

NAME: _____ PERIOD: _____ DATE: _____

Homework Problem Set

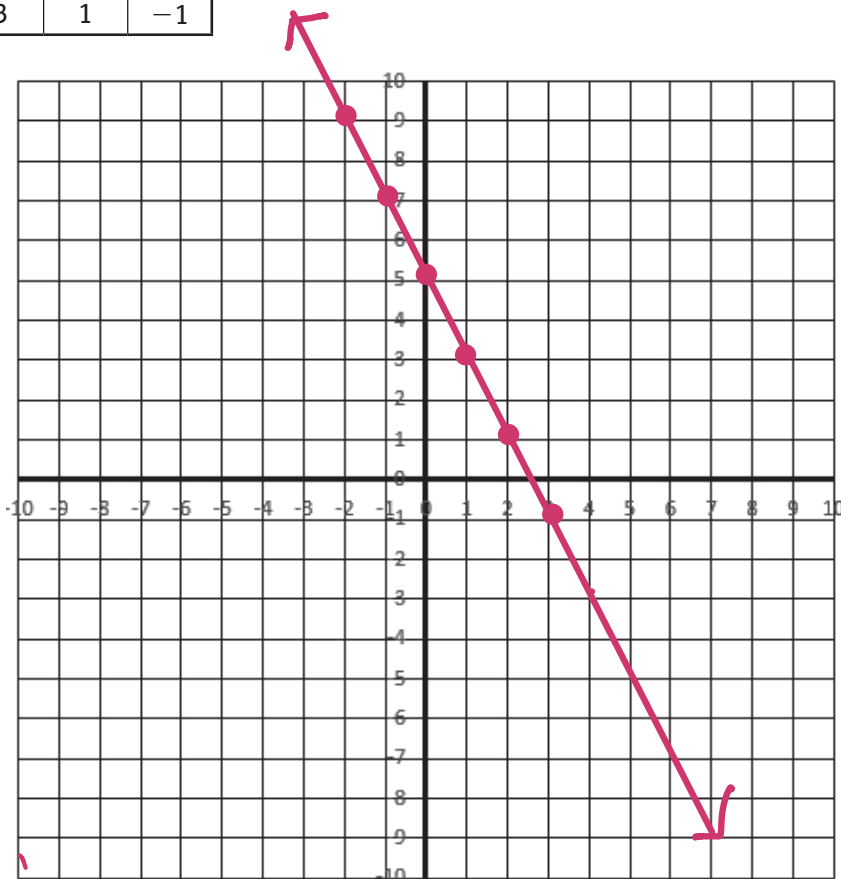
1. A. Graph the data in the table.

x	-2	-1	0	1	2	3
y	9	7	5	3	1	-1

B. Draw a line of best fit.

C. Choose two points on your line. (1, 3) and (2, 1)

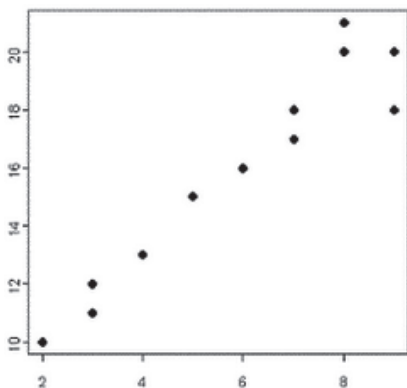
D. What is the slope of your line?



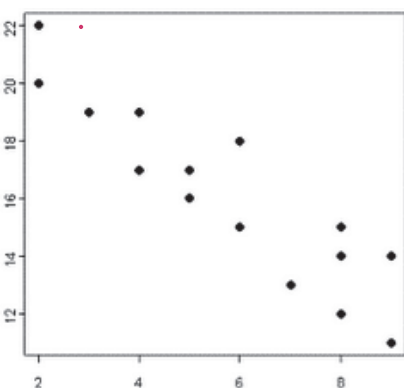
$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{1 - 3}{2 - 1} = \frac{-2}{1} = -2$$

