

Lesson 7: Confident Models

- Let's explore our confidence in linear models.

7.1: Math Talk: Ordering Decimals

Mentally order the numbers from least to greatest.

20.2, 18.2, 19.2

-14.6, -16.7, -15.1

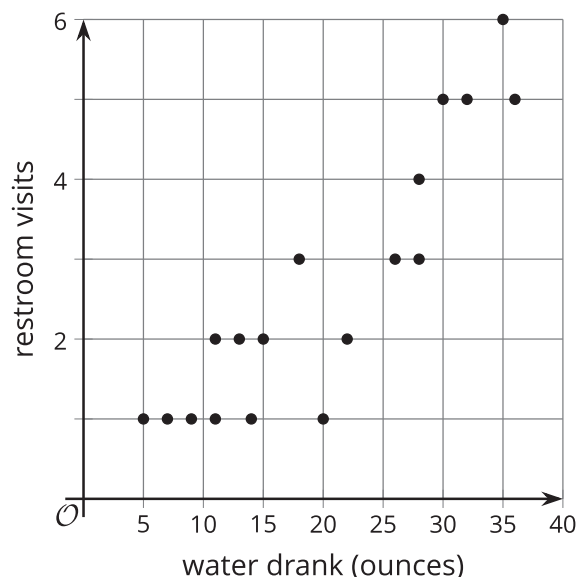
-0.43, -0.87, -0.66

0.50, -0.52, 0.05

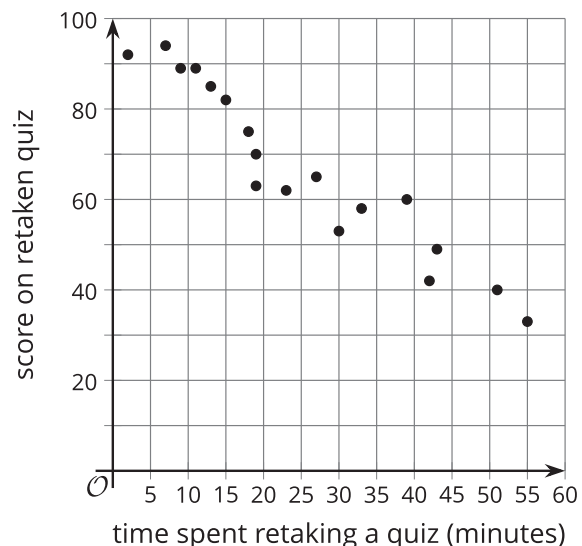
7.2: Ranking Models

- Here are scatter plots that represent various situations. Order the scatter plots from "A linear model is not a good fit for the data" to "A linear model is an excellent fit for the data."

