RACEMOM)2   -81.98      76.60  -1.070 0.285912
as.factor(RACEMOM)3   161.43     194.87   0.828 0.408510
GEST                  126.18      11.61  10.866  < 2e-16 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 463.9 on 186 degrees of freedom
Multiple R-squared:  0.4038,    Adjusted R-squared:  0.391
F-statistic:  31.5 on 4 and 186 DF,  p-value: < 2.2e-16
```

E **(**$Weight/smoke, Race, Gest$**)= -1582.26- 161.91*** $Smoke$ **- 81.98* Black +161.43* Other + 126.18* Gest**

$E(Weight/smoker, white, Gest)$ **=-1744.17 + 126.18* Gest**

Find: $E(Weight/Non\ smoker, white, Gest)$ **= -1582.26 + 126.18* Gest**

Find: $E(Weight/smoker, black, Gest)$ **= -1826.15 + 126.18* Gest**

Find: $E(Weight/Non\ smoker, black, Gest)$ **=-1664.24 + 126.18* Gest**

Find: $E(Weight/smoker, other, Gest)$ **=-1582.74 + 126.18* Gest**

Find: $E(Weight/Non\ smoker, other, Gest)$ **=-1420.83 + 126.18* Gest**

6.

```
Call:
lm(formula = TGRAMS ~ MAGE + GEST + as.factor(RACEMOM) + GAINED +
    SMOKE + DRINK, data = ncbwt)

Residuals:
     Min       1Q   Median       3Q      Max
-1155.76  -258.65     4.14   294.75  1236.21

Coefficients:
                     Estimate Std. Error t value Pr(>|t|)
(Intercept)         -2226.591    454.227  -4.902 2.08e-06 ***
MAGE                   17.298      5.302   3.263 0.001317 **
GEST                  123.867     10.999  11.262  < 2e-16 ***
as.factor(RACEMOM)2     6.941     75.667   0.092 0.927010
as.factor(RACEMOM)3   131.503    188.661   0.697 0.486667
GAINED                  8.276      2.351   3.520 0.000545 ***
SMOKE                -100.432     93.375  -1.076 0.283537
DRINK                 -60.637     71.001  -0.854 0.394203
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 438.5 on 183 degrees of freedom
Multiple R-squared:  0.476,     Adjusted R-squared:  0.4559
F-statistic: 23.75 on 7 and 183 DF,  p-value: < 2.2e-16
```

7. Fit a regression model in which the dependent variable is mark on the Final Exam, and the independent variables are Sex, Race, Quiz Average, Computer Average, and mark on the Midterm test.

What proportion of the variation in Final Exam mark is explained by the independent variables in the full model?

45.5%

What is the predicted Final Exam score for a Male student from Race A with a Quiz average of 8.5, a Computer average of 5, and a Midterm mark of 60%?

58.28467

Obtain a 95% prediction interval for the student described in the previous question.

27.89605,88.67329

Controlling for the other independent variables, are there any differences in the average performance of students from the different racial groups? Give the Null and alternate hypothesis, test statistic, the p-value, and conclusion.

Ho: β2= 0 Ha: β2≠ 0 F = 8.5544 p-value = 0.0006257<α, so we reject null hypothesis and state that β2≠ 0.

Allowing for other predictors, is the student's sex related to mark on the Final Exam? Give the Null and alternate hypothesis, test statistic, the p-value, and conclusion.

Ho: β1= 0 Ha: β1≠ 0 F = 0.5506 p-value = 0.4615>α, so we fail to reject null hypothesis and state that β1=0.

Controlling for other independent variables in the model, is Quiz Average a useful predictor of mark on the Final Exam? Give the Null and alternate hypothesis, test statistic, the p-value, and conclusion.

Ho: β3= 0 Ha: β3≠ 0 F =5.8789 p-value = 0.01891<α, so we reject null hypothesis and state that β3≠ 0.

Code:

