

### Check for Accuracy

To check your answer for Example 2, check to see if the ratio of the two new quantities is equivalent to the ratio of the original quantities.

$$\frac{11}{2} \times \frac{6}{6} = \frac{66}{12}$$

Show your work.

a. 32 h

b. 3 c

2. In a recent year, Joey Chestnut won a hot dog eating contest by eating nearly 66 hot dogs in 12 minutes. If he ate at a constant rate, determine about how many hot dogs he ate every 2 minutes.

Divide each quantity by one or more common factors until you reach a quantity of 2 minutes.

So, he ate about 11 hot dogs every 2 minutes.

Hot Dogs	66	33	11
Time (min)	12	6	2

$\div 2$  (from 66 to 33)  
 $\div 3$  (from 33 to 11)  
 $\div 2$  (from 12 to 6)  
 $\div 3$  (from 6 to 2)

### Got it? Do these problems to find out.

- a. A patient receives 1 liter of IV fluids every 8 hours. At that rate, find how many hours it will take to receive 4 liters of IV fluids.

IV Fluids (L)	1	4
Time (h)	8	32

- b. To make cranberry jam, you need 12 cups of sugar for every 16 cups of cranberries. Find the amount of sugar needed for 4 cups of cranberries.

Sugar (c)	12	6	3
Cranberries (c)	16	8	4

4. Joe mows lawns during his summer vacation to earn money. He took 14 hours last week to mow 8 lawns. At this rate, how many lawns could he mow in 49 hours?

Is there a whole number by which you can multiply 14 to get 49? **no**

Scale back to **7**, and then scale forward to **49**.

Number of Hours	14	<b>7</b>	49
Number of Lawns	8	<b>4</b>	<b>28</b>

$\div 2$     $\times 7$   
 $\div 2$     $\times 7$

So, Joe can mow **28** lawns in 49 hours.

**Got it?** Do this problem to find out.

- c. A child's height measures 105 centimeters. Estimate her height in inches.

Height (cm)	25	<b>5</b>	105
Height (in.)	10	<b>2</b>	<b>42</b>

Show your work.

c. **about 42 in.**

Leya would receive \$24 Canadian for \$20 American.

# Guided Practice



Complete each ratio table to solve each problem.

Santiago receives an allowance of \$7 every week. How much total does he receive after 4 weeks? (Example 1)

\$28

Allowance (\$)	7	14	21	28
Number of Weeks	1	2	3	4



Tonya runs 8 kilometers in 60 minutes. At this rate, how long would it take her to run 2 kilometers? (Example 2)

15 min

Distance Run (km)	8	4	2
Time (min)	60	30	15

Lamika buys 12 packs of juice boxes that are on sale and pays a total of \$48. Use a ratio table to determine how much Lamika will pay to buy 8 more packs of juice boxes at the same store. (Example 5)

\$32

Number of Juice Boxes	12	1	8
Price (\$)	48	4	32

**Rate Yourself!**

How well do you understand  
 variables? Circle the image  
 that lies



Glossary

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Answers:  On  Off



2. Tonya runs 8 kilometers in 60 minutes. At this rate, how long would it take her to run 2 kilometers? (Example 2)

**15 min**

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**\$32**

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Price (\$)	48	4	32

4.  **Building on the Essential Question** How can you determine if two ratios are equivalent?

**Sample answer: Two ratios are equivalent if they simplify to the same ratio. For example, 1:3, 2:6, and 3:9 are equivalent because they all simplify to 1:3.**

### Rate Yourself!

How well do you understand ratio tables? Circle the image that applies.



Clear



Somewhat Clear



Not So Clear

For more help, go online to access a Personal Tutor.



**FOLDABLES** Time to update your Foldable!





Complete each ratio table to solve each problem.

- 1** To make 5 apple pies, you need about 2 pounds of apples. How many pounds of apples do you need to make 20 apple pies? (Example 1)

**8 pounds**

Number of Pies	5	10	20
Pounds of Apples	2	4	8

- 2.** Four balls of wool will make 8 knitted caps. How many balls of wool will Malcolm need if he wants to make 6 caps? (Examples 3 and 4)

**3 balls of wool**

Balls of Wool	4	1	3
Number of Caps	8	2	6

- 3** Before leaving to visit Mexico, Levant traded 270 American dollars and received 3,000 Mexican pesos. When he returned from Mexico, he had 100 pesos left. How much will he receive when he exchanges these pesos for dollars? (Example 2)

