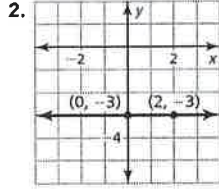**Use the graph to write an equation of the line in slope-intercept form.**

1.

(2, 4)

(3, 1)

2.

(0, −3) (2, −3)

Warm Up 1-2

Use the graph to write an equation of the line in slope-intercept form.

3.

(0, 5)

(−3, −3)

4.

(2, 7)

(1, 1)
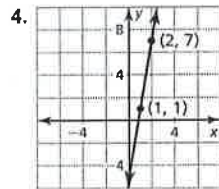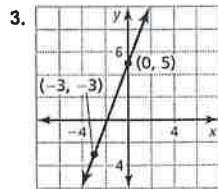
Warm Up 3-4

· How do we find slope?

· count from one point to the other
   · watch directions

OR

· $m = \dfrac{y_2 - y_1}{x_2 - x_1}$

· both will get you the same slope.

· y-intercept — when $x = 0$

· additional student practice

Graph the linear equation. Identify the *x*-intercept.

1. $y = x - 5$ 2. $y = 3x$

3. $2x - 2y = -2$ 4. $y - 3x = 1$

Cumulative Warm Up

Essential Question

How can you use a scatter plot and a line of fit to make conclusions about data?

Essential Question

· Students need to explain how to graph

· keep in mind
$$y = mx + b$$
$\uparrow$ $\uparrow$
slope   y-Intercept

· Review where to start and how to count slope

· Show Importance of using proper materials

· when would we use scatter plots

· Relationships
   · positive
   · negative
   · none

· Line of fit

· prediction equations

Work with a partner. A survey was taken of 179 married couples. Each person was asked his or her age. The scatter plot shows the results.

a. Draw a line that approximates the data. Write an equation of the line. Explain the method you used.

b. What conclusions can you make from the equation you wrote? Explain your reasoning.

Ages of Married Couples
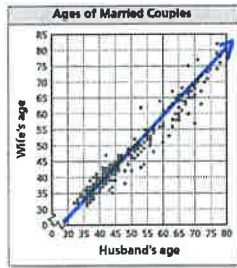
Exploration 1

find two points that are either directly on the line or close to it.

Use those points to calculate slope.

write the equation.

Work with a partner. The scatter plot shows the median ages of American women at their first marriage for selected years from 1960 through 2010.

a. Draw a line that approximates the data. Write an equation of the line. Let x represent the number of years since 1960. Explain the method you used.

b. What conclusions can you make from the equation you wrote?

c. Use your equation to predict the median age of American women at their first marriage in the year 2020.

Ages of American Women at First Marriage

Exploration 2

· draw the line through the center of the data points

· Choose 2 that are either on on as close to the line as possible

· Calculate slope

· write the equation

- Use coordinate grid to show Quad 1.
 Data points will only be there.

Core Concept

Scatter Plot

A **scatter plot** is a graph that shows the relationship between two data sets. The two data sets are graphed as ordered pairs in a coordinate plane. Scatter plots can show trends in the data.

Core Concept

- Use points to read graph

The scatter plot shows the amounts x (in grams) of sugar and the numbers y of calories in 10 smoothies.

a. How many calories are in the smoothie that contains 56 grams of sugar?

b. How many grams of sugar are in the smoothie that contains 320 calories?

c. What tends to happen to the number of calories as the number of grams of sugar increases?
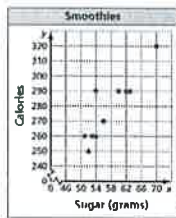
a.) 270 Calories

b.) 70 grams of sugar

c.) number of grams of sugar Increase the Calories will Increase.

Example 1

1. How many calories are in the smoothie that contains 51 grams of sugar?

260 cal

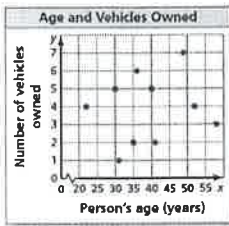**2.** How many grams of sugar are in the smoothie that contains 250 calories?
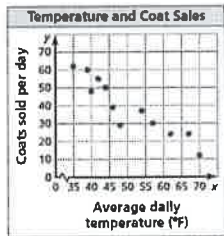
about 52 g

Monitoring Progress 1-2

Tell whether the data show a *positive*, a *negative*, or *no* correlation.

a. age and vehicles owned   **b.** temperature and coat sales at a store

Age and Vehicles Owned	Temperature and Coat Sales
Number of vehicles owned	Coats sold per day
Person's age (years)	Average daily temperature (°F)

No correlation   *negative correlation*

Example 2

Student practice

Correlation: a relationship between data sets.

How are the data points moving along the graph?

Do they look like they have a slope?

Could that 'slope' be defined as positive or negative?

Make a scatter plot of the data. Tell whether the data show a *positive*, a *negative*, or *no* correlation.

3.

Temperature (°F), x	82	78	68	87	75	71	92	84
Attendees (thousands), y	4.5	4.0	1.7	5.5	3.8	2.9	4.7	5.3

Positive Correlation

4.

Age of a car (years), x	1	2	3	4	5	6	7	8
Value (thousands), y	$24	$21	$19	$18	$15	$12	$8	$7

no correlation

Monitoring Progress 3-4

* Insert a grid to graph or use graph paper.

* Students need to read and tell about the relationship of the data

Core Concept

Using a Line of Fit to Model Data

Step 1 Make a scatter plot of the data.

Step 2 Decide whether the data can be modeled by a line.

Step 3 Draw a line that appears to fit the data closely. There should be approximately as many points above the line as below it.

Step 4 Write an equation using two points on the line. The points do not have to represent actual data pairs, but they must lie on the line of fit.

Line of fit: a line drawn on a scatter plot that is close to most of the data points.

Core Concept

The table shows the weekly sales of a DVD and the number of weeks since its release. Write an equation that models the DVD sales as a function of the number of weeks since its release. Interpret the slope and y-intercept of the line of fit.

Week, x	1	2	3	4	5	6	7	8
Sales (millions), y	$19	$15	$13	$11	$10	$8	$7	$5

$(5, 10) \quad (6, 8)$

$m = \dfrac{8-10}{6-5} = -2$

· Interpret slope and y-Intercept

· y-Intercept is $20 - has no meaning b/c nothing sold in week 0.

Example 3

· Slope $= -2$ or $2 mil is the decreasing value each week.

5. The following data pairs show the monthly income x (in dollars) and the monthly car payment y (in dollars) of six people: (2100, 410), (1650, 315), (1950, 405), (1500, 295), (2250, 440), and (1800, 375). Write an equation that models the monthly car payment as a function of the monthly income. Interpret the slope and y-intercept of the line of fit.

* Need graph paper

· graph points

· Positive, negative, or no correlation?

· Use 2 points to write slope.

· Write equation of line:
$y - y_1 = m(x - x_1)$
$y - 8 = -2(x - 6)$
$y - 8 = -2x + 12$
$y = -2x + 20$

* Student practice

Have students fit a line for *Monitoring Progress* Questions 3 and/or 4.

Closure