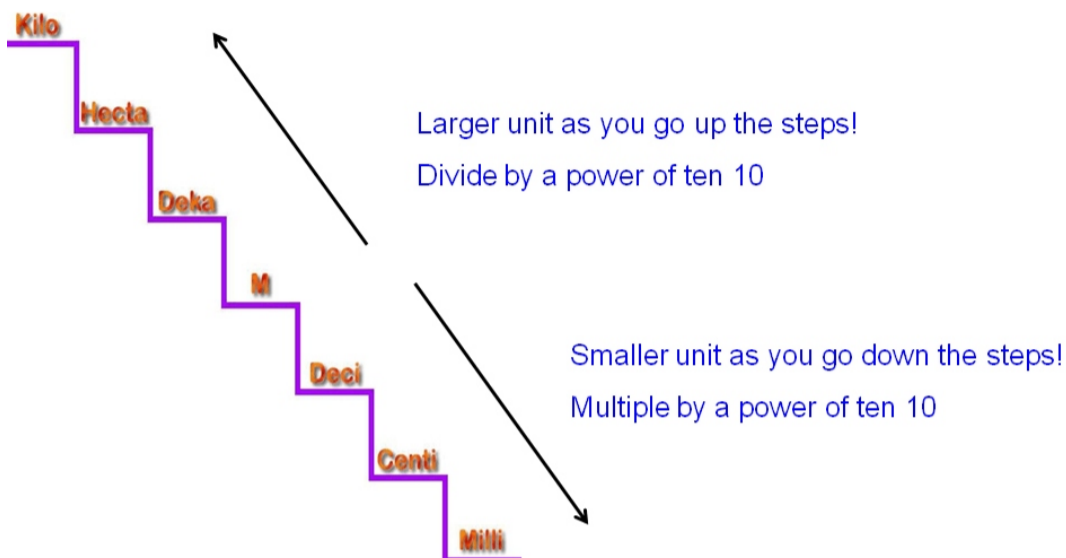




Converting measurements is a skill that will be tested in high school math and science classes, as well as in some college classes

**Method #1: The Step Stair Method**

\_\_\_\_\_ =  
40



1. Write the correct abbreviation for each metric unit. [9]

- |                   |                     |                     |
|-------------------|---------------------|---------------------|
| A) Kilogram _____ | B) Milliliter _____ | C) Kilometer _____  |
| D) Meter _____    | E) Millimeter _____ | F) Centimeter _____ |
| G) Gram _____     | H) Liter _____      | L) Milligram _____  |

2. Convert the following. [16]

- |                      |                      |
|----------------------|----------------------|
| A) 2000 mg = _____ g | B) 5 L = _____ mL    |
| C) 16 cm = _____ mm  | D) 104 km = _____ m  |
| E) 198 g = _____ kg  | F) 2500 m = _____ km |
| G) 480 cm = _____ m  | H) 75 mL = _____ L   |
| I) 65 g = _____ mg   | J) 5.6 kg = _____ g  |
| K) 50 cm = _____ m   | L) 6.3 cm = _____ mm |
| M) 8.8 mm = _____ cm | N) 5.6 m = _____ cm  |
| O) 120 mg = _____ g  | P) 2000 ml = _____ L |

## METHOD #2: CONVERSION FACTOR

To convert units, we need to multiply the quantity we want to convert by its conversion factor. The conversion factor basically tells us how to convert one unit into another

Example 1:

How many seconds are in one year?

$$1 \text{a} \times \frac{365 \text{day}}{1 \text{a}} \times \frac{24 \text{hours}}{1 \text{day}} \times \frac{60 \text{min}}{1 \text{hr}} \times \frac{60}{1 \text{min}} = 2.2075 \times 10^8 \text{ s}$$

Example 2:

Convert 30 km/hr to m/s:

$$30 \frac{\text{km}}{\text{hr}} \times \frac{1 \text{hr}}{60 \text{min}} \times \frac{1 \text{min}}{60 \text{sec}} \times \frac{1000 \text{m}}{1 \text{km}} = 8.3 \text{m/s}$$

### General Rule:

To change from km/hr = m/s  $\div$  3.6

To change from m/s to km/hr  $\times$  3.6



3. Convert the following

A) 30.0s = \_\_\_\_\_ min

B) 602 min = \_\_\_\_\_ h

C) 4.7 h = \_\_\_\_\_ min

D) 23.6 h = \_\_\_\_\_ s

E) 5024 s = \_\_\_\_\_ min

F) 6.2 h = \_\_\_\_\_ min

G) 25.40 min = \_\_\_\_\_ h

H) 45 km/h = \_\_\_\_\_ m/s

I) 2.67 m/s = \_\_\_\_\_ km/h

J) 100 km/h = \_\_\_\_\_ m/s

K) 15 m/s = \_\_\_\_\_ km/h

L) 363 m/s = \_\_\_\_\_ km/h

M) 25 km/h = \_\_\_\_\_ m/s

N) 2.0 m/s = \_\_\_\_\_ km/h

O) 50 m/s = \_\_\_\_\_ km/h