Useful Conversion Factors

Length:

$$1 \text{ mm} = 0.1 \text{ cm} = 0.001 \text{ m}$$

$$1 \text{ yard} = 3 \text{ ft}$$

Mass/Weight:

$$1 \text{ gram} = 0.001 \text{ Kg}$$

$$1 \text{ oz} = 0.0625 \text{ lbs}$$

Time:

$$1 \sec = 0.0167 \min = 0.000278 hr$$

*(Near the earth's surface we can specify these relationships but we should remember that weight is due to the pull of gravity on the masses involved and is really a force.)

Volume:

1 sq cm = 0.155 sq in = 0.0001 sq m.

1 sq m = 10,000 sq cm = 5.20 sq ft

1 sq Kilometer = 1,000,000 sq m = 0.387 sq miles

Velocity:

1 mi/hr 1.47 ft/sec = 1.609 Km/hr = 0.447 m/s

60 mi/hr 88 ft/s

1 ft/sec 0.682 mi/hr = 0.305 m/s

Pressure:

1 atm = 14.7 lb / in^2

 $= 1.013 \times 10^5 \text{ N/m}^2$

 $= 1.013 \times 10^6 \text{ dyne/cm}^2$

= 30 in Hg

= 76 cm Hg

1 bar = 106 dyne/cm^2

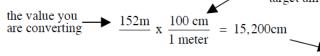
1 millibar = 103 dyne/cm^2

1 lb/in^2 = 2.04 in Hg

1 in Hg = 0.490 lb/ in^2

Example: convert 152 meters in centimeters.

Solution:



this fraction is an equivalency that features the unit you are converting from as the denominator - and your target unit as the numerator

this is the answer obtained by canceling the meter units - leaving centimeters - which was your target unit

Practice Questions:

Before answering the questions you may want to consider the example on the previous page

- 1. How long is a page of your writing paper (take regular letter sheet) in meters?
- 2. Convert the following length into meters.

c. 3.7 km = _____ m

- 3. How long is a football field in meters? (A football field is 100 yards long.)
- 4. Which is greater: 45 miles or 63 km?
- 5. What is the height in meters of a 5'3" person?
- 6. What is the mass of a 120 lb. person in grams?
- 7. How many milligrams are there in 11 grams?
- 8. How many seconds are in one hour?
- 9. How many seconds are in 2 days?