Physics Formula Sheet

Chapter by chapter, topic by topic. Written by the PadhoNa team for quick revision.

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CHAPTER 3

Motion in One Dimension

Kinematics in a straight line

EQUATIONS OF MOTION (CONSTANT A)

$$v = u + at, \qquad s = ut + \tfrac{1}{2}at^2, \qquad v^2 = u^2 + 2as$$

DISTANCE IN NTH SECOND

$$s_n = u + \frac{a}{2}(2n - 1)$$

AVERAGE VELOCITY

$$v_{\text{avg}} = \frac{\text{displacement}}{\text{time}}; \qquad \text{constant } a: \ \frac{u + v}{2}$$

Motion under gravity

THROWN UP WITH SPEED U

$$H = \frac{u^2}{2g}, \qquad t_{\text{up}} = \frac{u}{g}, \qquad \text{time of flight} = \frac{2u}{g}$$

DROPPED FROM HEIGHT H

$$t = \sqrt{\frac{2h}{g}}, \qquad v = \sqrt{2gh}$$

Graphs of motion

$$\text{slope of } x\text{–}t = v; \qquad \text{slope of } v\text{–}t = a; \qquad \text{area under } v\text{–}t = \text{displacement};$$

$$\text{area under } a\text{–}t = \Delta v$$

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