10/18

Warm Up

Talk with your group:

- What is a Line of Best Fit?
  - Line that goes as close as possible to all data points on a scatterplot.
  - It's an equation! (also is called the model)

scatter plot

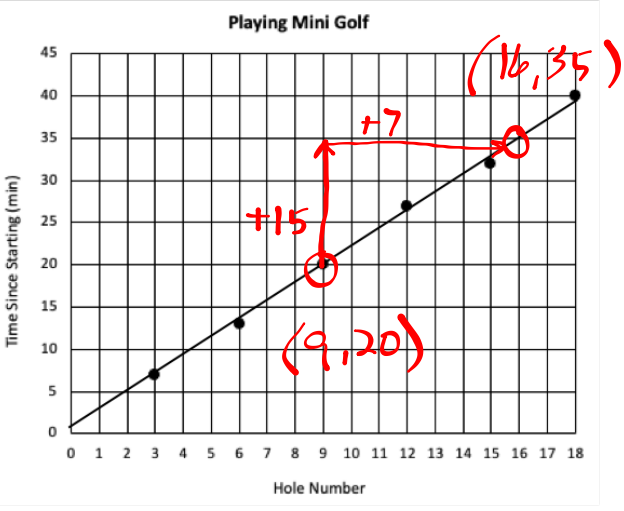
- Why are they useful?
  - We can now make predictions about a situation.

Predictions are best made for the range of data collected.

Homework Questions?

Mini Golf:

Jamal and Alisha played a round of miniature golf. They made some notes of the time it took them to play. Their data are plotted in the graph below:



A line of best fit is already drawn. Pick 2 points on the line, and write the equation for the line of best fit in slope-intercept form (y = mx + b).

$y = \frac{15}{7}x + b$

$20 = \frac{15}{7}(\frac{9}{1}) + b$

$20 = 19.29 + b$

$-19.29 \quad -19.29$

$0.71 = b$

$y = 2.14x + 0.71$

What is the slope of your line? What does this number tell us about playing mini golf?

unit rate $\frac{2.14}{1}$

$\frac{\Delta y}{\Delta x} = \frac{15}{7}$ 15 minutes for 7 holes of golf

2.14 min per 1 hole

The following questions can be answered using your equation.

1. Estimate the time it took Jamal and Alisha to play the first 7 holes. ← x values

You will be using your equation

$y = 2.14x + 0.71$

$y = 2.14(7) + 0.71 = 15.69 \text{ min} \quad \sim 16 \text{ min}$

2. What hole would you estimate them to be on if they played for 35 minutes?

Use equation

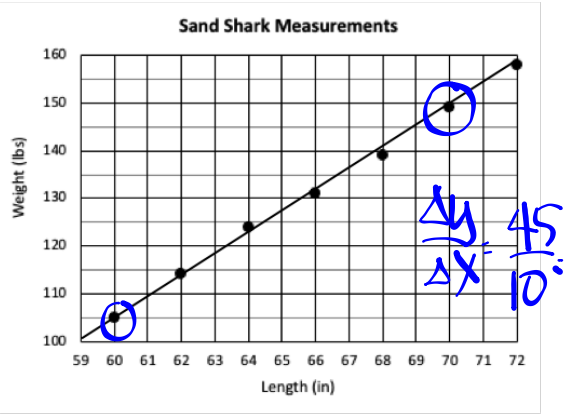
$y = 2.14x + 0.71$

$35 = 2.14x + 0.71$

Sand Sharks:

Lengths and corresponding ideal weights of sand sharks were collected and the data is plotted below.

A line of best fit is already drawn. Pick 2 points on the line, and write the equation for the line of best fit in slope-intercept form (y = mx + b).



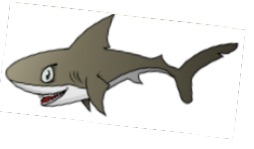
$y = 4.5x + b$

$y = 4.5x - 165$

$\frac{\Delta y}{\Delta x} = \frac{45}{10} = 4.5$

What is the slope of your line? What does this number tell us about the length and ideal weight for a sand shark?

$\frac{\Delta y}{\Delta x} = \frac{4.5}{1}$



The following questions can be answered using your equation.

1. Predict the weight of a sand shark whose length is 75 inches.

2. If a shark weighs 150 pounds, how long would we expect it to be?

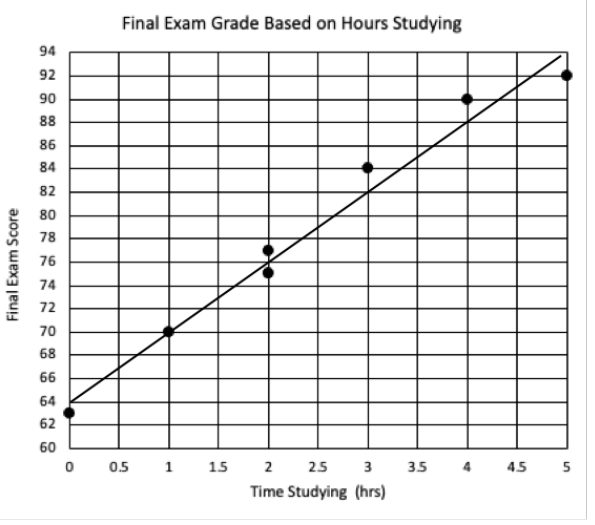
Classwork

Complete pages 3 and 4.

Exam Grade:

Graphed below are number of hours studied and the final exam grade earned.

A line of best fit is already drawn. Pick 2 points on the line, and write the equation for the line of best fit in slope-intercept form (y = mx + b).



What is the slope of your line? What does this number tell us about time spent studying and a final exam score?

The following questions can be answered using your equation.

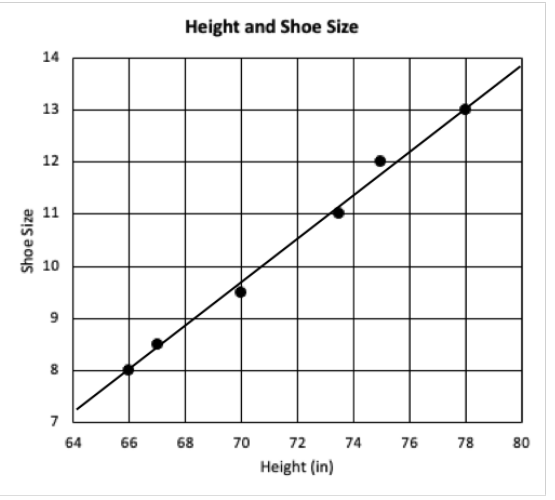
1. Predict the exam grade of a student who studied for 6 hours.

2. How many hours should a student study if they want to get an 80 on the test?

Height and Shoe Size:

The graph below shows the height and shoe sizes of six randomly selected men.

A line of best fit is already drawn. Pick 2 points on the line, and write the equation for the line of best fit in slope-intercept form (y = mx + b).



What is the slope of your line? What does this number tell us about a man's height and shoe size?

The following questions can be answered using your equation.

1. If a man has a shoe size of 9, what would be his predicted height?

2. If a man is 6 feet tall, what would we predict his shoe size to be?

Homework

Complete last page of the review packet.