

In science, we use the metric system. The version of the metric system used in Astronomy is the meter-kilogram-second or M-K-S system. This is also called the SI or International Standard system.

Examples of Conversion between M-K-S and English systems

<b>Metric Units</b>	<b>English Units</b>
1 meter (abbreviated as m)	39.37 inches or 3.28 feet
1 centimeter (abbreviated as cm) = .01 meter	0.3937 inches
1 millimeter (abbreviated as mm) = .001 m	0.03937 inches
1 kilometer (abbreviated as km) = 1000 m	0.6214 miles
1 kilogram weight(abbreviated as kg)	2.2 pounds
1 gram weight (abbreviated as gm)	.0352 ounces

Conversion between English and M-K-S systems

<b>English Units</b>	<b>Metric Units</b>
1 foot	.3048 meters
1 inch	2.54 cm (basic conversion factor)
1 inch	25.4 mm
1 mile	1.609344 km
1 pound	.4545 kg weight
1 ounce	28.4 gm

Examples of conversion between metric and English units

Height of Mt. Everest = 8848 m = 8848m \* 3.28 ft/m = 29,028 ft.

110 km/hr = 110 km/hr\*.6214 miles/km = 68.34 miles/hr.

Altitude of Denver = 5280 ft = 1.609 km. (how did we obtain this?)

Speed of light = 186,000 miles/sec = 186000miles/sec\*1.609km/mile =  $3 * 10^5$  km/sec

### **Angular measurements**

360 degrees in a circle =  $2 \pi$  radians implies 1 radian about = 57.3 degrees

or 1 degree =  $\pi / 180$  radians ; or 1 degree about = .01745 radians.

60 minutes in 1 degree; 60 seconds in 1 minute

### **Useful Data**

Speed of light =  $3.0 * 10^8$  m/sec

Radius of the earth = 6,378 km = 3,965 miles.

Mean distance of earth to sun = 1 Astronomical Unit (AU) =  $149.6 * 10^6$  km.

1 light year =  $9.46 * 10^{12}$  km =  $6 * 10^{12}$  miles

1 parsec = 3.26 light years = 206,265 AU.

