

**Answer on Question#39333 – Physics – Mechanics**

A ball dropped from the height of 200meters how much time or when it will take to hit the surface? And what will be the finalvelocity"

**Solution:**

The equation of motion for the ball relative to the Y-axis (vertical axis):

$$H = \frac{gt^2}{2}; (V_{\text{start}} = 0)$$
$$t = \sqrt{\frac{2H}{g}} = \sqrt{\frac{2 \cdot 200\text{m}}{9.8 \frac{\text{m}}{\text{s}^2}}} = 6.4\text{s}$$

The rate equation for the ball before hitting the surface:

$$V = gt = 9.8 \frac{\text{m}}{\text{s}^2} \cdot 6.4\text{s} = 63 \frac{\text{m}}{\text{s}}$$

**Answer:** after 6.4s ball will hit the ground, final velocity  $63 \frac{\text{m}}{\text{s}}$ .