**\$9**

American Dollars	270	27	9
Mexican Pesos	3,000	300	100

- 4.** On a bike trip across the United States, Rodney notes that he covers about 190 miles every 4 days. If he continues at this rate, use a ratio table to determine about how many miles he could bike in 6 days. (Example 5)

**285 mi**

Miles Biked	190	95	285
Days	4	2	6





If he continues at this rate, use a ratio table to determine about how many miles he could bike in 6 days. (Example 5)

**285 mi**

Days	4	2	6
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5. **MP Identify Repeated Reasoning** A punch recipe that serves 24 people calls for 4 liters of lemon-lime soda, 2 pints of sherbet, and 6 cups of ice.
- Complete a ratio table to represent this situation.
  - How much of each ingredient would you need to make an identical recipe that serves 12 people? 36 people?

People Served	24
Liters of Soda	4
Pints of Sherbet	2
Cups of Ice	6

**2 L soda, 1 pt sherbet, 3 c ice; 6 L soda, 3 pt sherbet, 9 c ice**

- How much of each ingredient would you need to make an identical recipe that serves 18 people? Explain your reasoning.

**3 L soda, 1.5 pt sherbet, 4.5 c ice; Sample answer: Since 18 is half of 36, half the recipe that serves 36 people will serve 18 people.**

**$6 \text{ L} \div 2 = 3 \text{ L}$ ,  $3 \text{ pt} \div 2 = 1.5 \text{ pt}$ , and  $9 \text{ c} \div 2 = 4.5 \text{ c}$ .**



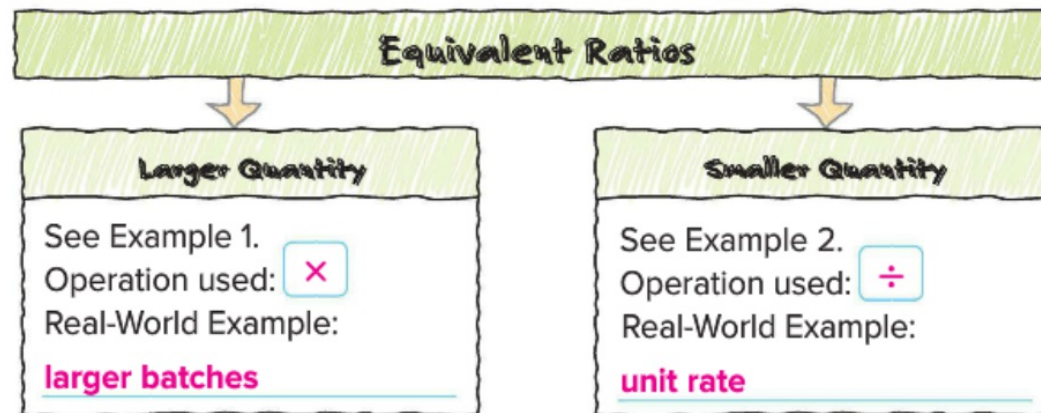


6. On a typical day, flights at a local airport arrive at a rate of 10 every 15 minutes. At this rate, how many flights would you expect to arrive in 1 hour?

Number of Flights	10	2	40
Minutes	15	3	60

40 flights

7. **MP Identify Structure** Complete the graphic organizer to explain how equivalent ratios are used to find larger quantities and smaller quantities.



### H.O.T. Problems Higher Order Thinking

8. **MP Find the Error** Melody used the



2

1

15



## H.O.T. Problems Higher Order Thinking

8. **MP Find the Error** Melody used the ratio table at the right to find the number of people served with 15 pounds of ground turkey. Find her error and correct it.

Pounds of Ground Turkey	2	1	15
People Served	6	5	19

**She used subtraction and addition when creating the ratio table instead of division and multiplication. Fifteen pounds of ground turkey would feed 45 people.**

9. **MP Justify Conclusions** There are 18 bulls and 45 cows on a ranch. If 4 more bulls and 4 more cows were added, will the ratio of bulls to cows remain the same? Justify your answer using a ratio table.

Bulls	18	2	22
Cows	45	5	55

**no; Sample answer: If 4 bulls and 4 cows are added, there would be 22 bulls and 49 cows on the ranch. Using the ratio table, there should be 55 cows for 22 bulls.**

10. **MP Use Math Tools** Complete the ratio table to illustrate a real-world relationship among two quantities in which the scale factor is 4. **See students' work.**