

Answer on Question #51988 – Physics – Other

Question.

An object is thrown upward from the edge of a building with a velocity of 20 m/s. Where will the object be 3s after it was thrown.

Given:

$$v_0 = 20 \frac{m}{s}$$

$$t_0 = 3 s$$

Find:

$$h(t_0) = ?$$

Solution.

By definition:

$$x = \frac{at^2}{2} + v_0t + x_0$$

In our case,

$$h = v_0t - \frac{gt^2}{2}$$

So,

$$h(t_0) = v_0t_0 - \frac{gt_0^2}{2}$$

Calculate:

$$h(t_0) = v_0t_0 - \frac{gt_0^2}{2} = 20 \cdot 3 - \frac{9.8 \cdot 3^2}{2} = 60 - 44.1 = 15.9 m$$

Answer.

$$h(t_0) = v_0t_0 - \frac{gt_0^2}{2} = 15.9 m$$