

## Math 7H - Unit 3

## Day 1 - Ratios, Rates, and Unit Rates Review

## Lesson Objectives:

- I can simplify ratios with like or different units.
- I can find and compute unit rates associated with ratios of fractions.



A pitcher for a baseball team is able to throw a fastball approximately 132 feet in 1 second. How fast would this be in miles per hour?

K	W	L
$S = 132 \text{ ft per second}$ $\frac{132 \text{ ft}}{1 \text{ sec}}$ ratios are fractions $3600 \text{ seconds} = 1 \text{ hour}$ $60 \text{ sec} = 1 \text{ min}$ $60 \text{ min} = 1 \text{ hr}$ $5280 \text{ ft} = 1 \text{ mile}$	? miles per hour	

A **ratio** is a comparison of two numbers by division.

If a gallon of paint contains 2 parts of blue paint and 4 parts of yellow paint, then the ratio comparing the blue paint to the yellow paint would be:

$$2 \text{ to } 4 \quad 2:4 \quad \frac{2}{4}$$

Ratios are most often expressed as fractions in simplest form.

Express each ratio as a fraction in simplest form and as a decimal.

- a. 3 broken eggs out of 12 in the carton  $\frac{1}{4}$
- b. \$25 tip on a \$125 meal  $\frac{1}{5}$

Write the following ratio in three ways.

- c. 10 roses out of 12 flowers

$$5:6 \quad 5 \text{ to } 6 \quad \frac{5}{6}$$

- d. 18 DVD's out of 24 DVD's

$$3:4 \quad 3 \text{ to } 4 \quad \frac{3}{4}$$

Write the following ratios as fractions in simplest form, getting both units the same.

- e. 21 inches to 2 yards  $\frac{21 \text{ in}}{72 \text{ in}} = \frac{7}{24}$

- f. 5 feet to 5 yards

$$\frac{5 \text{ ft}}{15 \text{ ft}} = \frac{1}{3}$$

A **rate** is a ratio (comparison) of two measurements with different units of measure.

300 miles for 11 gallons of gas      35 miles in  $\frac{1}{2}$  hour

What are some other examples of rates that you've heard of outside of math class?

A rate with a denominator of 1 is called the **unit rate**.

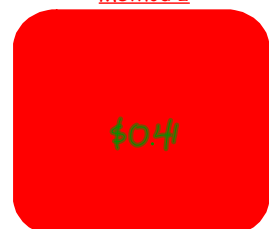
\$0.50 for 1 apple

\$2.50/ 1 gallon of gas

There are two different methods for finding unit rate.

Method 1

Method 2



Which bottle of cleaner is the better deal?

Unit analysis multiplies a number or expression by a unit rate.

Bob works a holiday job shoveling snow for his neighbors. He spent 6 hours shoveling snow on Saturday. He earned \$12 for each hour he worked. How much money did Bob earn on Saturday?

$$6 \text{ hr} \times \frac{\$12}{1 \text{ hour}} = \$72$$



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## Homework

3.1 pg 102 #1-32

### \* Individual Think Time \*



What to do if you get stuck...

1. Reread the problem. Did you write it down correctly?
2. Reread your notes. Is there a problem similar that we did together in class?
3. Find a problem similar in your book. Try this one to see if it helps.
4. Skip the problem until the end of Individual Think Time. Then ask an "educated" question of a neighbor or Mrs. Call.

Today we're working by...

