CHAPTER 11: Correlation Coefficient and Simple Linear Regression Analysis

11.2 r = .860

very strong positive relationship between age and amount donated (older people donate more money)

r^2 = .7396

approximately 74% of the variance between age and average amount donated overlap

11.7 The straight line appearance on this data plot suggest that the simple linear regression model with a positive slope might be appropriate.

11.8 **a.** It is the mean of the service times required when the number of copiers is 4.

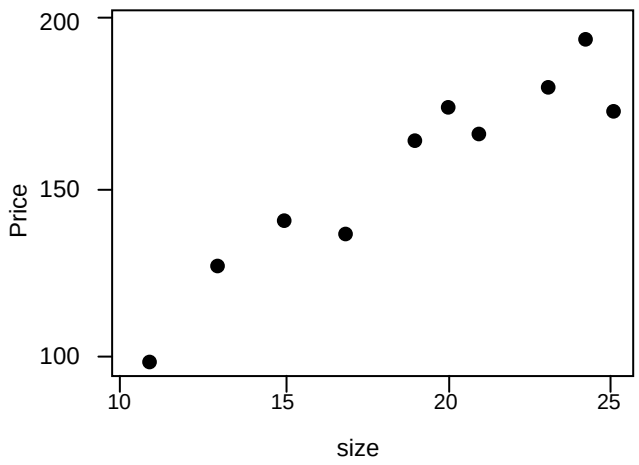
b. It is the mean of the service times required when the number of copiers is 6.

c. The slope parameter equals the change in the mean service time that is associated with each additional copier serviced.

d. The intercept is the mean service time when there are no copiers. It fails to make practical sense because it requires service time when no copiers exist.

e. All factors other than the number of copiers serviced.

11.13 **a.**



b. Yes, the relationship looks to be linear with a positive slope.

11.19 **a.** b_0 = 11.4641 b_1 = 24.6022

b_0 – 0 copiers, 11.46 minutes of service.

b_1 – each additional copier adds 24.6022 minutes of service on average.

No. The interpretation of b_0 does not make practical sense since it indicates that 11.46 minutes of service would be required for a customer with no copiers.

b. $\hat{y}$ = 11.4641 + 24.6022(4) = 109.873, or 109.9 minutes

11.25

$$s^2 = \frac{SSE}{n-2} = \frac{191.7017}{11-2} = 21.3002$$

$$s = \sqrt{s^2} = \sqrt{21.30018} = 4.61521$$

11.28

$$s^2 = \frac{SSE}{n-2} = \frac{896.8}{10-2} = 112.1$$

$$s = \sqrt{s^2} = \sqrt{112.1} = 10.58773$$

11.54 Reject H_0 at all four values of α.