

Ch 1 HW: Sec 1.2 Written: Rem Wks Sec 1.2
Sec 1.2A

obj: Identify the SI units for length, mass, volume, density and temperature.

Length

- The distance btw two points.
- Standard w/ a base unit of meter
- Prefixes used w/ the meter

milli- $1\text{ m} = 1000\text{ mm}$

centi- $1\text{ m} = 100\text{ cm}$

kilo- $1000\text{ m} = 1\text{ km}$

- Common Length units.

meter (m)

millimeter (mm)

centimeter (cm)

kilometer (km)

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Mass

- The amount of matter in an object.
- Mass is Independent of gravity
* not the same as weight.

- Standard - Base unit for mass is the kilogram. (kg)

- other units

gram (g) - $1000\text{ g} = 1\text{ kg}$

milligram (mg) - $1\text{ g} = 1000\text{ mg}$

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Volume

- The amount of space an object occupies.

- 3 dimensional measurement.
- Length, width, height

$$V = L \times W \times H$$

$$m \cdot m \cdot m$$

derived unit = m^3

- other units

Liter (L) → volume of a gas

milliliter (mL) → volume of a liquid.

cubic centimeters (cm^3) → volume of a solid.

$$cm^3 = mL \quad 1L = 1dm^3$$

$$1000mL = 1L$$

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Density

- A measurement that compares the mass of an object to its volume.

- A physical property

- Ratio written as a fraction btw mass + volume.

$$D = \frac{m}{V} \quad \frac{kg}{m^3} \text{ Derived unit}$$

- other units

$\frac{g}{cm^3}$
Solid

$\frac{g}{mL}$
Liquid

$\frac{g}{L}$
gas

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Temperature

- A measure of the energy within an object.

* The average kinetic energy of the particles in the object.

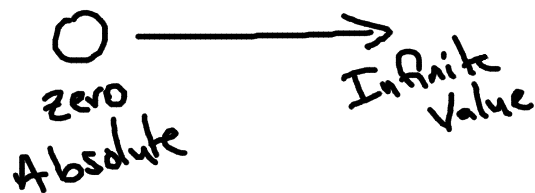
- Standard \Rightarrow Base Unit

1) Kelvin - Kelvin Temperature depends on absolute zero.

* Average kinetic energy of the particles equal zero.

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- Temperature Scale



All Kelvin Temp. are positive.

2) Celsius Temp - Based on physical properties of water.

* Freezing + Boiling pt of water

0°C
Freezing pt

100°C
Boiling pt.

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K	OK	273K	373K
°C	-273°C	0°C	100°C

$$K = ^\circ C + 273$$

$$^\circ C = K - 273$$

$$\text{Body Temp} = 37^\circ C$$

$$K = ^\circ C + 273$$

$$= 37 + 273$$

$$= 310 K$$

$$\text{Rm Temp } 295K$$

$$^\circ C = K - 273$$

$$= 295 - 273$$

$$= 22^\circ C$$

$$\begin{array}{r} 295 \\ - 273 \\ \hline 22^\circ C \end{array}$$

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