Answer on Question 50133, Physics, Mechanics | Kinematics | Dynamics

Question:

You throw a ball vertically upward with a velocity 10 m/s. Find the maximum height it will reach.

Solution:

In order to find the maximum height that ball will reach we can use the next equation:

$$v_f^2 = v_i^2 + 2gh.$$

Let's assume that axis y directed upward from the ground. We know that at the maximum height $v_f = 0\frac{m}{s}$. So, we can solve this equation for h:

$$0 = \left(10\frac{m}{s}\right)^2 - 2 \cdot 9.8\frac{m}{s^2}h,$$

$$100\frac{m^2}{s^2} = 19.6\frac{m}{s^2}h,$$

$$h = \frac{100\frac{m^2}{s^2}}{19.6\frac{m}{s^2}} = 5.102m.$$

Answer:

The maximum height is $h = 5.102m.$