Ratios and Per Unit Rate

A **ratio** is a comparison between two quantities. We use them everyday; $2.75 per gallon of gasoline, one Pespi costs 50 cents, the legend says this map tells us one inch is equivalent to 100 miles, five fingers per hand, etc.

If this class has 17 girls and 14 boys, we can write the ratio of boys to girls in the following ways:

$$\frac{17}{14} \qquad 17{:}14 \qquad 17 \text{ to } 14$$

All of these expressions are read *seventeen to fourteen*. A ratio is said to be in lowest terms if the two numbers are relatively prime. You do not change an improper fraction to a mixed number if the improper fraction represents a ratio.

Example: There are 9 players on a baseball team. Four of these are infielders and 3 are outfielders. Find each ratio in lowest terms.

1. infielders to outfielders $\qquad \frac{4}{3} \qquad 4{:}3 \quad 4 \text{ to } 3$

2. outfielders to total players $\qquad \frac{3}{9} = \frac{1}{3} \qquad 1{:}3 \quad 1 \text{ to } 3$

3. outfielders to infielders $\qquad \frac{3}{4} \qquad 3{:}4 \quad 3 \text{ to } 4$

4. infielders to total players $\qquad \frac{4}{9} \qquad 4{:}9 \quad 4 \text{ to } 9$

Express each ratio as a fraction in lowest terms.

1. 5 to 7	**2.** 11 to 6	**3.** 10:30	**4.** 12:24
5. 8 to 2	**6.** 32 to 4	**7.** 68:17	**8.** 45:18

Express each rate in per unit form.

Example: **15 cans for $3** $\qquad \frac{15}{3} = \frac{5}{1}$ 5 cans per dollar

200 miles in 4 hours $\frac{200}{4} = \frac{50}{1}$ 50 miles per hour

7. 120 km in 3 hours	**8.** 10 walls using 4 gallons of paint
9. 10 gallons in 2 minutes	**10.** $1,000 in 4 months
11. 300 miles on 6 gallons	**12.** 75 meals in 3 hours