

X

```

> ##1-A
> DATA1_lsfit <- lsfit(DATA1$X, DATA1$Y)
> b0 <- DATA1_lsfit$coefficients[1]
> b0
Intercept
18.97544
> b1 <- DATA1_lsfit$coefficients[2]
> b1
      X
1.870353
>
> ##1-B
> plot(DATA1, main = "(a) Fitted Regression Line")
> abline(DATA1_lsfit$coefficients)
> ##1-C
> X <- 30
> Y_hat <- b0 + b1 * X
> Y_hat
Intercept
75.08604
>
>

```

10

X

```

> #2-1
> DATA1_lm <- lm(Y ~ X, data = DATA1)##?c?
> anova(DATA1_lm)
Analysis of Variance Table

```

Response: Y

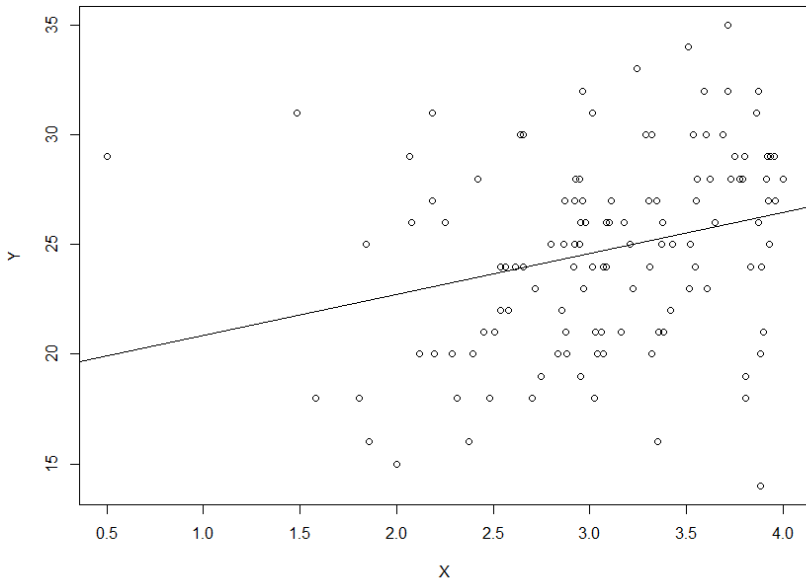
	Df	Sum Sq	Mean Sq	F value	Pr(>F)
X	1	172.83	172.831	9.2402	0.002917 **

Residuals 118 2207.09 18.704

---

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

(a) Fitted Regression Line



```
> #2-1  
> DATA1_lm <- lm(Y ~ X, data = DATA1)##?ç?  
> anova(DATA1_lm)  
Analysis of Variance Table
```

Response: Y

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
X	1	172.83	172.831	9.2402	0.002917 **
Residuals	118	2207.09	18.704		

---

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

```
>
```

```
> #2-2
```

```
> DATA1_anova <- anova(DATA1_lm)##??anova? R
```

```
> DATA1_anova
Analysis of Variance Table
```

```
Response: Y
```

```
      Df Sum Sq Mean Sq F value Pr(>F)
X         1  172.83  172.831   9.2402 0.002917 **
Residuals 118 2207.09  18.704
```

```
---
```

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

```
> # p-value of the F test
```

```
> DATA1_anova$`Pr(>F)`[1]
```

```
[1] 0.002916604
```

```
不拒絕虛無假設 CONCLUDE  $B_1=0$ 
```

```
#3-1
```

```
#3-1
```

```
boxplot(DATA2$ACT, xlab = "ACT score", horizontal =
TRUE,
```

```
main = "(d) Box Plot")
```

(d) Box Plot

