Date: _____ Hour: _____

t 2 Day 11: Modeling the Data of a Scatterplot

ss Question: How do I draw a line to model scatterplots with positive or negative linear correlation?

A. Create a Scatterplot

The Student Paint Crew gives weekend and vacation jobs painting houses and apartments to high school and college students. The time a job takes depends on the area to be painted. Prior jobs give some data relating job area (in units of 1,000 square feet) and time to paint (in hours).

a. Which variable is independent?

Area painted

2. Which variable is dependent?

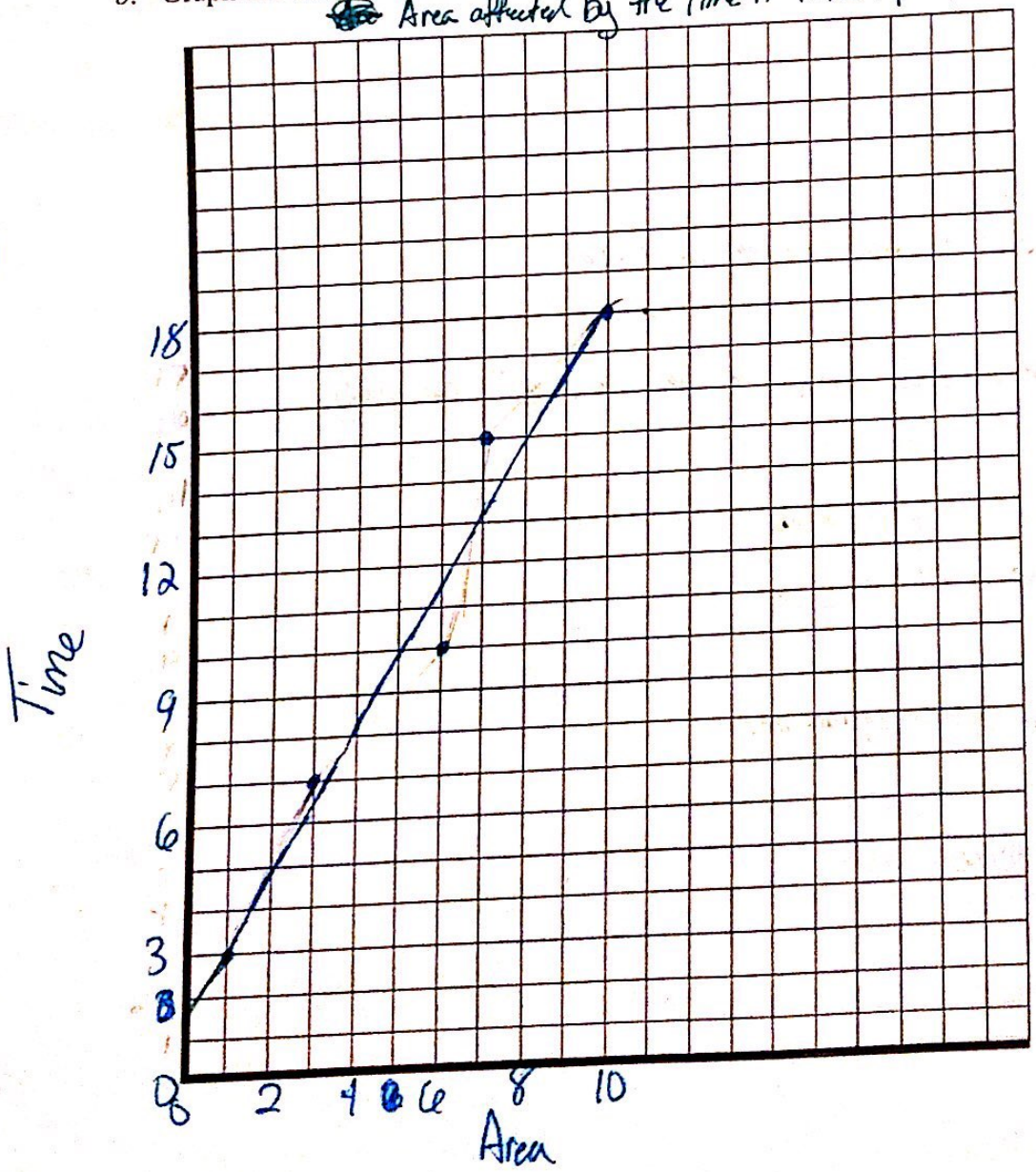
Time

The table shows some of the data.

Area (1,000 sq ft)	1	3	6	7	10
Time (hours)	3	7	10	15	18

b. Graph the data and describe its correlation.

Area affected by the Time it takes to paint



B. Modeling Data

The lines in Figure 1 and Figure 2 below represent two different models for the data. The line in Figure 1 connects the points at the left and right ends of the plot.

The line in Figure 2 passes among the points but hits none exactly.

1. Which of the two lines seems to fit the data better? Circle your choice.

Figure 1

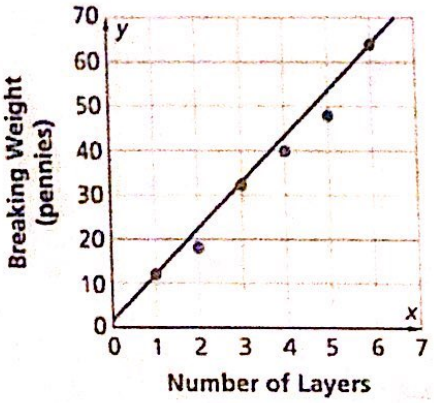
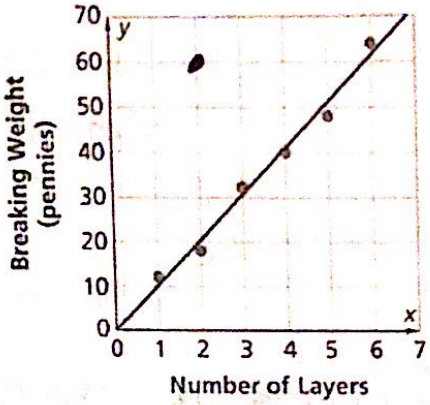


Figure 2



Correct Answer: 2

Explanation:

The ~~Fatter~~ equal number of points are above and below the line. And it is as close as possible to all of them.

2. The line that models the data has several names. It can be called **line of best fit, trend line, or modeling line**. Why would we want to model linear data?

3. When drawing a line of best fit, what type of points should you ignore? Explain.

outliers because they don't follow a trend

4. What is the best strategy for drawing a line of best fit?

Count the number of ~~Outliers~~ dots and draw a line that tries to split them equally

5. Using your scatterplot on the front, draw a line of best fit. **Use your line** to answer the following:

   a. Approximately how long would it take to paint 2,000 square feet?

   About 5 hours

   b. Approximately how many square feet would be painted in 12 hours?

   About 6,000 square feet

   c. Approximately how long would it take to paint 10,000 square feet?

   18 hours

Find your scatterplot around the room. Draw the line (or curve) of best fit if there is one.