```
> ncbwt <- read.table(file.choose(),header=T)
> attach(ncbwt)
> names(ncbwt)
 [1] "PLURAL"  "SEX"     "MAGE"    "GEST"    "MARITAL" "RACEMOM"
 [7] "HISPMOM" "GAINED"  "SMOKE"   "DRINK"   "TOUNCES" "TGRAMS"
[13] "LOW"     "PREMIE"
> tail(ncbwt)
```

	PLURAL	SEX	MAGE	GEST	MARITAL	RACEMOM	HISPMOM	GAINED	SMOKE
186	1	2	20	38	2	2	N	20	0
187	1	1	38	41	1	1	N	24	0
188	2	1	20	28	1	1	N	16	0
189	1	2	20	37	2	2	N	32	0
190	1	1	30	41	1	1	N	35	0
191	1	1	29	37	2	2	N	20	1

	DRINK	TOUNCES	TGRAMS	LOW	PREMIE
186	0	120	3402.00	0	0
187	0	113	3203.55	0	0
188	0	39	1105.65	1	1
189	0	115	3260.25	0	0
190	0	147	4167.45	0	0
191	0	120	3402.00	0	0

> head(ncbwt)

	PLURAL	SEX	MAGE	GEST	MARITAL	RACEMOM	HISPMOM	GAINED	SMOKE	DRINK
1	1	1	32	40	1	1	N	38	0	0
2	1	2	21	41	2	2	N	15	0	0
3	1	2	31	38	1	2	N	25	0	0
4	1	1	35	38	1	1	N	48	0	0
5	1	2	35	39	1	1	M	43	0	0
6	1	1	22	38	2	2	N	40	1	0

	TOUNCES	TGRAMS	LOW	PREMIE
1	111	3146.85	0	0
2	105	2976.75	0	0
3	110	3118.50	0	0
4	123	3487.05	0	0
5	117	3316.95	0	0
6	117	3316.95	0	0

```
> a = lm(TGRAMS ~ SMOKE, data = ncbwt)
> summary(a)

Call:
lm(formula = TGRAMS ~ SMOKE, data = ncbwt)

Residuals:
   Min      1Q  Median      3Q     Max
-2662.0  -206.5    59.6   343.1  1250.3

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  3285.70      46.28  70.989   <2e-16 ***
SMOKE        -179.92     123.10  -1.462    0.146
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 592.7 on 189 degrees of freedom
Multiple R-squared:  0.01118,           Adjusted R-squared:  0.005944
F-statistic: 2.136 on 1 and 189 DF,  p-value: 0.1455

> confint(a)
                2.5 %    97.5 %
(Intercept) 3194.4011 3377.0020
SMOKE       -422.7567   62.9092
> b = lm(TGRAMS ~ as.factor(RACEMOM), data = ncbwt)
> summary(b)

Call:
lm(formula = TGRAMS ~ as.factor(RACEMOM), data = ncbwt)
```

```
Residuals:
    Min      1Q  Median      3Q     Max
-2575.34  -205.37    61.21   373.06  1268.83

Coefficients:
                  Estimate Std. Error t value Pr(>|t|)
(Intercept)         3267.17      51.24  63.759   <2e-16 ***
as.factor(RACEMOM)2   -68.13      97.60  -0.698    0.486
as.factor(RACEMOM)3   359.40     247.52   1.452    0.148
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 593.2 on 188 degrees of freedom
Multiple R-squared:  0.01493,           Adjusted R-squared:  0.004451
F-statistic: 1.425 on 2 and 188 DF,  p-value: 0.2431

> anova(b)
Analysis of Variance Table

Response: TGRAMS
                  Df   Sum Sq Mean Sq F value Pr(>F)
as.factor(RACEMOM)   2  1002634  501317  1.4248 0.2431
Residuals          188 66148983  351856
> aov.b <- aov(TGRAMS ~ as.factor(RACEMOM), data = ncbwt)
> TukeyHSD(aov.b)
  Tukey multiple comparisons of means
    95% family-wise confidence level

