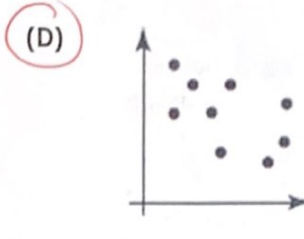
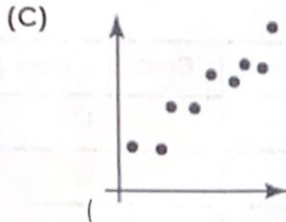
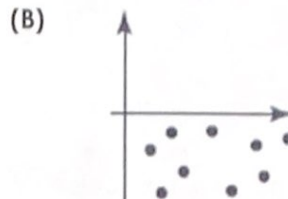


Learning Target 1: Scatterplots & Regression Models

Key

1. Which scatterplot is most likely to have a correlation coefficient of $r = -0.5$?

D



2. What does a correlation coefficient of 0.916 suggest about a set of data?

Strong positive

3. What type of correlation, if any, would you expect from comparing a student's hair color to their college grades?

No correlation

4. For which pair of variables would you most likely expect a **positive** correlation?

B

- (A) Driving speed and time it takes to reach a destination.
- (B) Years of school (high school, college, etc) and annual salary.
- (C) Distance from school and how long it takes to get ready in the morning.
- (D) Daily hours of electronic usage and test scores.

5. Which situation describes a correlation only and not a causation?

B

- (A) The higher the volume on a radio, the louder the sound will be.
- (B) The faster a student types a research paper, the more pages the paper will have.
- (C) The shorter the distance driven, the less gasoline that will be used.
- (D) The slower the pace of a runner, the longer it will take the runner to finish the race.

6. Which statement suggests causation?

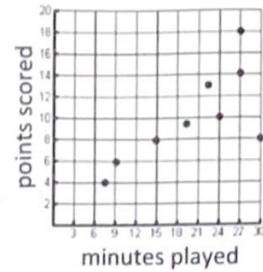
D

- (A) When you are at the beach, you get wet.
- (B) When you carry an umbrella to school, it rains.
- (C) When you study for a test, your classmate studies too.
- (D) When you don't brush your teeth, you get cavities.

You also could argue A.

7. The data below represents the amount of time of play and the number of points scored by one player in a recent basketball game. Which statement best summarizes the relationship between x and y ?

- (A) The more time they practice, the more they play in the game.
 (B) The longer they play, the fewer points they score.
 (C) The longer they play causes them to score more points.
 (D) The longer they play, the more points they score.



8. What is the equation of a line that best fits the data if the number of DVDs is related to the cost?

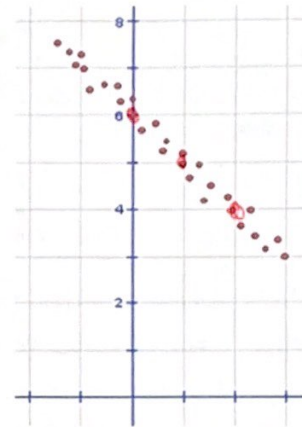
Number of DVDs (n)	Cost in dollars (C)
3	11
6	17
10	25

$y = 2x + 5$

9. Which equation BEST represents the line of best fit for the scatterplot?

- (A) $y = x + 6$
 (B) $y = 3x + 6$
 (C) $y = -x + 6$
 (D) $y = -3x + 6$

Not positive slope



10. A town tracks the number of new homes being built in a subdivision over 10 years as shown in the table below.

- a. Calculate a linear regression model for the table (round answers to nearest whole numbers):

$y = 160x + 4$

- b. What does the "a" value represent in terms of the problem situation?

each year they add 160 new homes

- c. What does the "b" value represent in terms of the problem situation?

~~During the~~
 Started with 4 homes

Year	New Homes
1	233
2	340
3	500
4	642
5	759
6	881
7	1011
8	1296
9	1485
10	1698

- d. When will there be 2100 homes in the subdivision?

$$\begin{aligned} 2100 &= 160x + 4 \\ -4 &\quad -4 \\ \hline 2096 &= 160x \\ \frac{2096}{160} &= \frac{160x}{160} \\ x &= 13.1 \end{aligned}$$

After 13 years