

**Theory:** Physical quantities are always specified relative to a particular standard or **unit**, and the unit should always be stated. For example, if an employer made you an offer to work for 25 per hour, would you accept the offer? Since your boss did not state the **unit** along with the amount, the offer sounds suspect. Surely you would not work for 25 *cents* per hour (not in today's market).

The commonly accepted set of units use today is the Syst me International (SI). The SI system is based on the metric system. The metric system is convenient because it is based on a decimal system (i.e.: powers of ten). Therefore, it simplifies calculations by using a set of prefixes shown below.

<b>Prefix:</b>	<b>Symbol:</b>	<b>Magnitude:</b>	<b>Meaning (multiply by):</b>
Yotta-	Y	$10^{24}$	1 000 000 000 000 000 000 000 000
Zetta-	Z	$10^{21}$	1 000 000 000 000 000 000 000
Exa-	E	$10^{18}$	1 000 000 000 000 000 000
Peta-	P	$10^{15}$	1 000 000 000 000 000
Tera-	T	$10^{12}$	1 000 000 000 000
Giga-	G	$10^9$	1 000 000 000
<b>Mega-</b>	<b>M</b>	<b><math>10^6</math></b>	<b>1 000 000</b>
myria-	my	$10^4$	10 000 (this is now obsolete)
<b>kilo-</b>	<b>k</b>	<b><math>10^3</math></b>	<b>1000</b>
<b>hecto-</b>	<b>h</b>	<b><math>10^2</math></b>	<b>100</b>
<b>deka-</b>	<b>da</b>	<b>10</b>	<b>10</b>
<b>UNIT goes here</b>	<b>None</b>	<b><math>10^0 = 1</math></b>	<b>No need; 1</b>
<b>deci-</b>	<b>d</b>	<b><math>10^{-1}</math></b>	<b>0.1</b>
<b>centi-</b>	<b>c</b>	<b><math>10^{-2}</math></b>	<b>0.01</b>
<b>milli-</b>	<b>m</b>	<b><math>10^{-3}</math></b>	<b>0.001</b>
<b>micro-</b>	<b><math>\mu</math> (mu)</b>	<b><math>10^{-6}</math></b>	<b>0.000 001</b>
nano-	n	$10^{-9}$	0.000 000 001
pico-	p	$10^{-12}$	0.000 000 000 001
femto-	f	$10^{-15}$	0.000 000 000 000 001
atto-	a	$10^{-18}$	0.000 000 000 000 000 001
zepto-	z	$10^{-21}$	0.000 000 000 000 000 000 001
yocto-	y	$10^{-24}$	0.000 000 000 000 000 000 000 001