Measurements

A quantity is something that has size, magnitude, or amount. The quantity is measured in the unit. The unit is defined by some physical characteristics in nature.

SI system

A base unit is one that has to be defined by some physical standard of measurement. EX. mass (kilogram), length (meter).
A derived unit is one formed from a combination of base units. EX. area (m^2), volume (m^3), density (kg/m^3)

Kilo = 1000 of
Centi = 1/100 of
Millie = 1/1000 of

Density

Density is the mass of an object divided by its volume.

\[ D = \frac{M}{V} \]

Density is mass per unit volume.

Units for Density

<table>
<thead>
<tr>
<th>Unit</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>g/ml</td>
<td>Water</td>
</tr>
<tr>
<td>g/cm^3</td>
<td>Lead</td>
</tr>
<tr>
<td>k/m^3</td>
<td>Cork</td>
</tr>
<tr>
<td>g/l</td>
<td></td>
</tr>
</tbody>
</table>

Reliability

The reliability of a measurement is indicated by the number of digits used to represent it. How close we can get to the exact value of the measurement depends on the sensitivity of the measuring device.

Significant Figures

Significant Figures are all digits known with certainty plus one final estimated or uncertain digit.