

Metric Conversions

- ① Slide decimal
- ② Use prefix to go to base unit
- ③ Factor Label Method

More Factor Label Method:

Example: Convert 50g to kg

$$? \text{ kg} = 50\text{g} \left(\frac{1 \text{ kg}}{1000\text{g}} \right)$$

$$\boxed{? \text{ kg} = 0.050 \text{ kg}}$$

Example: Convert 1 year to seconds

$$? \text{ s} = 1 \cancel{\text{y}} \left(\frac{365.25 \cancel{\text{d}}}{1 \cancel{\text{y}}} \right) \left(\frac{24 \cancel{\text{h}}}{1 \cancel{\text{d}}} \right) \left(\frac{60 \cancel{\text{min}}}{1 \cancel{\text{h}}} \right) \left(\frac{60 \text{ s}}{1 \cancel{\text{min}}} \right)$$

$$? \text{ s} = 31557600 \text{ s} \quad (\text{didn't use sds})$$

Example: 95 km/h → m/s?

$$? \frac{\text{m}}{\text{s}} = 95 \overset{2\text{sd}}{\cancel{\text{km}}} \left(\frac{1000 \cancel{\text{m}}}{1 \cancel{\text{km}}} \right) \left(\frac{1 \cancel{\text{h}}}{60 \cancel{\text{min}}} \right) \left(\frac{1 \cancel{\text{min}}}{60 \text{ s}} \right)$$

$$? \frac{\text{m}}{\text{s}} = 26.3888\bar{8} \frac{\text{m}}{\text{s}}$$

$$\boxed{? \frac{\text{m}}{\text{s}} = 26 \text{ m/s}}$$

$\checkmark 95 \cdot 1000 \div 60 \cdot 60$
 $\checkmark 95 \cdot 1000 \div 60 \div 60$
 $\times 95 \cdot 1000 \div 60 \cdot 60$

More Factor Labelling (Sheet)

1. Convert 10 rods to furlongs

$$\begin{aligned}
 \text{? furlongs} &= 10 \text{ rods} \left(\frac{5.5 \text{ yd}}{1 \text{ rod}} \right) \left(\frac{1 \text{ furlong}}{220 \text{ yd}} \right) \\
 &= 0.25 \text{ furlongs} \\
 \text{? furlongs} &\doteq 0.2 \text{ furlongs (for sd)}
 \end{aligned}$$

what you are trying to find (pointing to ? furlongs)
start with (pointing to 10 rods)

2. Convert 15 tons to kg

$$\begin{aligned}
 \text{? kg} &= 15 \text{ tons} \left(\frac{2000 \text{ lb}}{1 \text{ ton}} \right) \left(\frac{454 \text{ g}}{1 \text{ lb}} \right) \left(\frac{1 \text{ kg}}{1000 \text{ g}} \right) \\
 \text{? kg} &= 13620 \text{ kg} \\
 \text{? kg} &\doteq 14000 \text{ kg or } (1.4 \times 10^4 \text{ kg}) \leftarrow \text{better}
 \end{aligned}$$

6. Convert 2 km to furlongs

$$\begin{aligned}
 \text{? furlongs} &= 2 \text{ km} \left(\frac{1000 \text{ m}}{1 \text{ km}} \right) \left(\frac{100 \text{ cm}}{1 \text{ m}} \right) \left(\frac{1 \text{ in}}{2.54 \text{ cm}} \right) \\
 &\rightarrow \left(\frac{1 \text{ ft}}{12 \text{ in}} \right) \left(\frac{1 \text{ yd}}{3 \text{ ft}} \right) \left(\frac{1 \text{ furlong}}{220 \text{ yd}} \right) \\
 \text{? furlongs} &= 0.99419 \dots \text{ furlongs} \\
 \text{? furlongs} &= 1 \text{ furlong.}
 \end{aligned}$$

TO DO:

- ① Metric Conversions (back of Metric Prefixes)
- ② Finish the Factor Label Sheet.