1-28

The vertical distance y traveled by a freely falling body can be computed from the formula shown where v_0 is the initial velocity, g is the gravitational acceleration, and t is the time of falling. Find the distance traveled by a falling body with an initial downward velocity of 2.25 m/s for 30 s.

Solution.

$$y = v_0 t + \frac{1}{2} g t^2$$

$$y = (2.25\,m/s)(30\,s) + \frac{1}{2}(9.81\,m/s^2)(30\,s)^2$$

$$= 4482\,m$$