1.c Anova of model $\quad X_2$ sig at 5%

	DF	Sum Sq
x1	1	
x2	1	
x3	1	
Res	16	

$H_0: B_2 = 0 \quad H_1: B_2 \neq 0$

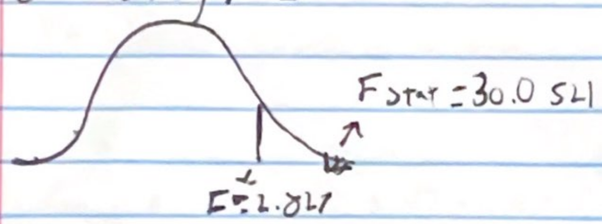
$$F\ stat = \frac{33.17}{(11.55 + 98.40)/17} = \frac{33.17}{6.47} = 5.127$$

$F_{0.05,1,17} = 4.451322$

- X_2 is significant at 5%
  $5.127 > 4.45$

2. a $H_0 = B_1 + B_2 + B_3 = 0 \quad H_1 \neq 0$

$$F\text{-stat} = \frac{(8275.39 + 763.42 + 81.66)/3}{(4248.4)/42} = \boxed{30.0521} > F_{0.05,3,42} = \boxed{2.827}$$



2b. $= \dfrac{(8275.39 + 763.42)/2}{(4248.4 + 81.66)/43} = 25.0420 > F_{0.05,2,43} = 3.21448$

- The new model ~~should~~ should have a higher adjusted r squared as the F value only dropped ~~slightly~~ slightly

2c $F = \dfrac{763.42}{(81.66 + 4248.84)/43} = 4.23 \quad F_{0.01,1,43} = 7.2635$

F stat < F test
we cannot say that x^3 is significant at .01
we must accept the null hypothesis

$n=17$

SSE 4248.8 $\bar{y} = 61.56$ $y_{17} = 78$ e_{17} 16.61 $h_{17} = 0.1195$

3a. $r_{17} = \frac{e_{17}}{\sqrt{SSE}}$ 101.16

$= \dfrac{(17-4)(4248.8 - 16.61)/(1-0.1195)}{(17-4-1)}$

$s^2 = 98.35$

$t = \dfrac{16.61}{\sqrt{98.35 \cdot (1-0.1195)}} = 1.784897$ $t_{0.05/2\ n} = 1.782$

[- the value is ~~greater the~~ greater than the t value at 0.05 ~~sig~~ sig
it can be considered an ~~outlier~~ outlier]

3b $r = \dfrac{e_{ii}}{\sqrt{MSE \cdot (1-h_{ii})}} = \dfrac{16.61}{\sqrt{(101.16)(1-0.1195)}}$ $= 1.7599$

3c $DFFITS = t\sqrt{\dfrac{h_{ii}}{1-h_{ii}}} = 1.7848 \cdot \sqrt{\dfrac{0.1195}{1-0.1195}}$

[DFFITS = 0.6575]

EC

[- The R2 could be ~~reca~~ recalculated after the ~~mod~~ model has been run again]