

Table # 1 C Metric Conversion Table For Length

<u>Number of Meters</u> in each unit			1 Unit	<u>Number of units</u> in each meter					
1000 m	100 m	10 m	1 m	10 dm	100 cm	1000 mm	$10^6 \mu\text{m}$	10^9 nm	10^{12} pm
1 km	1 hm	1 dam	1 m	1 m	1 m	1 m	1 m	1 m	1 m

Table # 2 C Metric Conversion Table For Mass

<u>Number of Grams</u> in each unit			1 Unit	<u>Number of units</u> in each Gram					
1000 g	100 g	10 g	1 g	10 dg	100 cg	1000 mg	$10^6 \mu\text{g}$	10^9 ng	10^{12} pg
1 kg	1 hg	1 dag	1 g	1 g	1 g	1 g	1 g	1 g	1 g

Table # 3 C Metric Conversion Table For Volume

<u>Number of Liters</u> in each unit			1 Unit	<u>Number of units</u> in each Liter					
1000 L	100 L	10 L	1 L	10 dL	100 cL	1000 mL	$10^6 \mu\text{L}$	10^9 nL	10^{12} pL
1 kL	1 hL	1 dL	1 L	1 L	1 L	1 L	1 L	1 L	1 L

Table # 4 ---- Metric Volume Conversion Table for dm^3

Volume	1000 dm^3	1 dm^3	1 dm^3	1 cm^3	1 dm^3
	1 m^3	1 L	1000 mL	1 mL	1000 cm^3

For All Tables

- Each column is a ratio of the different units that are involved in the measurements of length, mass, or volume.
- To use the table to solve problems you must realize the ratios in the table can be inverted without changing the relationship (although the decimal values will change). However it is the relationship between dimensions that is important.
- Two ratios and their inverted ratios are presented below:

$$\begin{array}{ccccccc}
 \frac{10 \text{ units}}{\text{1 deka}} & & \frac{1 \text{ deka}}{10 \text{ units}} & & \frac{100 \text{ centi}}{1 \text{ unit}} & & \frac{1 \text{ unit}}{100 \text{ centi}} \\
 & & \text{becomes} & & & & \text{becomes}
 \end{array}$$

Notice that **the relationships have not changed.**

- Some sample calculations and conversions:
(**Point to remember:** the words **A units** and **A unit** are interchangeable.)

A. How many **centi**s are there in a **deka**?

$$\frac{10 \text{ units}}{\text{1 deka}} \times \frac{100 \text{ centi}}{1 \text{ unit}} = (10)(100) \text{ centi} = 1000 \text{ centi}$$

$$\frac{1 \text{ deka}}{10 \text{ units}} \times \frac{1 \text{ unit}}{100 \text{ centi}} = \frac{1 \text{ deka}}{1000 \text{ centi}}$$

B. How many **dekas** are there in a **33 kilos**?

$$\frac{33 \text{ kilo}}{1000 \text{ units}} \times \frac{1 \text{ deka}}{1 \text{ unit}} = 3300 \text{ dekas}$$

1 kilo

10 units

The calculation could have been accomplished quicker by memorizing exactly **how many centi-s there are in a deka** or **how many dekas there are in a kilo**. However, by knowing and understanding the basic relationship between any particular metric prefix and the unit value (1) for each type of measurement, it will not be necessary to memorize a large quantity of conversion factors.