1. Which of the following is a linear function?

A

C

B

D

2. What is the x-intercept of $4x + 2y = 6$?

F $\dfrac{1}{3}$ H $\dfrac{3}{2}$

G $\dfrac{2}{3}$ J 3

3. At a fair, hamburgers sell for $3.00 each and hot dogs sell for $1.50 each. The equation $3x + 1.5y = 30$ describes the number of hamburgers and hot dogs a family can buy with $30.

   a. Find the intercepts and graph the function.
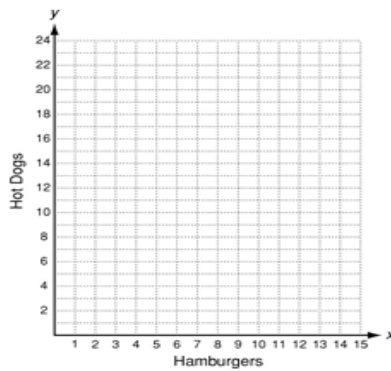
   _____

   b. What does each intercept represent?

   _____

   _____

   _____

Warm-up 10/25

1. Which of the following is a linear function?

A ✓

C ✓

(B)

D ✓

2. What is the x-intercept of $4x + 2y = 6$?

F $\dfrac{1}{3}$ (H) $\dfrac{3}{2}$

G $\dfrac{2}{3}$ J 3

$4x + 2(0) = 6$

$\dfrac{4x}{4} = \dfrac{6}{4}$

$x = \dfrac{3}{2}$
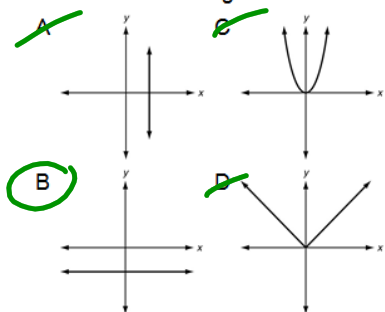
3. At a fair, hamburgers sell for $3.00 each and hot dogs sell for $1.50 each. The equation $3x + 1.5y = 30$ describes the number of hamburgers and hot dogs a family can buy with $30.

a. Find the intercepts and graph the function.

(10,0)   (0,20)

b. What does each intercept represent?

10 maximum hamburgers
20 maximum hotdogs

Warm-up 10/25

$3x + 1.5(0) = 30$

$\dfrac{3x}{3} = \dfrac{30}{3}$

$x = 10$

$3(0) + 1.5y = 30$

$\dfrac{1.5y}{1.5} = \dfrac{30}{1.5}$

$y = 20$
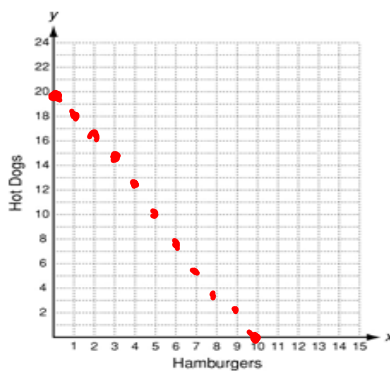
Once upon a

Talk it Out

Talk with a partner. Was there a time when you experienced a very steep

hill? Maybe your experience involved a bicycle, skis, a car, etc.. Talk about your

experience with your partner. Why does steepness matter? How might this connect
with linear equations? Be prepared to share your story with the class.

Section 4.3

Today's Goals

I can find rates of change and slopes.

Section 4.3: Rate of Change

A **rate of change** is a ratio that compares the amount of change in a dependent variable to the amount of change in an independent variable.

Rate of change = $slope = \dfrac{rise}{run} = \dfrac{dependent}{independent} = \dfrac{\Delta y}{\Delta x}$

Finding Rate of Change from a table

The table shows the average temperature (°F) for five months in a certain city. Find the rate of change for each time period. During which time period did the temperature increase at the fastest rate?

Step 1 Identify the dependent and independent variables.

Month	2	3	5	7	8
Temp. (°F)	56	56	63	71	72

Step 2 Find the rates of change.

Try This!

The table shows the balance of a bank account on different days of the month. Find the rate of change during each time interval. During which time interval did the balance decrease at the greatest rate?
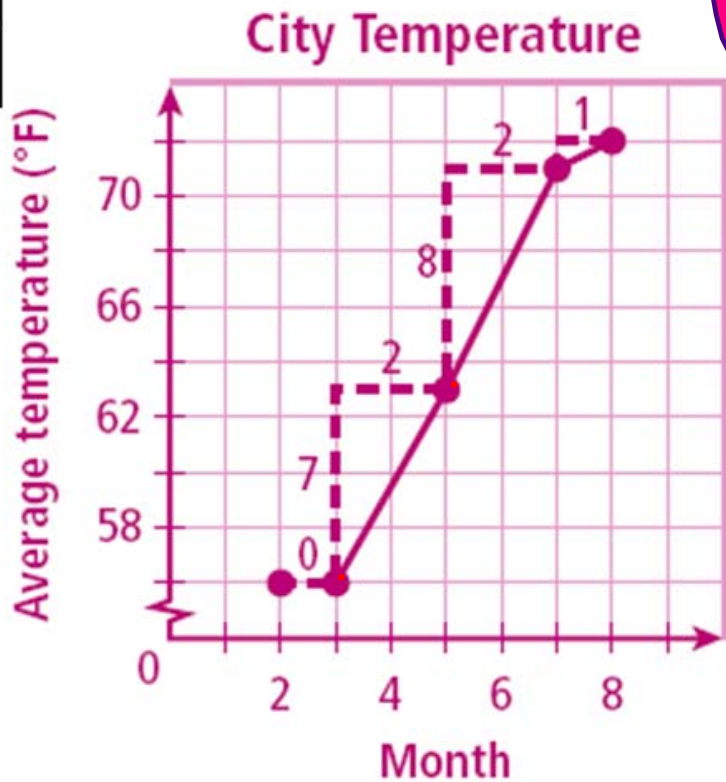
Day	1	6	16	22	30
Balance ($)	550	285	210	210	175

Finding Rate of Change from a Graph

Graph the data from Example 1 and show the rates of change.

Month	2	3	5	7	8
Temp. (°F)	56	56	63	71	72

City Temperature

Graph the ordered pairs. The vertical segments show the changes in the dependent variable, and the horizontal segments show the changes in the independent variable.

Notice that the greatest rate of change is represented by the steepest of the red line segments.

Also notice that between months 2 to 3, when the balance did not change, the line segment is horizontal.

Try This!

Graph the data from Example 2 "Try This" and show the rates of change.

Day	1	6	16	22	30
Balance ($)	550	285	210	210	175

Homework

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