

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Ms. Streffacio

Class: \_\_\_\_\_

**I can:**

### Do Now (3 minutes to complete):

Bianca and Nick are both musicians who sell their songs online. During the same year, Bianca sold  $8 \times 10^5$  downloads of her songs and Nick sold  $4 \times 10^6$  downloads of his songs. How many times as much is the number of songs that Nick sold than the number of songs that Bianca sold?

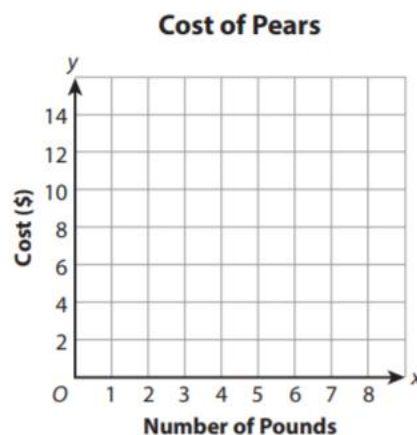
- A 2
- B 5
- C 20
- D 40

### Model (10 minutes) You Watch, Listen, Copy:

Sean wrote the equation  $9.25 = 5m$ , where  $m$  is the cost per pound, to show the relationship between the total cost, \$9.25, and the number of pounds of pears, 5, he bought at Quick Mart. Find the unit cost of the pears, write an equation to show the cost  $y$  of  $x$  pounds of pears, and use the equation to complete the table. Then use the information in your table to make a graph.

Unit cost: \_\_\_\_\_

Equation: \_\_\_\_\_



Number of Pounds		5		
Cost (\$)		9.25		

### Check for Understanding- Did you understand the Model? (2 minutes) Teacher will check!

The table below shows the cost  $c$  for different numbers of binders  $b$ . Is the relationship proportional? If so, represent it with an equation. If not, explain why not.

Number of Binders ( $b$ )	4	8	12	16
Cost ( $c$ )	\$5.40	\$10.80	\$16.20	\$21.60

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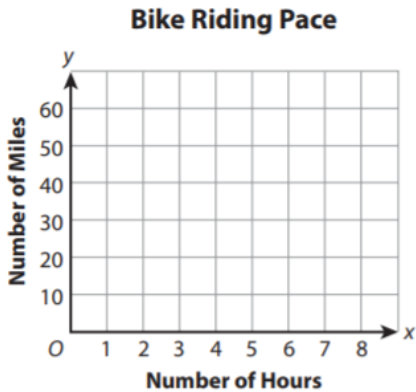


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### We Do Together (10 minutes):

The table shows the distance Nikki travels on her bike as a function of how many hours she rides at a constant rate. Use the information in the table to make a graph, using the coordinate plane to the right. Find the slope of the graph and explain what it means in this situation.

Number of Hours	2	4	6	8
Number of Miles	16.5	33	49.5	66



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\_\_\_\_\_

**Final Check for Understanding before I send you to Independent Practice! Teacher will Check (4 minutes):**

Tomás collects sports cards. The number of baseball cards he buys each week is proportional to the number of football cards he buys.

- a. Fill in the missing numbers in the table.

Week	1	2	3	4
Number of Baseball Cards	9	15		6
Number of Football Cards	6		8	

- b. Suppose Tomás buys a total of 30 baseball and football cards in Week 5. How many of each would he have to buy to keep the same proportional relationship?

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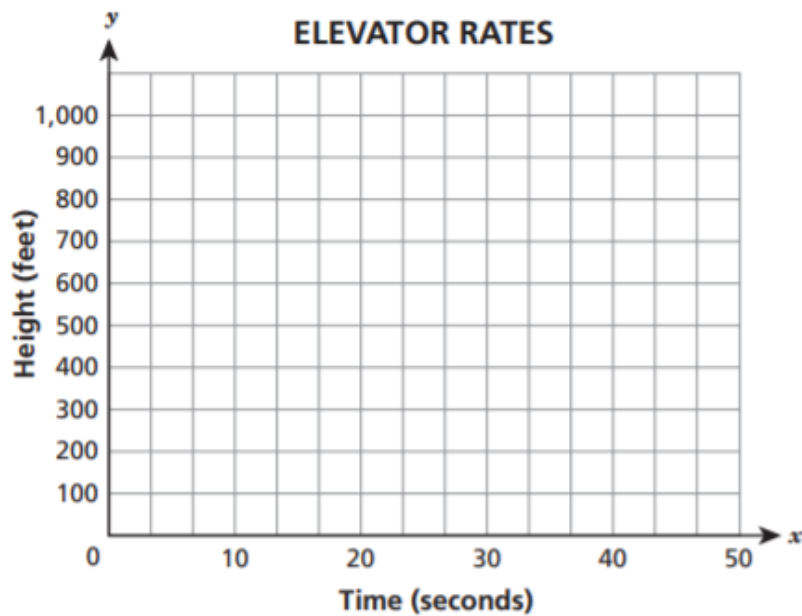
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Independent Practice (on your own):

The express elevator in the Empire State Building in New York City travels nonstop from the ground floor to the top floor at a rate of 1,400 feet per minute.

