**CONCEPT:** CONVERSION FACTORS

- **Conversion Factor**: a ratio or fraction that ties together _____ different units.
  - For example, a day is composed of 24 hours:

_____ or _____

- **Given Amount**: a value containing only _____ unit.
  - For example, we spent **3 hours** studying chemistry today.

**EXAMPLE:** Clutch's "Ugly but Good" chocolate chip cookie recipe is always a hit at our office parties. My budget is $80. The recipe makes 18 servings for the party. Each serving requires 8 chocolate truffle chips at a cost of $0.50 per 5 chocolate truffle chips. From the information provided, determine the given amount and all conversion factors.

**Common Conversion Factors**

- The most common conversion factors deal with units involved with length, volume or mass.

## Conversion Factors

| Length | Volume | Mass |
|---|---|---|
| 1 inch = _____ cm | 1 mL = _____ $cm^3$ | 1 oz = _____ g |
| 1 meter = _____ yds | 1 L = _____ $dm^3$ | 1 lb = _____ g |
| 1 yard = _____ feet | 1 L = _____ quarts | 1 kg = _____ lbs |
| 1 mile = _____ feet | 1 gallon = _____ L | |
| 1 km = _____ miles | | |

**EXAMPLE:** While packing for a trip to Spain a traveler wishes to weigh their luggage to make sure it doesn't exceed 23 kilograms. Unfortunately their bathroom scale for some reason can only weigh in ounces. What conversion factors could they use to determine the mass of their luggage?

**CONCEPT:** CONVERSION FACTORS

**PRACTICE:** For 7 hours**,** an intravenous bag delivers medication to a patient at a rate of 2.75 drops a second with a mass of 42 mg per drop. Identify the given amount and all conversion factors.

**PRACTICE:** During World War II in the US, nickel metal was in short supply and needed for the war effort. So from 1942 to 1945 the government replaced the nickel in the five-cent coin with silver until it was 35 grams of silver per 100 grams. Today the mass of the coin is 5.0 grams with a value of approximately $28.40 per ounce. Identify the given amount and all the conversion factors from the presented information.

**PRACTICE:** The F-51 jet engine consumes gasoline at a rate of 31.810 L per hour with a density of 0.819 g/cm$^3$ for the gasoline. The engine is ran continuous for 1.35 days. Identify the given amount and provide all present conversion factors.