

## Dimensional Analysis.

quantity given  $\longrightarrow$  answer needed.

Example:

Convert 645  $\mu\text{s}$  to s.

Strategy  $\mu\text{s} \longrightarrow \text{s}$

$$645 \mu\text{s} \times \frac{1 \text{ s}}{10^6 \mu\text{s}} = \frac{645 \times 10^{-6} \text{ s}}{(6.45 \times 10^2)} = \boxed{6.45 \times 10^{-4} \text{ s}}$$

Example:

425 nm to km

Strategy nm  $\longrightarrow$  m  $\longrightarrow$  km

$$425 \text{ nm} \times \frac{1 \text{ m}}{10^9 \text{ nm}} \times \frac{1 \text{ km}}{10^3 \text{ m}} = 425 \times 10^{-12} \text{ km} \\ \rightarrow (4.25 \times 10^2) \\ = \boxed{4.25 \times 10^{-10} \text{ km}}$$

Example:

Convert  $1.95 \times 10^{-3} \text{ oz}$  to  $\mu\text{g}$ . (Conversion factor given is:  $1 \text{ lb} = 16 \text{ oz}$  and  $1 \text{ kg} = 2.2046 \text{ lb}$ ).

Strategy  $\text{oz} \longrightarrow \mu\text{g}$ . Strategy  $\text{oz} \rightarrow \text{lb} \rightarrow \text{kg} \rightarrow \mu\text{g}$

$$1.95 \times 10^{-3} \text{ oz} \times \frac{1 \text{ lb}}{16 \text{ oz}} \times \frac{1 \text{ kg}}{2.2046 \text{ lb}} \times \frac{10^6 \mu\text{g}}{1 \text{ kg}} \\ = 552.82 \mu\text{g} \\ = 553 \mu\text{g} = \boxed{5.53 \times 10^2 \mu\text{g}}$$