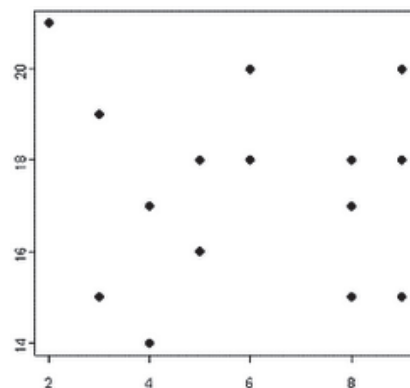
2. Describe each graph below. Be sure to discuss linearity, slope and strength. Then draw a line of best fit.



Linear
positive slope
Strong



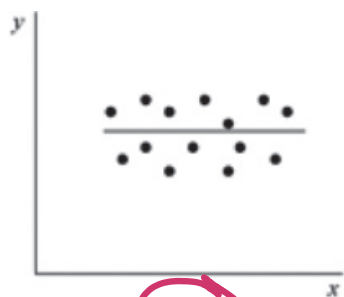
Linear
Negative Slope
Not strong



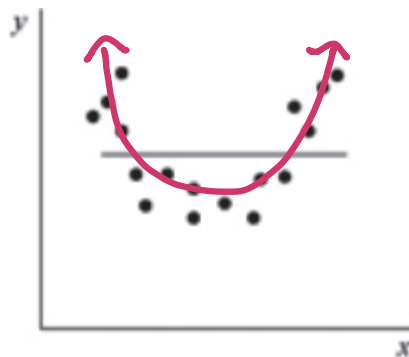
Non-Linear
No Strength

3. A. Which graphs are showing a line of best fit that would make a good model for the data?

Graphs A & C



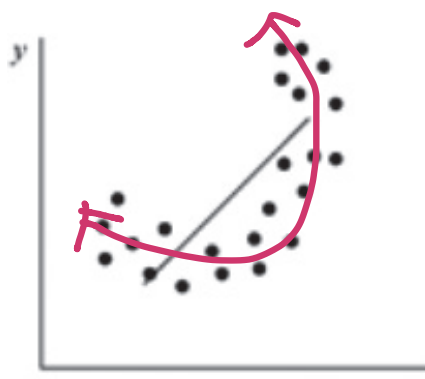
(a)



(b)



(c)



(d)

Source: http://reliawiki.org/index.php/Simple_Linear_Regression_Analysis

B. Draw a better line or curve of best fit for the other graphs.

4. At the right is a graph of the Columbia River's depth and velocity (speed of the river).

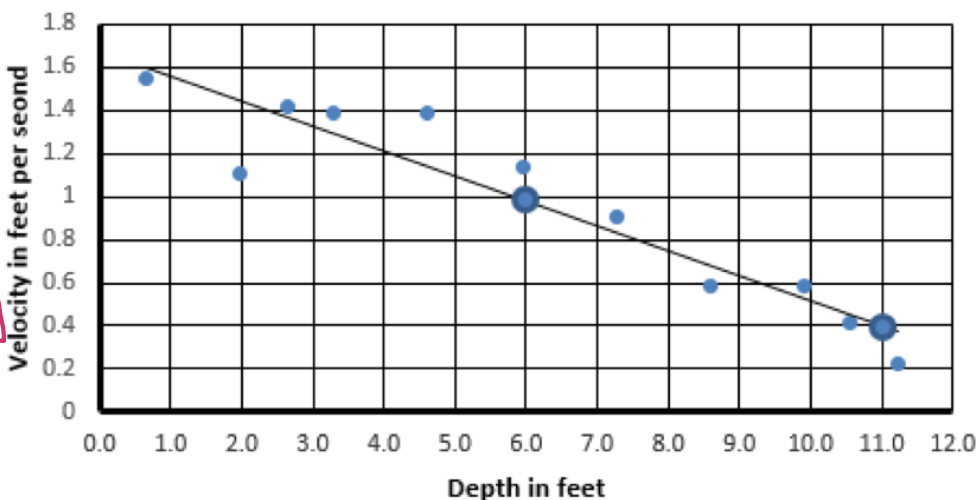
- A. Draw in a line of best fit.
- B. Determine the slope of the line.

possible answer

$$\frac{1 - 0.4}{6 - 11} = \frac{0.6}{-5} = -0.12$$

C. What does the slope mean in this situation?

Columbia River



As the depth increases by 1 foot, the velocity decreases by 0.12 feet/second.