The express elevator in the John Hancock Center in Chicago travels nonstop from the ground floor to the observatory on the top floor at a rate represented by the equation  $y = 30x$ , where  $y$  is the height, in feet, and  $x$  is the number of seconds.

Graph the two relationships on the grid below to compare the rates of the two elevators.



Which elevator travels at a faster rate?

Using the information from the graph, explain how you got your answer.

Answer

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The number of cups of water used in two different soup recipes depends on the number of batches of the recipe you make. The tables show the number of cups of water used in the two soup recipes.

Recipe A				
Batches	2	4	6	8
Water (c)	6	12	18	24

Recipe B				
Batches	1	3	5	7
Water (c)	4	12	20	28

Do the ratios of cups of water to batches of soup in each table represent a proportional relationship? Explain.

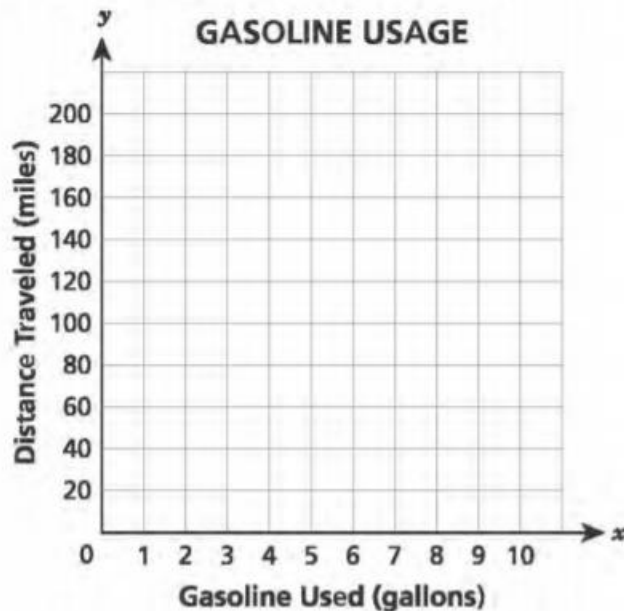
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Stanley drove his car on a business trip. When he left, the mileage was 840 miles, and when he returned, the mileage was 1,200 miles. The car used 12 gallons of gasoline for this trip.

Draw a graph on the grid below to show the relationship between gasoline used,  $x$ , and the distance traveled,  $y$ , during Stanley's trip.

Carla made the same trip as Stanley, but her car used only 10 gallons of gasoline. Graph the gasoline usage of Carla's car on the same grid as Stanley's car.



How do the slopes for Stanley's and Carla's cars compare?

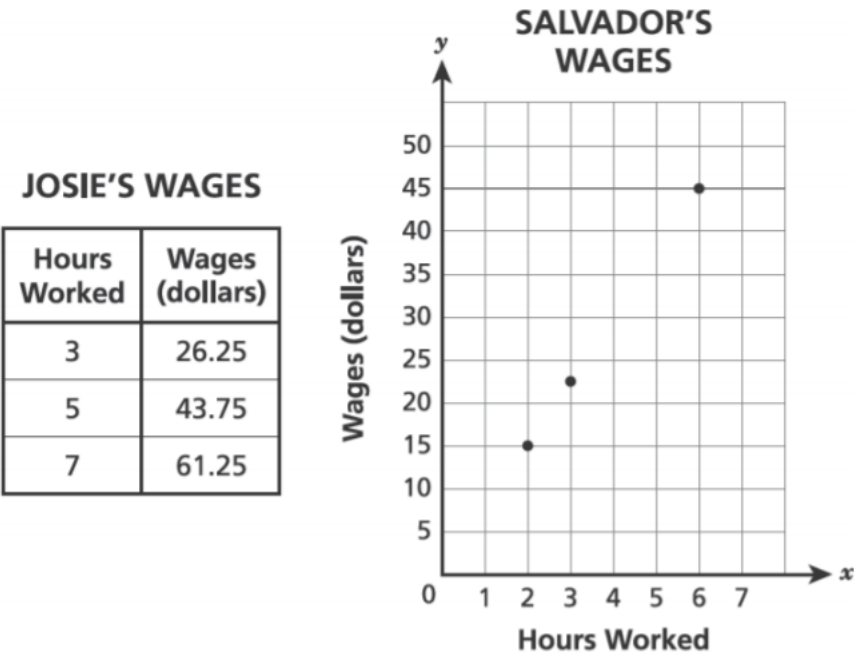
**Explain your answer in terms of the unit rate.**

**Answer**

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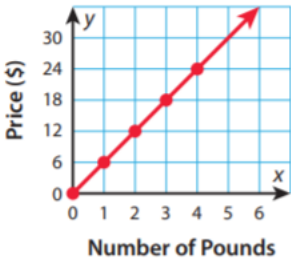
The table and the graph below show Josie’s and Salvador’s wages, respectively, based on the number of hours worked.



The table shows the function of how many words Gary can read if he reads at a constant rate. Use the information in the table to make a graph, representing the number of minutes on the horizontal axis. Find the slope of the graph and explain what it means in this situation.

