Guided Practice

7.4

Set 1

1   Taylor ate 27 grapes and 12 strawberries. Write the ratio of grapes to strawberries as a fraction in simplest form.

$$\frac{27}{12}$$

$$\frac{27 \div 3}{12 \div 3}$$

The ratio of grapes to strawberries is $\frac{9}{4}$.

2   Caroline earned $75 in 15 hours. Find the unit rate.

$$\frac{\$}{\text{hours}} = \frac{75}{15}$$

$$\frac{\$}{\text{hours}} = \frac{75 \div 15}{15 \div 15}$$

$$\frac{\$}{\text{hours}} = \frac{5}{1}$$

The unit rate is $5 per hour.

3   A printer prints 825 pages in 75 minutes. Find the unit rate.

$$\frac{\text{pages}}{\text{minutes}} = \frac{825}{75}$$

$$\frac{\text{pages}}{\text{minutes}} = \frac{825 \div 75}{75 \div 75}$$

$$\frac{\text{pages}}{\text{minutes}} = \frac{11}{1}$$

The unit rate is 11 pages per minute.

4 A package of 12 pencils costs $1.32. What is the unit cost?

$$\frac{\$}{\text{pencils}} = \frac{1.32}{12}$$

$$\frac{\$}{\text{pencils}} = \frac{1.32 \div 12}{12 \div 12}$$

$$\frac{\$}{\text{pencils}} = \frac{0.11}{1}$$

The unit rate is 11¢ per pencil.

Set 2

1 A lemonade recipe calls for four cups of water and $\frac{3}{4}$ c sugar. How much water should be used to make lemonade using $1\frac{1}{2}$ c sugar?

$$\begin{array}{l}\text{c water} \rightarrow \\ \text{c sugar} \rightarrow\end{array} \quad \frac{4}{\frac{3}{4}} = \frac{?}{1\frac{1}{2}}$$

$$\frac{4 \times 2}{\frac{3}{4} \times 2} = \frac{8}{1\frac{1}{2}}$$

Eight cups of water should be used.

2 A 12-ounce box of cereal costs $3.84. At the same unit cost, how much would you pay for a 15-ounce box of the same cereal?

$$\frac{\$}{\text{ounces}} = \frac{3.84 \div 12}{12 \div 12}$$

$$\frac{\$}{\text{ounces}} = \frac{0.32}{1}$$

$$\$0.32 \times 15 = \$4.80$$

You would pay $4.80 for a 15-ounce box of cereal.

Module 7   Ratio, Proportion, and Percent
Lesson 4   Ratios, Rates, and Proportional Reasoning

3 An assembly line worker inspected 312 items in 2.5 minutes. At this rate, how many items will the worker inspect in 12 minutes? Round your answer to the nearest whole number.

$$\frac{\text{items} \rightarrow}{\text{min} \rightarrow} \quad \frac{312}{2.5} = \frac{?}{12}$$

$$312 \times 12 = 2.5 \times ?$$
$$3,744 = 2.5 \times ?$$
$$3,744 \div 2.5 = ?$$
$$1,497.6 = ?$$

The worker will inspect 1,498 items in 12 minutes.

Set 3

1 This season Jerry made three out of every five basketball free throws he attempted. Sally made four out of every six free throws she attempted. Based on these rates, who was the better free-throw shooter? Use a table to solve.

m = shots made a = attempts

Jerry	
m	a
3	5
6	10
9	15
12	20

Sally	
m	a
4	6
8	12
12	18
16	24

Sally is the better free-throw shooter.

2 Russ types 126 words in two minutes. Megan types 186 words in three minutes. Based on the rates, who types faster?

Russ:
$$\frac{\text{words} \rightarrow}{\text{minutes} \rightarrow} \quad \frac{126 \div 2}{2 \div 2} = \frac{63}{1}$$

Megan:
$$\frac{\text{words} \rightarrow}{\text{minutes} \rightarrow} \quad \frac{186 \div 3}{3 \div 3} = \frac{62}{1}$$

Russ types faster.