

Name: _____

Course & Section: _____

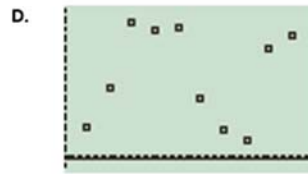
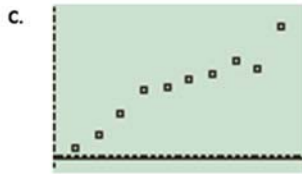
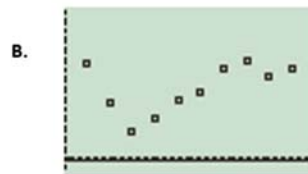
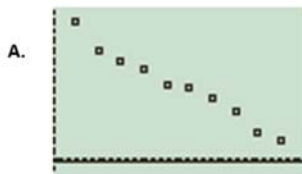
Electronic copies of this homework are located in D2L.

Regression on the Rebound Pre-Class Assignment

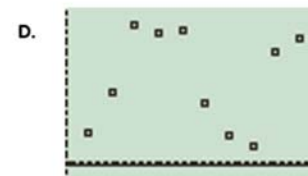
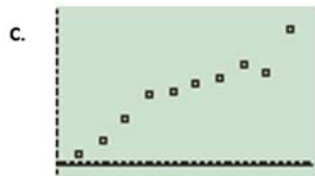
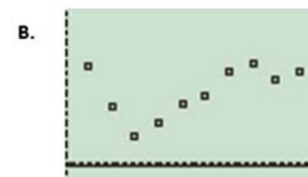
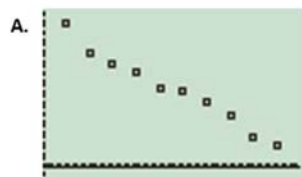
Part 1

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 $r = -0.98$.



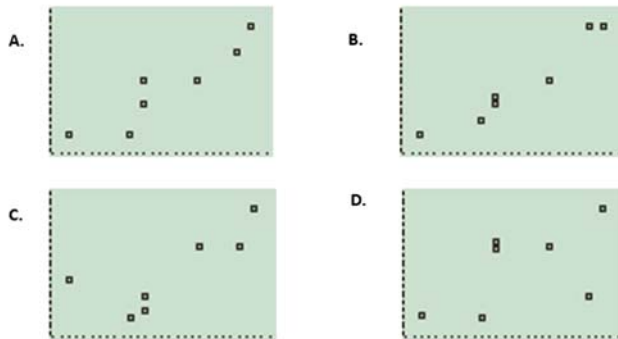
3. What is the largest value of r ?
- a. 0
 - b. 1
 - c. 100
 - d. No largest value
4. What is the smallest value of r ?

- 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)

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

1. Find the line of best fit for this data. What is the slope?
 - a. 13.43
 - b. -0.43
 - c. -0.96
 - d. 92.6%

2. What is the y-intercept?
 - a. 13.43
 - b. -0.43
 - c. -0.96
 - d. 92.6%

3. What is r?
 - a. 13.43
 - b. -0.43
 - c. -0.96
 - d. 92.6%

4. What is r^2 ?
 - a. 13.43
 - b. -0.43
 - c. -0.96
 - d. 92.6%

5. Interpret the slope.
 - a. For each year child ages, they need on average $4/10^{\text{th}}$ of an hour less of sleep.
 - b. For each year a child ages, the fewer hours of sleep they get, they age by $4/10^{\text{th}}$ of a year.
 - c. For each year child ages, they need on average 13.4 minutes less of sleep.
 - d. For each year a child ages, the fewer hours of sleep they get, they age by 13.4 minutes.

6. Interpret the y-intercept.
 - a. When the child is zero years old, they are expected to sleep 13.4 hours/day, however when a child is zero years old, they are not yet born, and thus is outside the range of predictability of this model, so the y-intercept does not make sense.
 - b. When the child is 13.4 years old, we expect 0 hours of sleep to be needed, however the data was collected for children 8 years old, and thus 13.4 is outside the range of predictability of this model, so the y-intercept does not make sense

- c. When the child is 0 years old, this interpretation is appropriate and valuable
 - d. When the child is 13.4 years old, this interpretation is appropriate and valuable
7. Interpret r .
- a. Almost 93% of the variability in the amount of sleep a child needs is explained by the age of the child.
 - b. Almost 93% of the variability in the age of the child is explained by the sleep they need.
 - c. There is a strong positive linear relationship between the age of the child and the sleep they need.
 - d. There is a strong negative linear relationship between age of a child and the sleep they need.
8. Interpret r^2 .
- a. Almost 93% of the variability in the amount of sleep a child needs is explained by the age of the child.
 - b. Almost 93% of the variability in the age of the child is explained by the sleep they need.
 - c. There is a strong positive linear relationship between the age of the child and the sleep they need.
 - d. There is a strong negative linear relationship between age of a child and the sleep they need.

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)