

**Section 8-2:  
Proportions &  
Customary Units**

# **Today's Objectives:**

- 1. Solve proportions using cross multiplication.**
- 2. Use proportions to convert between customary units.**

## Proportion:

An equality between 2 ratios.

For example,  $\frac{6}{9} = \frac{8}{12}$

## To solve a proportion:

1. Cross-Multiply
2. Divide to get the variable by itself
3. Round if necessary

**Solve the proportions. Round to the nearest tenth.**

Ex. 1:

$$\frac{2}{3} = \frac{4}{x}$$

~~$\frac{2}{3} = \frac{4}{x}$~~   
 $x = 12$   
 $\frac{12}{2} = 6$

$x = 6$

Ex. 2:

$$\frac{3}{7} = \frac{x}{15}$$

~~$\frac{3}{7} = \frac{x}{15}$~~   
 $45 = 7x$   
 $\frac{45}{7} = x$

$6.4 = x$

Ex. 3:

$$\frac{x}{5} = \frac{9}{17}$$

~~$\frac{17}{17}x = \frac{45}{17}$~~

$x = 2.6$

~~$\frac{17}{17}x = \frac{45}{17}$~~

## Customary Units:

things like cups, miles, inches, feet, gallons, yards, etc.

- \* The 1st ratio comes from the problem.
- \* The 2nd ratio comes from the given table.

Ex. 4:

$$9 \text{ yards} = \underline{27} \text{ feet?}$$

$$\begin{array}{r} 9 \text{ yards} \\ \hline x \text{ feet} \end{array} \quad \begin{array}{r} 1 \text{ yard} \\ \hline 3 \text{ feet} \end{array}$$

$$27 = x$$

### Customary Conversions

8 fluid ounces = 1 cup

2 cups = 1 pint

2 pints = 1 quart

4 quarts = 1 gallon

8 pints = 1 gallon

3 teaspoons = 1 tablespoon

16 tablespoons = 1 cup

16 fluid ounces = 1 pint

16 ounces = 1 pound

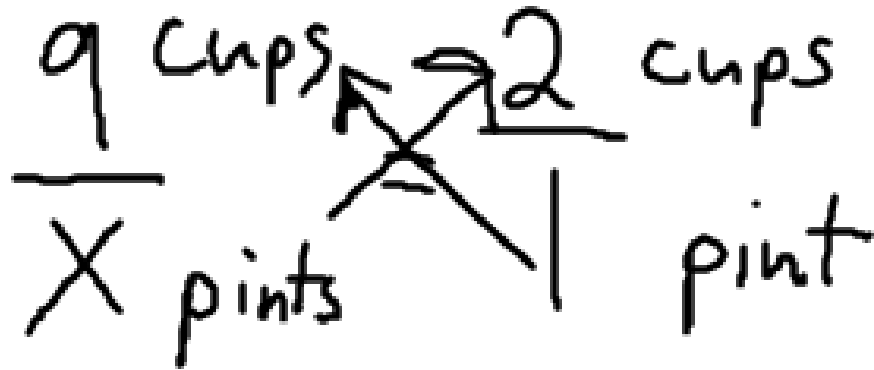
5,280 feet = 1 mile

12 inches = 1 foot

3 feet = 1 yard

Ex. 5:

$$9 \text{ cups} = \underline{4.5} \text{ pints?}$$



$$\begin{array}{r} 9 \\ 2 \end{array} = \cancel{\frac{2}{1}} \quad \cancel{\frac{1}{2}}$$

4.5 = X

### Customary Conversions

8 fluid ounces = 1 cup

2 cups = 1 pint

2 pints = 1 quart

4 quarts = 1 gallon

8 pints = 1 gallon

3 teaspoons = 1 tablespoon

16 tablespoons = 1 cup

16 fluid ounces = 1 pint

16 ounces = 1 pound

5,280 feet = 1 mile

12 inches = 1 foot

3 feet = 1 yard



# Abbreviations!

fluid ounces = fl oz

cups = c

pints = pts

quarts = qts

gallons = gal

inches = in

teaspoons = tsp

tablespoons = tbsp

ounces = oz

pounds = lbs

feet = ft

miles = mi

yards = yds