Number of Minutes	2	4	6	8
Number of Words	320	640	960	1,280

The price for  $x$  pounds of almonds at the Snack Shack is represented by  $y = 6.5x$  and the cost at the Nut Hut is shown in the graph. Which store sells almonds at a lower unit cost? How much lower?

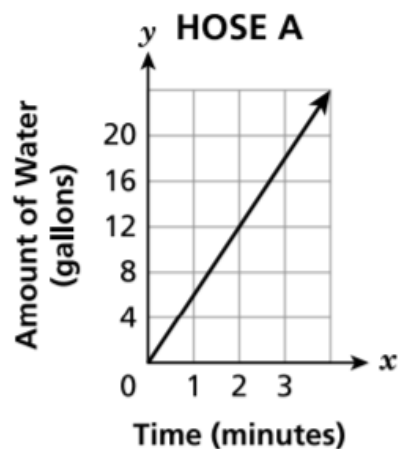


In 2010, Josie and Salvador each worked an eight-hour day for five days each week. How many weeks did it take Josie to earn \$1,000 more than Salvador?

*Show your work.*

**Answer** \_\_\_\_\_ weeks

Charles needs to fill a large fish tank with water using a hose. He has two hoses from which to choose. Water flows through each hose at a constant rate. The graph below shows the amount of water, in gallons, that flows through Hose A based on the number of minutes used.

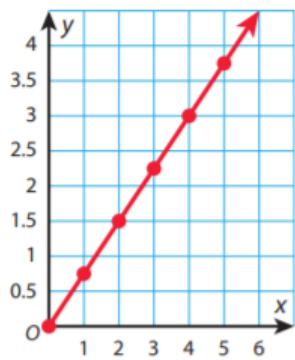


A total of 110 gallons of water can flow through Hose B in 10 minutes. Which hose has a faster water flow rate, in gallons per minute, and what is that rate?

*Show your work.*

What is the slope of the graph?

Show your work.



**Solution** \_\_\_\_\_

The equation  $u = 0.99c$  shows the value of the U.S. dollar compared to the Canadian dollar on one particular day, where  $c$  = the value of the Canadian dollar and  $u$  = the value of the U.S. dollar. The table shows the value of the U.S. dollar compared to the Australian dollar on the same day. Was the U.S. dollar closer in value to the Canadian dollar or the Australian dollar that day?

Australian Dollar	1	2	3	4
U.S. Dollar	0.95	1.90	2.85	3.80

Show your work.

**Solution** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

A grocery store sells Brand A olive oil in a 33-fluid-ounce bottle for \$16.50. The store also sells Brand B olive oil in a large dispenser that customers can buy for \$4.80 per cup. Identify the unit cost for each and tell which is the better buy.

1 cup = 8 fluid ounces

Show your work.

Answer \_\_\_\_\_

\_\_\_\_\_

A craft store buys 50 yards of satin ribbon for \$13.50. The store sells the ribbon by the foot. A customer can purchase 5 feet of ribbon for \$0.80. How much profit does the craft store earn if it sells 45 yards of the ribbon and scraps the rest?

Show your work.

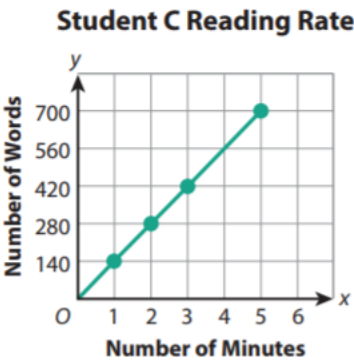
Answer \_\_\_\_\_

The graph shows the rate at which Student C reads. Explain how to find the reading rate for Student C from the graph.

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\_\_\_\_\_

\_\_\_\_\_





The price  $y$  for  $x$  pounds of nails at U-Fix-It is represented by  $y = 4.4x$ . The unit price for the same type of nails at Just Hardware is \$0.30 per pound greater than the unit price at U-Fix-It. Complete the table to show the costs for 1, 2, 3, and 4 of pounds of nails at Just Hardware.

Number of Pounds	1	2	3	4
Price (\$)				

The table and the equation show the approximate speeds for a roadrunner and a coyote running at top speed. Which animal runs faster? How much faster per minute? (1 mile =5,280 feet, 1 minute = 60 seconds)

Roadrunner					Coyote	
Number of Seconds	1	2	3	4	$y = 0.7x$ , where $x$ is the number of minutes and $y$ is the number miles.	
Number of Feet	29	58	87	116		

Show your work.

For each table, write in the equation that represents the price per ticket.

Tickets, $x$	2	5	6	8
Price (\$), $y$	15	37.50	45	60

Tickets, $x$	3	4	5	6
Price (\$), $y$	27.75	37	46.25	55.50

Tickets, $x$	2	3	4	5
Price (\$), $y$	12	18	24	30

A grocery store sells Health-Wise orange juice in a quart bottle for \$2.24. The store also sells a 59-ounce bottle of Health-Wise orange juice for \$3.54.

**Part A**

Identify the unit cost for each bottle of orange juice.  
(1 quart = 32 ounces).

**Show your work.**