Metric Conversions

Mr. Hold-Key

Unit Cancelling Method

- Why use it?
  - Reliability
    - If you don't write your work, I cannot help prevent the same mistake.
    - You don't accidentally flip your conversion factors
  - Double check
    - If conversion factors are correct and your units cancel out…you can't go wrong.

What should you ask when converting units with this method…

- Do your units cancel out?
- Does it make sense?

- Example: 3 kilometers to centimeters

$$3 \text{ kilometers} = 3 \text{ km} \times \frac{1000 \text{ m}}{\text{km}} \times \frac{100 \text{ cm}}{\text{m}}$$

$$= 300{,}000 \text{ centimeters}$$

Converting Units: Metric to Metric

- Examples:
- How many centimeters are in a 18 kilometers?
- How many meters are in 20mm?
- How many inches are in a mile?

Converting Units: Metric to English

- Examples:
- How many km are in 5000 inches?
- How many milliliters are in 15 quarts?
- How many grams are in are in a pound?

Converting Units Cont…

- How fast is 50mi/hr in ft/sec?

$$\frac{50 \text{ miles}}{1 \text{ hour}} \left| \frac{5280 \text{ ft}}{1 \text{ mile}} \right| \frac{1 \text{ hr}}{60 \text{ min}} \left| \frac{1 \text{ min}}{60 \text{ sec}} \right. = 73.3 \frac{\text{ft}}{\text{sec}}$$

It’s getting more complicated…

- Examples:
  - Convert 5m/sec to km/hr
  - Convert 60mi/hr to m/sec

Congrats! You Made it!!