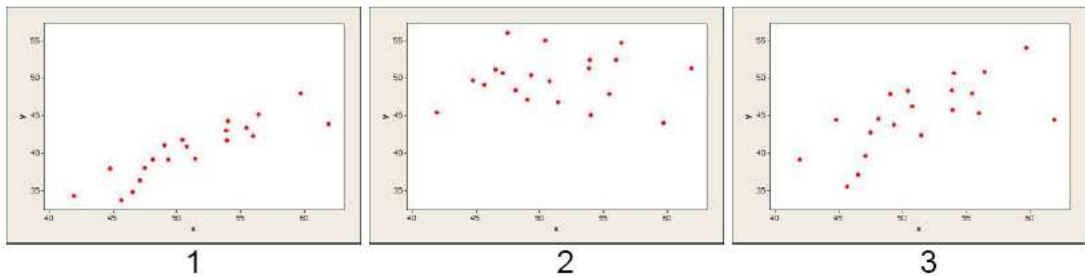


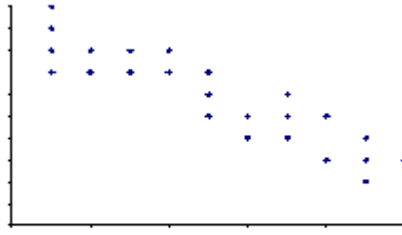
# Classroom Voting Questions: Elementary Statistics

## Correlation

1. The scatterplots below display three bivariate data sets. The correlation coefficients for these data sets are 0.03, 0.68, and 0.89. Which scatter plot corresponds to the data set with  $r = 0.03$ ?



- (a) Plot 1  
(b) Plot 2  
(c) Plot 3
2. Joe Bob found a strong correlation in an empirical study showing that individuals' physical ability decreased significantly with age. Which numerical result below best describes this situation?
- (a)  $-1.2$   
(b)  $-1.0$   
(c)  $-0.8$   
(d)  $+0.8$   
(e)  $+1.0$   
(f)  $+1.2$
3. Which correlation best describes the scatterplot?



- (a)  $-0.7$
- (b)  $-0.3$
- (c)  $0$
- (d)  $+0.3$
- (e)  $+0.7$

4. If you believed strongly in the idea that the more hours per week full-time students work in a job, the lower their GPA would be, then which correlation would you realistically expect to find?

- (a)  $-0.97$
- (b)  $-0.72$
- (c)  $-0.20$
- (d)  $+0.20$
- (e)  $+0.72$
- (f)  $+0.97$

5. A researcher found that  $r = +.92$  between the high temperature of the day and the number of ice cream cones sold at Cone Island. This result tells us that

- (a) high temperatures cause people to buy ice cream.
- (b) buying ice cream causes the temperature to go up.
- (c) some extraneous variable causes both high temperatures and high ice cream sales.
- (d) temperature and ice cream sales have a strong positive linear relationship.

6. You are conducting a correlation analysis between a response variable and an explanatory variable. Your analysis produces a significant positive correlation between the two variables. Which of the following conclusions is the *most* reasonable?

- (a) Change in the explanatory variable causes change in the response variable.
- (b) Change in the explanatory variable is associated with in change in the response variable.
- (c) Change in the response variable causes change in the explanatory variable.
- (d) All from (a)-(c) are equally reasonable conclusions.

7. The salary and the numbers of years of teaching experience were recorded for 20 social studies teachers in rural west Texas. When the data points were plotted, there was a roughly linear relationship and a positive correlation between salary and number of years of teaching experience, with  $r = 0.8$ . What percentage of the variation in the salaries is explained by the linear relationship between salary and years of service?

- (a) 80%
- (b) 64%
- (c) 36%
- (d) 20%