

Metric Conversions

1. Slide the decimal ... DK method

52.8 mg = 0.0000528 kg

6 places

0.581 km = 58100 cm

5 places

718 nm = 0.000 000 718 m

9 places

2. Use the prefix! (only good if converting to the base unit)

718 μm = 718 × 10⁻⁹ m

7.18 × 10⁻⁷ m

421 Gm = 421 × 10⁹ m

4.21 × 10¹¹ m

47.5 μC = 47.5 × 10⁻⁶ C

= 4.75 × 10⁻⁵ C

0.0045 pm = 0.0045 × 10⁻¹² m

= 4.5 × 10⁻¹⁵ m

3. Factor Label Method (aka Dimensional Analysis)
convert 582 km to m

? m = 582 km $\left(\frac{1000 \text{ m}}{1 \text{ km}}\right)$
 what we want know what we start with conversion factor

? m = 582000 m

Example: Convert 1 year into seconds

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

? s = 3.1558 × 10⁷ s

(31557600 s)

Example

Convert 28 km to cm

? cm = 28 km $\left(\frac{1000 \text{ m}}{1 \text{ km}}\right) \left(\frac{100 \text{ cm}}{1 \text{ m}}\right)$

? cm = 2800000 cm

Example Convert 50 g to kg

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

? kg = 0.050 kg

Example

Convert 3.0 × 10⁸ m/s to km/d

? km 2 num. / 1.1.1.