

Section 13.2

Question 1

The standard error deviation of errors

$$= 18.2174$$

Question 2

The coefficient of determination

$$= 0.87$$

Question 3

(a) standard deviation of errors = 0.7

(b) $r^2 = 0.76$

76% is explained by the least squares regression

24% is not explained by the least square regression

Section 13.3

Question 1

(a) $CI = b \pm t(se)$

$$-3.73 \pm 2.069(0.965)$$

$$= (-5.73, -1.73)$$

(b) is negative

(c) B is different from zero

(d) Not different

Question 2

$$CI = -2.77 \pm 2.217(0.914) \\ = (-4.8, -0.74)$$

Question 6

(a) $CI = -0.376$ to -0.137

(b) is negative

Panera Bread

(a) $\hat{y} = 269.903 + 17.026X$

(b) 11.152 to 22.9

Question 1

g. No correlation. | e. Weak positive. | c. strong positive

a. perfect positive | f. Weak negative | d. strong negative

b. perfect negative

Question 3

$$r = \frac{250(84720) - 9990(1422)}{\sqrt{[250(486450) - (9990)^2][250(136985) - (1422)^2]}} \\ = 0.263$$

Question 4

$$r = 0.55$$

Question 7

$$p = 0.268$$

Yes

Question 8

Section 13.5

Question 1

(a) $SS_{xx} = 2.404$

$$SS_{xy} = 4.104$$

$$SS_{yy} = 10.409$$

(b) $\hat{y} = 40.764 + 1.707x$

(c) a is the intercept
 b is the slope

(d) $r = 0.82$ Represents correlation coefficient

$$r^2 = 0.673 \quad \text{Represents correlation of determination}$$

(e) $Se = 0.652$

(f) $= 40.764 + 1.707(8)$

$$= 54.42$$

(g) 0.489 to 2.926

(h) is different

(i) is different

Question 2

(a) $SS_{xx} = 3.431$

$$SS_{xy} = 49.34$$

$$SS_{yy} = 788$$

$$(b) \hat{y} = 2.841 + 14.379x$$

$$(d) r = 0.949$$

$$r^2 = 0.9$$

$$(e) se = 3.963$$

$$(f) 8.88 \text{ to } 19.879$$

g) is different

Question 3

$$\hat{y} = -0.58 + 0.7x$$

Question 4

$$\text{Lower bound} = 0.42$$

$$\text{Upper bound} = 0.76$$

Question 1

$$se = 1.84$$

$$R^2 = \cancel{0.942} 0.954$$

$$R^2 = 0.942$$

Question 2

$$\hat{y} = 21.751$$

Question 3

$$\hat{y} = 24.392$$

Section 13.1

Question 1

$$B_0 = \frac{(2410)(49450) - (4180)(34270)}{430(49450) - 4180^2}$$

$$= -6.3502$$

$$B_1 = \frac{430(34270) - (4180)(2410)}{430(49450) - 4180^2}$$

$$= 1.2298$$

$$\hat{y} = -6.3502 + 1.2298x$$

Question 2

$$(a) \hat{y} = -1.9546 + 0.2144x$$

$$(b) y = 6.407$$

Question 3

$$(a) = 290.6$$

$$(b) \text{ No}$$

Question 4

$$\hat{y} = 97.8636 - 8.8864x$$

$$y = 97.8636 - 8.8864(7)$$

$$= 35.6588$$

Question 5

$$B_0 = 42.076 + 0.037x$$

Question 6

y-intercept A: A represents the percentage of games won

slope B: ^{on} average, the percentage of games won increases by 40.048 for every \$1 million increase

Question 8

$$SSE = 4.167$$

the same

Question 9

$$\text{Income} = 12\,43.33$$