

Metric System and Conversions

Name _____

Going up the table move the decimal to the left	↑	T	tera-	1 000 000 000 000	10^{12}
		G	giga-	1 000 000 000	10^9
		M	mega-	1 000 000	10^6
		k	kilo-	1 000	10^3
		h	hecto-	100	10^2
		NO PREFIX	1	1	10^1
Going down the table move the decimal to the right	↓	c	centi-	$\frac{1}{100}$	10^{-2}
		m	milli-	$\frac{1}{1\,000}$	10^{-3}
		μ	micro-	$\frac{1}{1\,000\,000}$	10^{-6}
		n	nano-	$\frac{1}{1\,000\,000\,000}$	10^{-9}

These are the metric divisions of quantity. The letter in the first column is used as the *prefix* before the type of quantity. Some common types of quantity are **grams (g)**, **meters (m)**, **joules (J)**, **seconds (s)**, and **bytes (B)**.

EXAMPLES

<p>1.0 kg = ? mg</p> <p>1.000000 kg = 1 000 000 mg</p>	<p>kilo and milli differ by six zeros; kilo → milli is going down the table; therefore move the decimal six places to the right</p>
<p>2.3 cm = ? m</p> <p>002.3 = 0.023 m</p>	<p>centi and no prefix differ by two zeros; centi → no prefix is going up the table; therefore move the decimal two places to the left</p>

1. Convert the following to km:

1600.0 m = 16	2050 cm = .0205	1.033 Mm = 1033
245 565 mm = .245565	20 099 m = 20.099	499 m = 4.99

2. Convert the following:

10.034 mJ = 1.0034 cJ	36.45 cL = 364,500 μ L
0.05 cm = .5 mm	1024 B = 1.024 kB
0.0325 kJ = 3250 cJ	1202.5 mL = 1.2025 L
0.42101 Gg = 421.01 Mg	25.5 km = 25500 m
0.12907 cm = 1.2907 mm	756 900 μ s = 756.900 ms