Formulas

- Ratio of solute to solvent in a solution

m = g
V = mL

- Grams per litre

m = g
V = L

- Percent (m/v)

$\% = \frac{m}{V} \times 100$ m = g (m = solute mass) V = mL (V = volume solution)

(V/V)

$\% = \frac{V'}{V_2} \times 100$ V = mL, V_1 = solute volume, V_2 = solution volume

(m/m)

$\% = \frac{m'}{m^2} \times 100$ m = g, m_1 = solute mass, m_2 = solution mass

- PPM

$\frac{mg}{L} = PPM$ OR $\frac{mg}{Kg} = PPM$

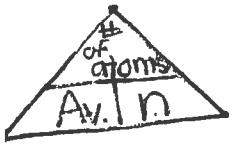
- Molar Mass

M = molar mass (g/mol)
m = mass (g)
n = # of moles.

- Molarity

n = # of moles
c = molar concentration (mol/L)
V = volume (L)

- Number of moles



Av = 6.02×10^{25}
n = # of moles.

- Dilution

$C_1V_1 = C_2V_2$

C_1 = concentration (g/L)
V_1 = volume (L)
C_2 & V_2 is the same as C_1 & V_1

- Stoichiometry

* make sure equation is balanced *

$n_\alpha = n_\beta \left[\frac{\text{coeff } \alpha}{\text{coeff } \beta}\right]$

# of Atoms of Y = n × Av × Quantity of Y in 1 molecule or compound

- Voltage, Resistance, Current

V = voltage
R = Rististance
I = Current.

- Electric Current

Q = charge in coulombs.
I current
Δt = seconds.

- Voltmeter

E = energy transfered in Joules.
Q = charge
V = potential difference.

- Energy

E = Joules
P = Watts
T = seconds

OR

E = KW · H
T = hours
P = KW

Coulombs Law

$F = \frac{K q_1 \cdot q_2}{r^2}$

q = charge
$K = 9 \times 10^9$
r^2 = distance (m)
F = Force (Newtons)

- Power

P = Watts
I = Amps
V = Volts.

Energy Efficiency

$$\text{Energy Efficiency} = \frac{\text{Amount of useful E}}{\text{Amount of E consumed}} \times 100$$

Thermal Energy

$Q = mc\Delta T$

Q = variation in thermal E (J)

c = specific heat

m = mass (g)

ΔT = change in temp.

Forces

F = mass x acceleration

F = mass x gravity

(Newtons)

Work

W = Force (N) x distance (m)

W = Δ kinetic Energy

(Joules)

Power

$\text{power} = \frac{W}{\Delta \text{time}}$

(Watts)

Weight

W = mass x acceleration

Kinetic Energy

$E_K = 0.5(m)(v^2)$

m = mass

v = velocity

Potential Energy

$E_P = (m)(g)(h)$

m = mass

h = height

g = gravity

Mechanical Energy

$E_m = E_K + E_P$

Percent Yield

$$\frac{\text{Actual yield}}{\text{Theoretical yield}} \times 100 = \%$$

Half life

$\text{current mass} = \text{starting mass} \times 0.5^{x}$

x = # of half lifes

$$\text{\# of half lives } (x) = \frac{\text{\# of days}}{\text{half life.}}$$

Good luck! ☺