

```
#1
#a
Grade_Point_Average
model<- lm(GPA ~ ACT, data=Grade_Point_Average)
model
summary(model)
#Estimated regression function:2.11405+0.03883*ACT
#b
plot(df$ACT, df$GPA, pch=16, col='blue')
#c
2.11405+0.03883*30
```

25

```
#2
#a
anova <- aov(GPA ~ ACT, data=Grade_Point_Average)
summary(anova)
#b
f-test <- var.test(GPA~ACT, data=Grade_Point_Average)
f-test
```

X
X
X

```
#3
#4
```

```
> #1
> #a
> Grade_Point_Average
# A tibble: 120 x 2
  GPA    ACT
<dbl> <dbl>
```

```
1 3.90 21
2 3.88 14
3 3.78 28
4 2.54 22
5 3.03 21
6 3.86 31
7 2.96 32
8 3.96 27
9 0.5 29
10 3.18 26
# i 110 more rows
# i Use `print(n = ...)` to see more rows
> model<- lm(GPA ~ ACT, data=Grade_Point_Average)
> model
```

```
Call:
lm(formula = GPA ~ ACT, data = Grade_Point_Average)
```

```
Coefficients:
(Intercept)          ACT
  2.11405         0.03883
```

```
> summary(model)
```

```
Call:
lm(formula = GPA ~ ACT, data = Grade_Point_Average)
```

```
Residuals:
    Min       1Q   Median       3Q      Max
-2.74004 -0.33827  0.04062  0.44064  1.22737
```

```
Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)  2.11405     0.32089   6.588 1.3e-09 ***
ACT          0.03883     0.01277   3.040 0.00292 **
---

```

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

```
Residual standard error: 0.6231 on 118 degrees of freedom
```

```
Multiple R-squared:  0.07262,    Adjusted R-squared:  0.06476
F-statistic:  9.24 on 1 and 118 DF,  p-value: 0.002917
```

```
> #Estimated regression function:2.11405+0.03883*ACT
> #b
```

```

> plot(df$ACT, df$GPA, pch=16, col='blue')
錯誤發生在 df$ACT: 'closure' 類型的物件無法具有子集合
> #c
> 2.11405+0.03883*30
[1] 3.27895
> #2
> #a
> anova <- aov(GPA ~ ACT, data=Grade_Point_Average)
> summary(anova)
      Df Sum Sq Mean Sq F value Pr(>F)
ACT      1   3.59   3.588    9.24 0.00292 **
Residuals 118 45.82   0.388
---
Signif. codes:
0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
> #b
> ftest <- var.test(GPA~ACT, data=Grade_Point_Average)
錯誤發生在 var.test.formula(GPA ~ ACT, data = Grade_Point_Average):
分組因子只能有兩層
> ftest
錯誤: 找不到物件 'ftest'

```