



Name _____ Date _____

Ratios and Rates (pages 312–315)

You can compare two quantities by using a ratio. A common way to express a ratio is as a fraction in simplest form. If the two quantities you are comparing have different units of measure, this kind of ratio is called a **rate**. A rate is in the form of a *unit* rate when the denominator is 1.

Writing a Rate and a Unit Rate

A rate is a ratio of two measurements that have different units. To write a ratio as a unit rate, divide the numerator and denominator by the same number to rewrite the ratio as a fraction with a denominator of 1.

EXAMPLES

A Write the ratio in three different ways:
5 sixth-graders out of 15 students.
Express this ratio as a fraction in simplest form.

As a fraction $\frac{5}{15}$

As a ratio 5:15

In words 5 to 15

Another way is in the problem: 5 out of 15.

$\frac{5}{15}$ in simplest form is $\frac{1}{3}$.

B Express the ratio as a unit rate: 15 pencils for \$5. How many pencils can you buy for \$1?

Write the ratio as a fraction. $\frac{15 \text{ pencils}}{\$5}$

To rewrite the fraction with a denominator of 1, divide numerator and denominator by 5.

$\frac{15 \text{ pencils}}{\$5} = \frac{15}{5} \frac{\text{pencils}}{\$1}$ or 3 pencils for \$1

Try These Together

1. Write the ratio in three different ways:
7 sodas out of 20 are sugar free.

HINT: Write the numbers in the same order as they appear in the problem.

2. Express the ratio as a rate: \$14.50 for 5 rides. What is the cost for one ride?

HINT: Divide numerator and denominator by 5.

PRACTICE

Express each ratio as a fraction in simplest form.

3. 4 out of 16 papers are typed

4. 5 out of 10 horses are white

5. 7 blue bicycles out of 21 bicycles

6. 4 watermelons out of 10 melons

Express each ratio as a rate.

7. \$1.50 for 3 bottles of juice

8. 5 bracelets for \$25.00



9. Standardized Test Practice If milk costs \$5.50 for 2 gallons, how much does it cost per gallon?

A \$11.00

B \$10.50

C \$2.75

D \$3.50

Answers: 1. 7:20, 7 to 20, $\frac{7}{20}$ 2. $\frac{\$14.50}{5 \text{ rides}}$ or \$2.90 per ride 3. $\frac{4}{16}$ 4. $\frac{5}{10}$ 5. $\frac{7}{21}$ 6. $\frac{4}{10}$ 7. \$0.50 per bottle of juice 8. \$5.00 per bracelet 9. C