

# Numericals

Practice. Learn. Succeed

Sub : Science

Grade: IX

Date: .....

Name: .....

ID No.....

## Important Formulae

■ Gravitational force,  $F = \frac{Gm_1m_2}{r^2}$

■ Acceleration due to gravity,  $g = \frac{Gm}{r^2}$

■ Weight,  $W = mg$

■ The modified equations for the motion of freely falling bodies:

$$v = u + at$$

$$h = ut + \frac{1}{2}gt^2$$

$$v^2 = u^2 + 2gh$$

■ Modified equations for vertically upward motion:

$$v = u - gt$$

$$h = ut - \frac{1}{2}gt^2$$

$$v^2 = u^2 - 2gh$$

1. What is the magnitude of the gravitational force between the earth and a 1 kg object on its surface? (Mass of the earth is  $6 \times 10^{24}$  kg and radius of the earth is  $6.4 \times 10^6$  m)

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2. Calculate the acceleration due to gravity on the surface of a planet whose mass and radius are double than the mass and radius of the earth.

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