

Name: \_\_\_\_\_

Course & Section: \_\_\_\_\_

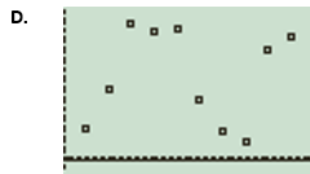
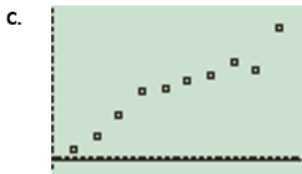
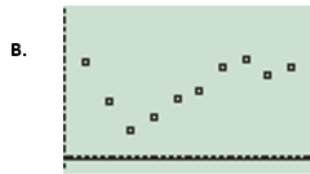
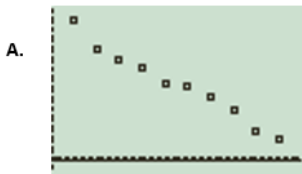
*Electronic copies of this homework are located in D2L.*

## Regression on the Rebound Pre-Class Assignment

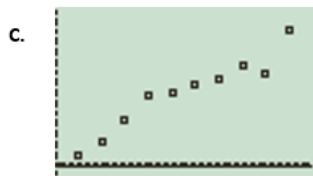
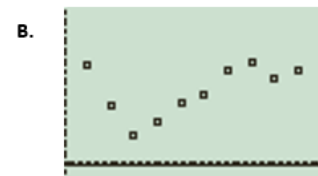
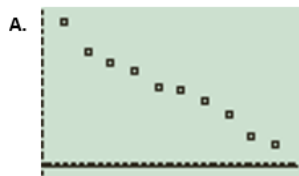
### Part 1

Watch the Video: [Regression pre class Part 1](https://www.youtube.com/watch?v=1ye6oUGClho) (https://www.youtube.com/watch?v=1ye6oUGClho)

1. Circle the scatterplot which shows a positive correlation.



2. Circle the scatterplot that corresponds to a data set with  $r = -0.98$ .



3. What is the largest value of  $r$ ?

- a. 0
- b. 1
- c. 100
- d. No largest value

4. What is the smallest value of  $r$ ?

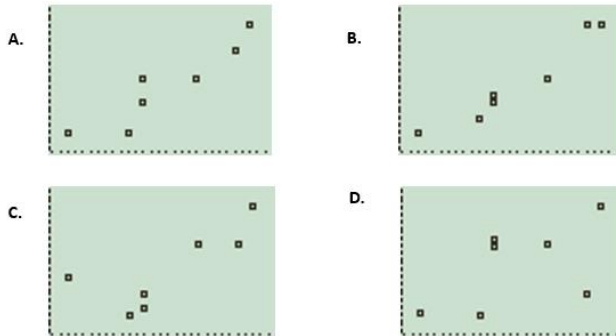
- a. 0
- b. -1
- c. -100
- d. No largest value

5. What does an  $r$  close to zero mean?
  - a. No linear relationship
  - b. Positive linear relationship
  - c. Perfect linear relationship
  - d. Perfect negative linear relationship

### Part 2

Watch the Video: [Regression pre class Part 2](https://www.youtube.com/watch?v=l0ongPmadkM) (https://www.youtube.com/watch?v=l0ongPmadkM)

1. Which scatterplot matches your graph?



### Part 3

Watch the Video: [Regression pre class Part 3](https://www.youtube.com/watch?v=c8h9dO3tVI8) (https://www.youtube.com/watch?v=c8h9dO3tVI8)

1. What value did you get for 'a' ? (Enter your answer to one decimal place.)
  - a. 1.5
  - b. -96.9
  - c. 0.96
  - d. 92.7%

### Part 4

Watch the Video: [Regression pre class Part 4](https://www.youtube.com/watch?v=kjKa2U0PAw4) (https://www.youtube.com/watch?v=kjKa2U0PAw4)

1. Find the line of best fit for this data. What is the slope?
  - a. 1.5
  - b. -96.9
  - c. 0.96
  - d. 92.7%
2. What is the y-intercept?
  - a. 1.5
  - b. -96.9
  - c. 0.96
  - d. 92.7%
3. What is  $r$ ?
  - a. 1.5
  - b. -96.9
  - c. 0.96
  - d. 92.7%

Child's Age (in years)	Hours of Sleep per Day
2	13
3	12
4	11.5
5	11
6	10.75
7	10.5
8	10.25

4. What is  $r^2$ ?
  - a. 1.5
  - b. -96.9
  - c. 0.96
  - d. 92.7%
  
5. Interpret the slope.
  - a. For each  $1^\circ\text{F}$  increase in the temperature, we expect an average increase of 1.5 oz. to be consumed
  - b. For each 1 oz. of water consumed, we expect an average increase in  $1.5^\circ\text{F}$  in the temperature
  - c. For each  $1^\circ\text{F}$  increase in the temperature, we expect an average decrease of 97 oz. to be consumed
  - d. For each 1 oz. of water consumed, we expect an average decrease in  $96.7^\circ\text{F}$  in the temperature
  
6. Interpret the y-intercept.
  - a. When the temperature is  $0^\circ\text{F}$ , -96.9 oz. of water is expected to be consumed, however the data was collected in the summer, and thus 0 is outside the range of predictability of this model, so the y-intercept does not make sense
  - b. When the temperature is  $-96.9^\circ\text{F}$ , we expect 0 oz. of water to be consumed, however the data was collected in the summer, and thus 0 is outside the range of predictability of this model, so the y-intercept does not make sense
  - c. When the temperature is  $0^\circ\text{F}$ , this interpretation is appropriate and valuable
  - d. When the temperature is  $-96.9^\circ\text{F}$ , this interpretation is appropriate and valuable
  
7. Interpret  $r$ .
  - a. Almost 93% of the variability in the amount of water consumes is explained by the outside temperature
  - b. Almost 93% of the variability in the outside temperature is explained by the amount of water consumed
  - c. There is a strong positive linear relationship between the amount of water consumed and the outside temperature
  - d. There is a strong negative linear relationship between the amount of water consumed and the outside temperature.
  
8. Interpret  $r^2$ .
  - a. Almost 93% of the variability in the amount of water consumes is explained by the outside temperature
  - b. Almost 93% of the variability in the outside temperature is explained by the amount of water consumed
  - c. There is a strong positive linear relationship between the amount of water consumed and the outside temperature
  - d. There is a strong negative linear relationship between the amount of water consumed and the outside temperature.

## Part 5

Watch the Video: [Regression pre class Part 5](https://www.youtube.com/watch?v=GOjWunBS-kY) (https://www.youtube.com/watch?v=GOjWunBS-kY)