Standard A.REI.3 **2.6 Ratios, Rates, and Conversions** Unit 3 Day 8

**Ratios:** Compares two numbers by division. It can be express in three different ways: \_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_

A ratio that compares quantities measured in different units is called \_\_\_\_\_\_\_\_. If it has a denominator of 1, then it’s called a \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_.

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| **Length Conversions** |
| **Centimeters (1 cm) =**10 mm | **Foot (1 ft) =**12 inches |
| **Meters (1 m) =**100 cm | **Yard (1 yd) =**3 ft |
| **Kilometer (1 km) =**1,000 m | **Miles (1 mi) =**1760 yd |

**Example 1:** **Comparing Unit Rates**

Which of the following is a better buy?

1. Store A sells 2 shirts for $50
2. Store B sells 3 shirts for $80

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| **Volume Conversions** |
| **Tablespoon****(1 Tbsp) =**3 tsp | **Pint (1 pt) =**2 c |
| **Fluid Ounce****(1 fl oz) =**2 Tbsp | **Quart (1 qt) =**2 pt |
| **Cup (1 c) =**8 fl oz | **Gallon (gal) =** 4 qt |
| **Liter (1 L) =**1000 mL |

**Conversions:** Changing from one unit to another unit of measure. For example 12 inches = 1 foot.

A \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_ is a ratio of two equivalent measures in different units. It should always reduce to 1.

**Example 2: Conversions**

1. Convert 450 min to hours:

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| **Weight Conversions** |
| **Kilogram (1 kg) =** 1000 g | **Pound (1 lb) =** 16 oz |
| **Metric Ton (1 t) =** 1000 kg | **Short Ton (ST) =** 2000 lb |

1. Convert 8ft 4in to inches:
2. The Space Needle in Seattle is 605 ft tall. About how many meters tall is the building? Use 1m $≈$ 3.28ft.
3. A car is traveling 65 mph. What is its speed in feet per second?

**You Try!** Convert each of the following into the given units.

1. 75 cents / h; dollars/day
2. 22 mi/min; yd/hr
3. 60 ft/s; mi/minute

**Conversions Worksheet**

**Directions:** Convert the following units as indicated.

1. A gallon of water weighs 8.33 lbs. How many pounds does a pint of water weigh? (2 pints in a quart, 4 quarts in a gallon).
2. According to a trivia website, the “average U.S. cow produces 53 lb of milk per day, or 6.2 gallons.” If that is true, how many pounds does a pint of milk weigh?
3. A gallon of gasoline weighs approximately 2.84 kg. How many pounds does a pint of gasoline weigh? (1 kg = 2.2 pounds).
4. Convert 15 feet to inches (there are 12 inches per foot).
5. Convert 6 gallons to quarts (there are 4 quarts in one gallon).
6. Convert 3 pints to gallons (there are 2 pints in a quart).
7. High school and middle school cross country races are called 5K’s, because they are 5 km long. How many miles is this? (There are 1.61 km per mile.)
8. A bottle of water holds 0.5 liters. How many grams of water is this? (There is 1 mL of water per gram of water.)
9. How many millimeters are there in a kilometer? (Millimeter 🡪 centimeter 🡪 meter 🡪 decameter🡪 hectometer 🡪 kilometer)
10. One inch equals 2.54 centimeters. How many inches are in a 1.4 meters?