Fit: aov(formula = TGRAMS ~ as.factor(RACEMOM), data = ncbwt)
```

```
$`as.factor(RACEMOM)`
        diff       lwr       upr     p adj
2-1 -68.13117 -298.6940  162.4316 0.7648898
3-1 359.39726 -225.3617  944.1562 0.3165687
3-2 427.52843 -177.2797 1032.3365 0.2194716

> c = lm(TGRAMS ~ SMOKE+GEST, data = ncbwt)
> summary(c)

Call:
lm(formula = TGRAMS ~ SMOKE + GEST, data = ncbwt)

Residuals:
    Min       1Q   Median       3Q      Max
-1360.42  -273.90     8.48   321.40  1467.97

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept) -1632.54     449.68  -3.630 0.000365 ***
SMOKE        -159.87      96.39  -1.659 0.098861 .
GEST          127.04      11.58  10.973  < 2e-16 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 464 on 188 degrees of freedom
Multiple R-squared:  0.3972,  Adjusted R-squared:  0.3908
F-statistic: 61.94 on 2 and 188 DF,  p-value: < 2.2e-16

> confint(c)
```

```
                2.5 %     97.5 %
(Intercept) -2519.6046 -745.46638
SMOKE        -350.0083   30.27035
GEST          104.2030  149.88143
> d = lm(TGRAMS ~ SMOKE+GEST+SMOKE*GEST, data = ncbwt)
> summary(d)

Call:
lm(formula = TGRAMS ~ SMOKE + GEST + SMOKE * GEST, data = ncbwt)

Residuals:
   Min      1Q  Median      3Q     Max
-1251.1  -286.7    13.4   315.0  1479.8

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) -1899.53     495.00  -3.837  0.00017 ***
SMOKE        1331.07    1168.62   1.139  0.25616
GEST          133.94      12.75  10.503  < 2e-16 ***
SMOKE:GEST    -38.64      30.19  -1.280  0.20207
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 463.2 on 187 degrees of freedom
Multiple R-squared:  0.4025,  Adjusted R-squared:  0.3929
F-statistic: 41.98 on 3 and 187 DF,  p-value: < 2.2e-16

> anova(c, d)
Analysis of Variance Table
```

```
Model 1: TGRAMS ~ SMOKE + GEST
Model 2: TGRAMS ~ SMOKE + GEST + SMOKE * GEST
  Res.Df      RSS Df Sum of Sq      F Pr(>F)
1    188 40477547
2    187 40125896  1    351651 1.6388 0.2021
> e = lm(TGRAMS ~ SMOKE+as.factor(RACEMOM)+GEST)
> summary(e)

Call:
lm(formula = TGRAMS ~ SMOKE + as.factor(RACEMOM) + GEST)

Residuals:
    Min       1Q   Median       3Q      Max
-1372.65  -277.30     6.35   305.41  1449.42

Coefficients:
                   Estimate Std. Error t value Pr(>|t|)
(Intercept)        -1582.26     451.03  -3.508 0.000566 ***
SMOKE               -161.91      96.96  -1.670 0.096628 .
as.factor(RACEMOM)2   -81.98      76.60  -1.070 0.285912
as.factor(RACEMOM)3   161.43     194.87   0.828 0.408510
GEST                  126.18      11.61  10.866  < 2e-16 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 463.9 on 186 degrees of freedom
Multiple R-squared:  0.4038,  Adjusted R-squared:  0.391
F-statistic:  31.5 on 4 and 186 DF,  p-value: < 2.2e-16
```

```
> f = lm(TGRAMS ~
MAGE+GEST+as.factor(RACEMOM)+GAINED+SMOKE+DRINK, data = ncbwt)
> summary(f)

Call:
lm(formula = TGRAMS ~ MAGE + GEST + as.factor(RACEMOM) + GAINED +
    SMOKE + DRINK, data = ncbwt)

Residuals:
     Min       1Q   Median       3Q      Max
-1155.76  -258.65     4.14   294.75  1236.21

