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GASEOUS STATE (sub)

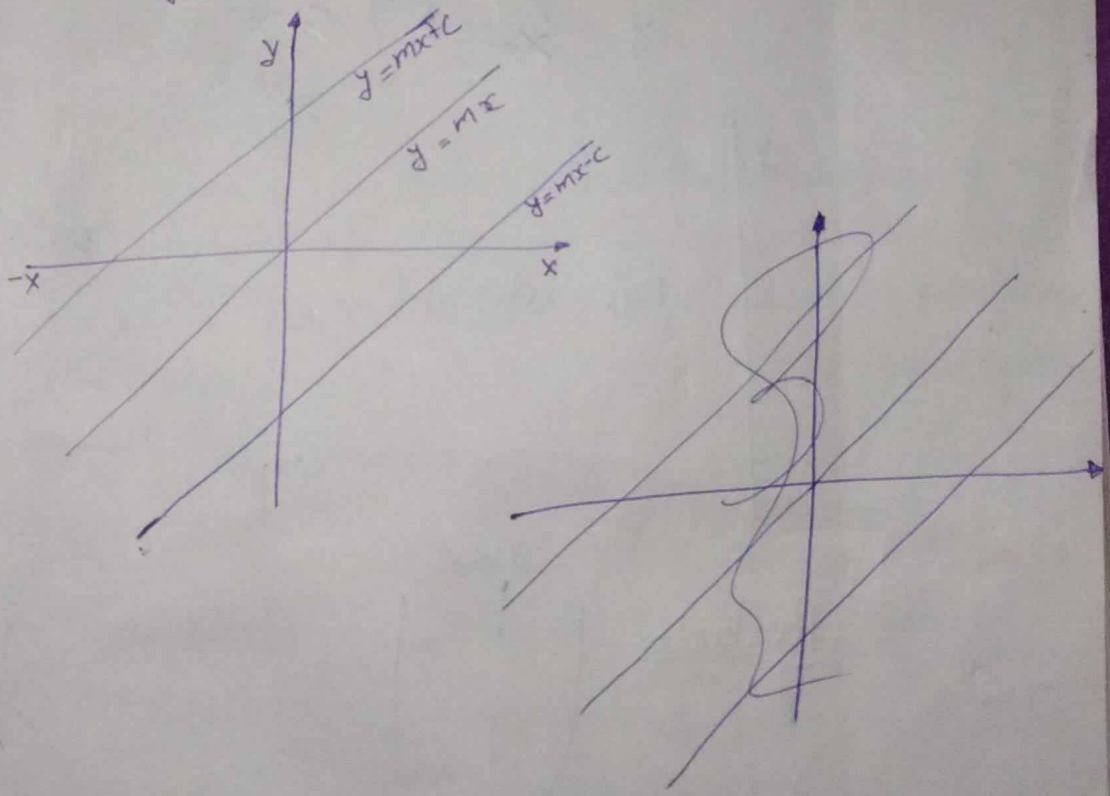
4. GRAPHICAL ANALYSIS

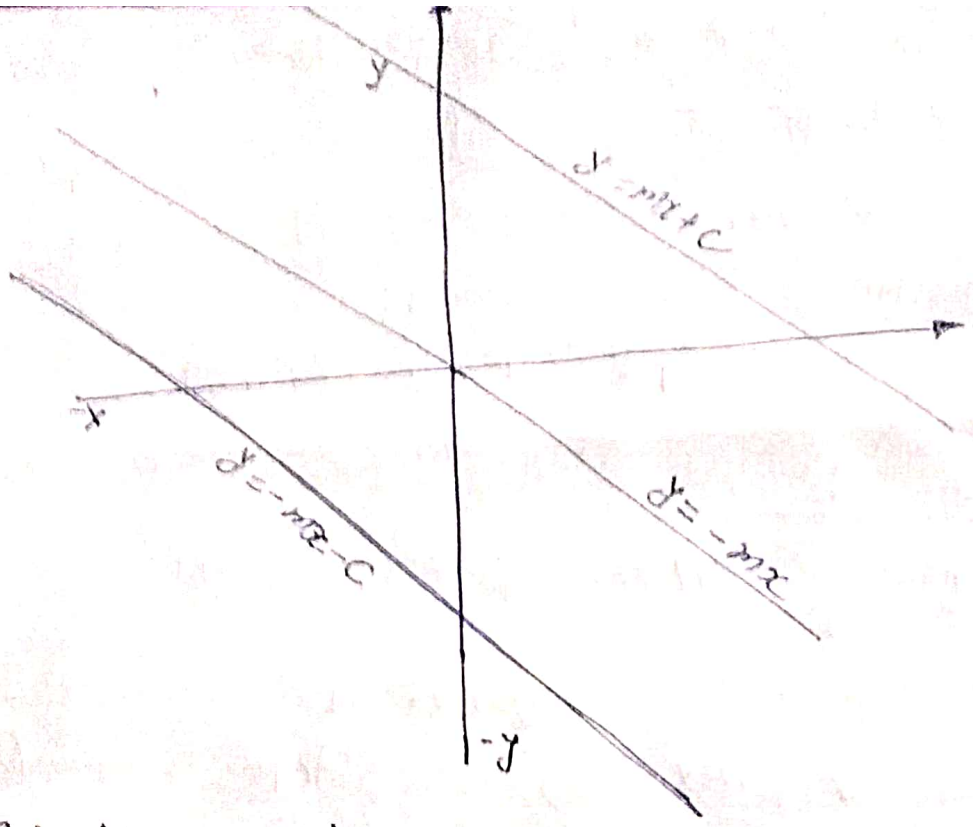
Four common equations and their graphical analysis.

(1) Straight line equation

$Y = mx + C$, m = Slope = $\tan\theta$, C = intercept

If C is zero ⇒ Straight line passing through origin.

