Answer on Question #53826, Physics / Mechanics | Kinematics | Dynamics

A ball is thrown vertically upward. It has a speed of 10m/s when it has reached one half of its maximum height? How high does the ball rise?

Solution:

Using kinematics equation

$$v^2 - v_0^2 = 2aS$$

where v is final velocity, $v0$ is initial velocity, and S is distance, we get

$$0^2 - 10^2 = -2 * 10 * \frac{h}{2}$$

where $a = -g = -10 \, m/s^2$

$$10h = 100$$

or the maximum height is

$$h = 10 \text{ m}$$

Answer. The ball rise 5 m