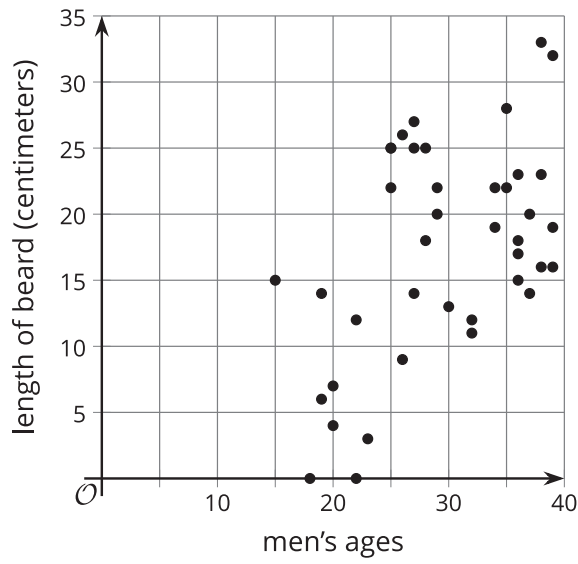
A



B



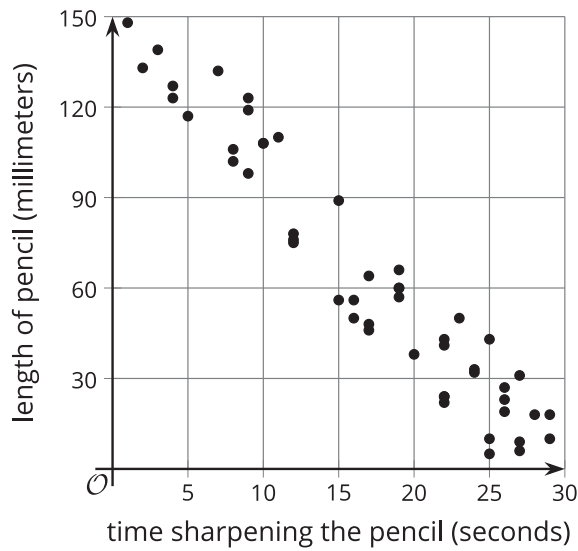
C



D

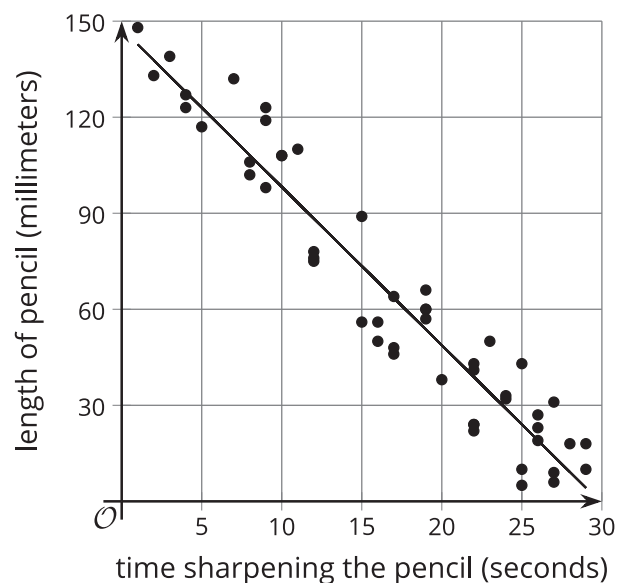


E

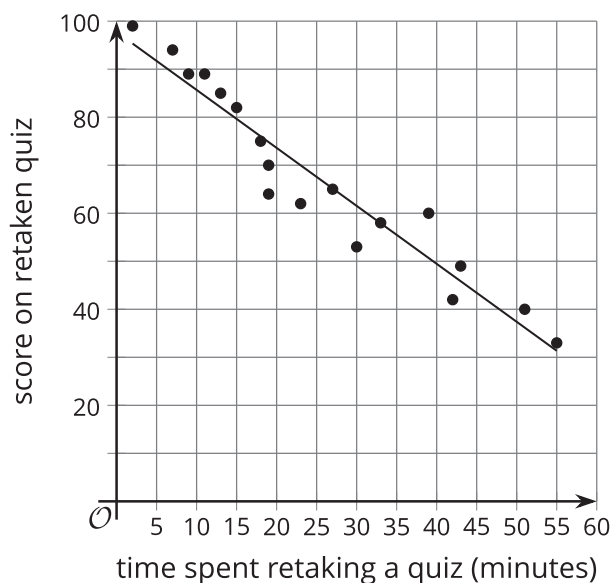


2. Here are two scatter plots including a linear model. For each model, determine the y when x is 15. Which model prediction do you think is closer to the real data? Explain your reasoning.