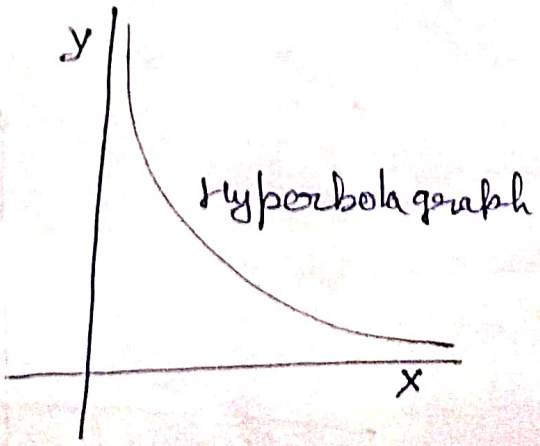


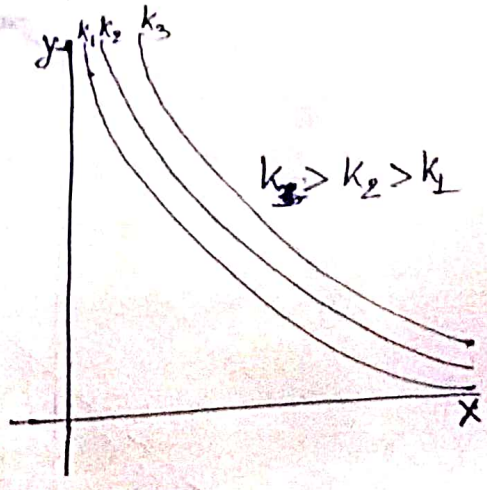


(2) Hyperbola

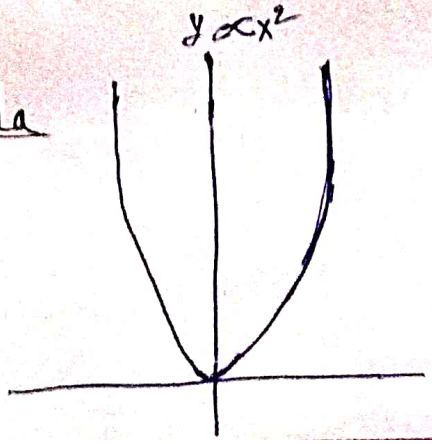
$yx = \text{Constant}(k)$

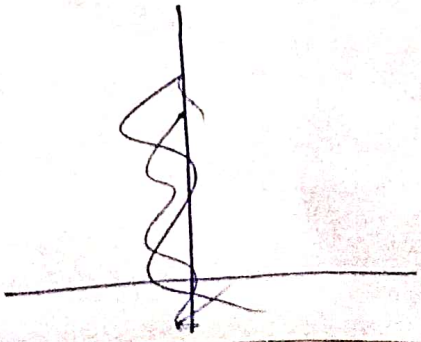
$y = \frac{k}{x} \Rightarrow y \propto \frac{1}{x}$

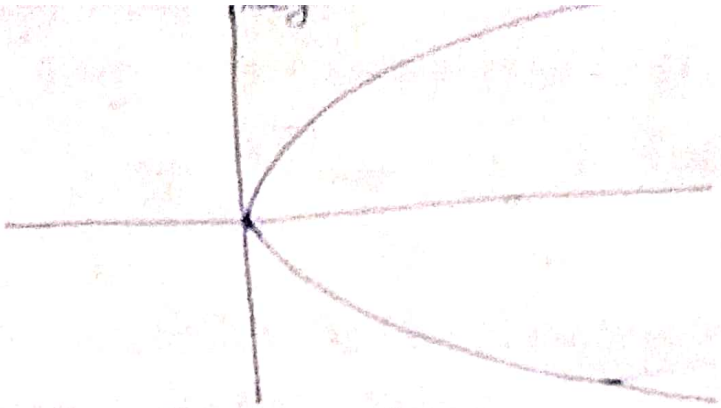




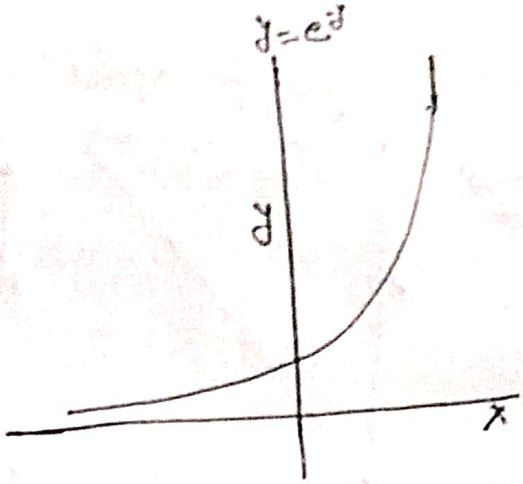
(3) Parbola

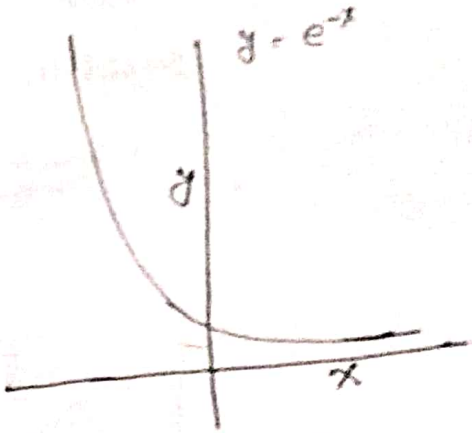






4) Exponential graph





5. GAS LAWS

5.1 Boyle's Law

It relates the volume and the pressure of a given mass of a gas at constant temperature. Boyle's law states that, "at constant temperature, the volume of a sample of a gas varies inversely with the pressure".

$\therefore P \propto \frac{1}{V}$ (when temperature and number of moles are kept constant)

The proportionality can be changed into an equality by introducing a constant K, i.e.,

$$P = \frac{K}{V} \text{ or } PV = K$$