

Problem 1

Circle One: ☒ Online or ☐ Paper

a. $\widehat{\text{Salary}} = 29 + 6.5(\text{Education})$

b. As education increases by 1 unit, an individual's annual salary is predicted to increase by \$6,500.

c. $\widehat{\text{Salary}} = 29 + 6.5(9) = 87.5 \times 1000 = \$87,500$

Problem 2

Circle One: ☒ Online or ☐ Paper

a.

Int	25095.35
S	103.63
Bed	22600.49
Bath	114828.49

b.

c. $\widehat{\text{price}} = 25,095.35 + 103.63(2953) + 22,600.49(3) + 114,828.49(2)$

Problem 3

Circle One: Online or Paper]

$$a. \hat{Sales} = 10.32 + 8.04(Pop) + 7.42(Income)$$

b.

$$c. \hat{Sales} = 10.32 + 8.04(1) + 7.42(38) = \$ 300.32$$

281.96

Problem 4

Circle One: Online or Paper]

$$a. \sqrt{3,033.27} = 55.08$$

$$b. \frac{188,691.9}{234,191.00} = .8057$$

$$c. 1 - (1 - .8057) \left(\frac{17-1}{17-2-1} \right)$$

$$\frac{16}{14}$$

$$n=18 \quad \frac{n-1}{n-k-1} = \frac{17}{15}$$

-1/2

$$1 - (.1943)(1.142857143)$$

.222057143

Problem 3

Circle One: [Online or Paper]

$$\begin{array}{ccc}
 4 & 3 & 40 \\
 \downarrow & \downarrow & \downarrow \\
 Y = 7.42 + 1.53(Edu) + .47(Exp) + -.07(Age) \\
 7.42 + 1.53(4) + .47(3) + -.07(40)
 \end{array}$$

Problem 4

Circle One: [Online or Paper]

ANOVA

$$\begin{aligned}
 \text{Std error} &= \sqrt{\text{MSE}} \\
 &= \sqrt{4,546.08} = 67.42
 \end{aligned}$$

$$\text{Coef of determ} = \frac{SS_{\text{regres}}}{SS_{\text{total}}} = \frac{188,348.1}{233,808.86} = .8056$$

$$\begin{aligned}
 \text{Adj } R^2 &= 1 - (1 - .8056) \left(\frac{13}{13 - 2 - 1} \right) \quad \frac{n-1}{n-k-1} = \frac{12}{10} \quad -1/2 \\
 &\quad \downarrow \\
 &\quad \left(\frac{13}{10} \right) \quad 1 - (1 - .8056)(1.3) \\
 &\quad \quad \quad = .7473
 \end{aligned}$$

Problem 5

Circle One: [Online or Paper]

$$\begin{aligned}\text{std error} &= \sqrt{\text{MSE}} \\ &= \sqrt{148,426.5} \\ &= 385.26\end{aligned}$$

$$\begin{aligned}\frac{\text{SSR}}{\text{SST}} &= \frac{3,519,438}{4,155,943} = .8468 \text{ Explained} \\ &\quad \text{SST} - 2 \quad 1 - .8468 \text{ unexplained} \\ &\quad = .1532 \uparrow\end{aligned}$$

Problem 6

Circle One: [Online or Paper]

$$H_0: \beta_0 = 0$$

$$H_a: \beta_0 \neq 0$$

$$95\% \text{ CI} \quad n = 20$$

$$\alpha = .05$$

$$df = n - k - 1 = 20 - 1 - 1 = 18$$

$$t_{.025, 18} = 2.101$$

$$.2377 \pm (2.101)(.1300)$$

$$= .5108$$

$$.51 - .035 = .475$$

$$-.04 \text{ to } .51$$