Lesson 11 Relationships between Two Numerical Variables

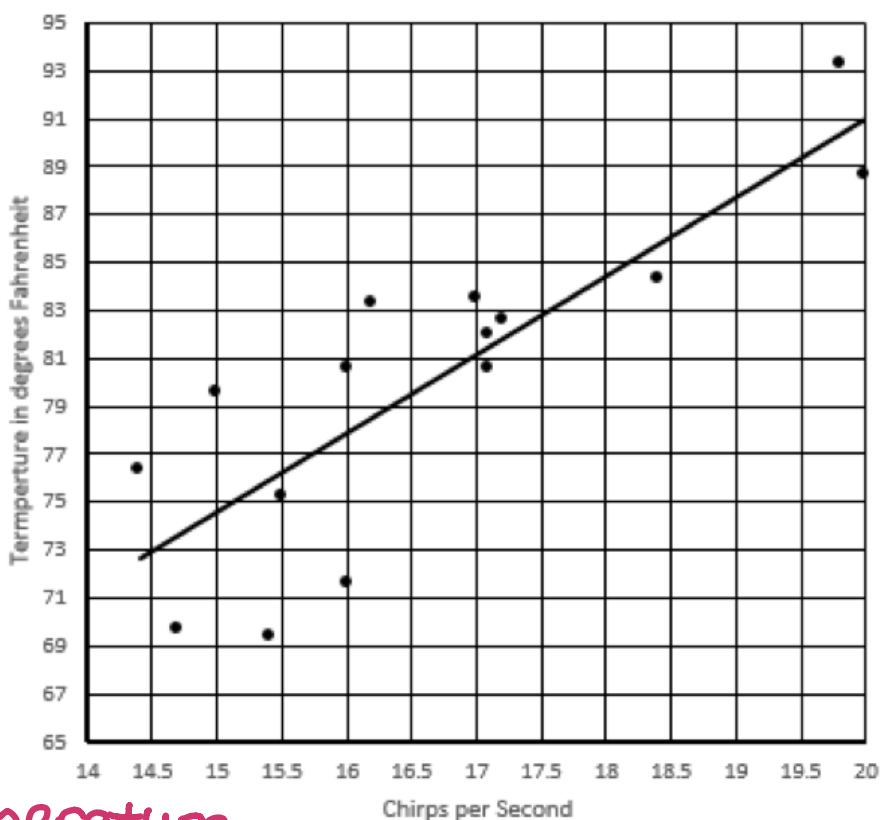
5. The data set relates the number of chirps per second for striped ground crickets and the temperature in degrees Fahrenheit.

Chirps per second	Temperature (°F)	Chirps per second	Temperature (°F)	Chirps per second	Temperature (°F)
20.0	88.6	16.0	71.6	19.8	93.3
18.4	84.3	17.1	80.6	15.5	75.2
14.7	69.7	17.1	82.0	15.4	69.4
16.2	83.3	15.0	79.6	17.2	82.6
16.0	80.6	17.0	83.5	14.4	76.3

Source: George W. Pierce, The Song of Insects, Harvard University Press, 1948

- A. Graph the data on the grid at the right.

Crickets Chirps and the Temperature



- B. Then describe the graph and draw a line of best fit.

*positive slope
moderate relationship*

- C. What is the slope of your line?

possible answer

$$\frac{18}{5.5} \approx \boxed{3.27}$$

- D. What does the slope represent in this situation?

As the temperature rises 3.27°F, the number of chirps/second increases by 1.