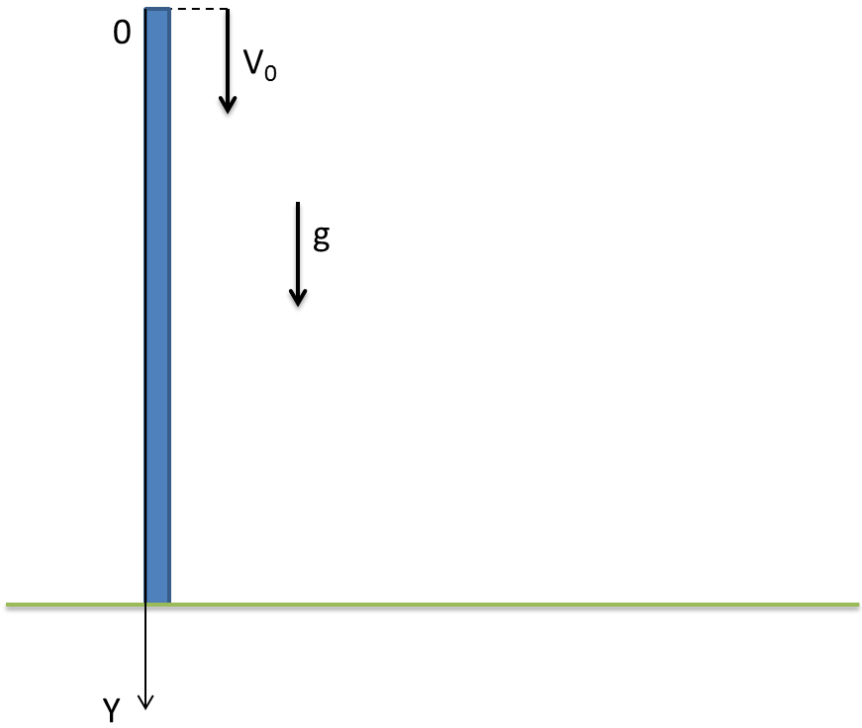
Answer on Question #46318, Physics, Mechanics | Kinematics | Dynamics

Consider the position of a ball thrown down with an initial speed of 21m/s. What will be it's position after 3s? Let the initial position be 0. The acceleration of gravity is 9.8m/s^2. Answer in units of m.

Solution.



According to equation of uniformly accelerated motion in projection on the vertical axis:

$$y = y_0 + V_0 t + \frac{gt^2}{2}$$

Numerically:

$$L = 0 + 21\frac{m}{s} \cdot 3s + \frac{9.8\frac{m}{s^2} \cdot (3s)^2}{2} \approx 107\ m$$

Answer: 107 m