Coefficients:
                   Estimate Std. Error t value Pr(>|t|)
(Intercept)        -2226.591    454.227  -4.902 2.08e-06 ***
MAGE                  17.298      5.302   3.263 0.001317 **
GEST                 123.867     10.999  11.262  < 2e-16 ***
as.factor(RACEMOM)2    6.941     75.667   0.092 0.927010
as.factor(RACEMOM)3  131.503    188.661   0.697 0.486667
GAINED                8.276      2.351   3.520 0.000545 ***
SMOKE              -100.432     93.375  -1.076 0.283537
DRINK               -60.637     71.001  -0.854 0.394203
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 438.5 on 183 degrees of freedom
Multiple R-squared:  0.476,    Adjusted R-squared:  0.4559
F-statistic: 23.75 on 7 and 183 DF,  p-value: < 2.2e-16
final <- read.table(file.choose(),header=T)
> h= lm (FinalExam~ Sex+ Race+ QuizAve+ CompAve + MidTerm, data=final)
```

```
> summary (h)

Call:
lm(formula = FinalExam ~ Sex + Race + QuizAve + CompAve + MidTerm,
    data = final)

Residuals:
     Min       1Q   Median       3Q      Max
-22.5436  -8.0723  -0.1649   8.9547  28.0303

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept)  10.6814    14.9350   0.715  0.47775
SexMale       2.8146     3.7932   0.742  0.46149
RaceB        16.5775     4.1021   4.041  0.00018 ***
RaceC        -0.4682     5.7945  -0.081  0.93592
QuizAve       4.7008     1.9387   2.425  0.01891 *
CompAve      -2.5861     1.7204  -1.503  0.13896
MidTerm       0.2960     0.1291   2.293  0.02603 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 12.94 on 51 degrees of freedom
Multiple R-squared:  0.4505,  Adjusted R-squared:  0.3859
F-statistic: 6.969 on 6 and 51 DF,  p-value: 1.896e-05

>
>  Xh= c(1, 1, 0, 0, 8.5, 5, 60)
> Yhat = t(Xh) %*% h$coefficients
> s = sqrt( t(Xh) %*% vcov(h) %*% Xh )
```

```
> t = qt(1-0.05/2, 58-7)
> anova(h)
Analysis of Variance Table

Response: FinalExam
          Df Sum Sq Mean Sq F value    Pr(>F)
Sex        1   65.3   65.30  0.3898   0.53517
Race       2 4134.6 2067.28 12.3404 4.255e-05 ***
QuizAve    1 1559.9 1559.88  9.3115   0.00361 **
CompAve    1  364.5  364.54  2.1761   0.14632
MidTerm    1  880.4  880.45  5.2557   0.02603 *
Residuals 51 8543.6  167.52
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> htwo= lm(FinalExam~ Sex+ QuizAve+ CompAve+ MidTerm, data=final)
> anova(htwo,h)
Analysis of Variance Table

Model 1: FinalExam ~ Sex + QuizAve + CompAve + MidTerm
Model 2: FinalExam ~ Sex + Race + QuizAve + CompAve + MidTerm
  Res.Df     RSS Df Sum of Sq      F    Pr(>F)
1     53 11409.7
2     51  8543.6  2    2866.1 8.5544 0.0006257 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> hthree= lm(FinalExam~ Race+ QuizAve+ CompAve+ MidTerm, data=final)
> anova(hthree, h)
Analysis of Variance Table

Model 1: FinalExam ~ Race + QuizAve + CompAve + MidTerm
```

```
Model 2: FinalExam ~ Sex + Race + QuizAve + CompAve + MidTerm
  Res.Df    RSS Df Sum of Sq      F Pr(>F)
1     52 8635.8
2     51 8543.6  1    92.234 0.5506 0.4615
> hf= lm(FinalExam~ Sex+ Race+ CompAve+ MidTerm, data=final)
> anova(hf,h)
Analysis of Variance Table

Model 1: FinalExam ~ Sex + Race + CompAve + MidTerm
Model 2: FinalExam ~ Sex + Race + QuizAve + CompAve + MidTerm
  Res.Df    RSS Df Sum of Sq      F  Pr(>F)
1     52 9528.5
2     51 8543.6  1    984.84 5.8789 0.01891 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
>
```