

Dimensional Analysis Notes

Converting from NON- METRIC to METRIC

How to convert:

Step 1: Always start with your "given" amount.

Step 2: Draw +- chart

Step 3: Write conversion factor with correct on top & bottom

Step 4: Cancel out your units

Step 5: multiply across the top, multiply across the bottom, divide down

Useful Conversion Factors -

$$1.00 \text{ meter} = 1.09 \text{ yds}$$

$$1000 \text{ m} = 1.00 \text{ km}$$

$$2.54 \text{ cm} = 1 \text{ inch}$$

$$1 \text{ km} = .621 \text{ mi}$$

$$1000 \text{ g} = 1 \text{ kg}$$

Example:

Convert 2 miles into kilometers

$$\frac{2 \text{ mi} \mid 1 \text{ km}}{\mid .621 \text{ mi}} = \boxed{3.2 \text{ km}}$$

Convert 17 inches into centimeters

$$\frac{17 \text{ in} \mid 2.54 \text{ cm}}{\mid 1 \text{ in}} = \boxed{43.18 \text{ cm}}$$

Convert 4 yards into meters

$$\frac{4 \text{ yd} \mid 1 \text{ m}}{\mid 1.09 \text{ yd}} = \boxed{3.67 \text{ m}}$$

Convert 1 year into seconds

$$\frac{1 \text{ yr} \mid 365 \text{ days} \mid 24 \text{ hrs} \mid 60 \text{ min} \mid 60 \text{ sec}}{\mid 1 \text{ yr} \mid 1 \text{ day} \mid 1 \text{ hr} \mid 1 \text{ min}} = \boxed{31,536,000 \text{ s}}$$

Convert 25 miles/hour into m/s

$$\frac{25 \text{ mi} \mid 1 \text{ km} \mid 1000 \text{ m} \mid 1 \text{ hr} \mid 1 \text{ min}}{\text{hr} \mid .621 \text{ mi} \mid 1 \text{ km} \mid 60 \text{ min} \mid 60 \text{ sec}} = \boxed{11.2 \text{ m/s}}$$

Convert 45 miles/hour into m/s

$$\frac{45 \text{ mi} \mid 1 \text{ km} \mid 1000 \text{ m} \mid 1 \text{ hr} \mid 1 \text{ min}}{\text{hr} \mid .621 \text{ mi} \mid 1 \text{ km} \mid 60 \text{ min} \mid 60 \text{ sec}} = \boxed{20.1 \text{ m/s}}$$