Graph F. $y = 150 - 5x$



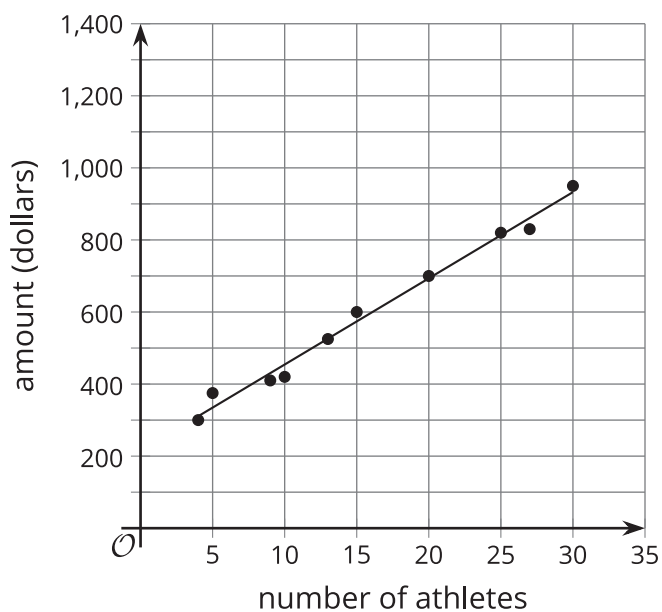
Graph G. $y = 100 - 1.3x$



7.3: Predicting Value

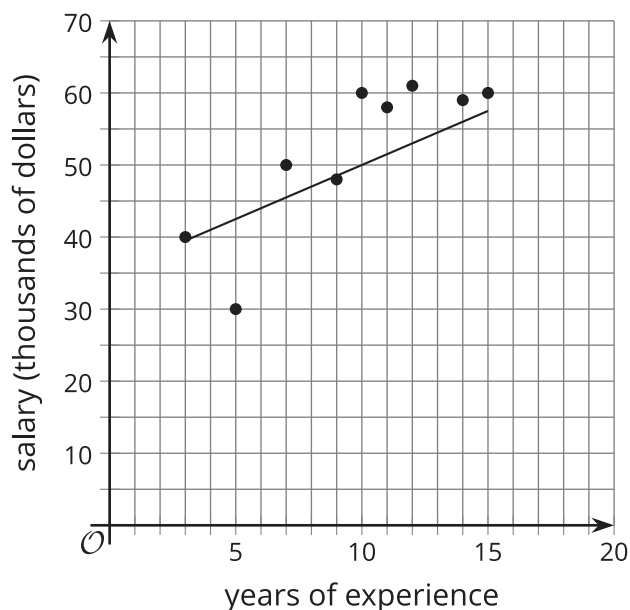
Here are situations represented with graphs and lines of fit. Use the information given to complete the missing fields for each situation.

- The model predicts how much money, in dollars, the coach will make based on how many athletes sign up for one-on-one training. The model is represented with the equation $y = 200 + 25x$.



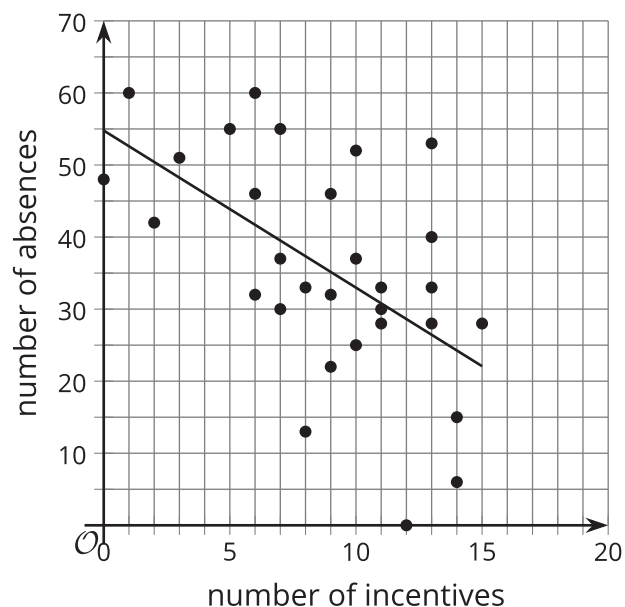
- The slope of the model is _____ (positive or negative).
- What does the model predict would be the amount the coach makes when there are 10 athletes present?
- Using the data points and the model as a reference, what is a reasonable range of money the coach will make when there are 10 athletes present?
- This model is a _____ (great, good, okay, or bad) fit for the data.
- Using numbers between 0 and 1, rate your confidence in the model where 0 is no confidence and 1 is total confidence.

2. The model predicts the annual salary of a worker in a certain government position based on years of experience. The model is represented with the equation $y = 1.5x + 35$.



- The slope of the model is _____ (positive or negative).
- What does the model predict would be the employee's salary when the employee has 10 years of experience?
- Using the data points and the model as a reference, what is a reasonable range for the salary of a worker based on 10 years of experience?
- This model is a _____ (great, good, okay, or bad) fit for the data.
- Using numbers between 0 and 1, rate your confidence in the model where 0 is no confidence and 1 is total confidence.

3. The model predicts the number of absences a school will have based on the number of incentives given per month. The model is represented with the equation $y = -2.18x + 54.78$.



- The slope of the model is _____ (positive or negative).
- What does the model predict would be the number of absences when 10 incentives are given for the month?
- Using the data points and the model as a reference, what is a reasonable number of absences when there are 10 incentives given?
- This model is a _____ (great, good, okay, or bad) fit for the data.
- Using numbers between 0 and 1, rate your confidence in the model where 0 is no confidence and 1 is total confidence.