

Chapter 2 Problem 37 †

Given

$$t = 4.4 \text{ s}$$

$$a = -9.8 \text{ m/s}^2$$

$$v_0 = 0 \text{ m/s}$$

Solution

How deep is the well?

Use the following equation where acceleration is due to gravity.

$$\Delta y = y - y_0 = v_0 t + \frac{1}{2} a t^2$$

$$\Delta y = (0 \text{ m/s})(4.4 \text{ s}) + \frac{1}{2}(-9.8 \text{ m/s})(4.4 \text{ s})^2 = -94.9 \text{ m}$$

The negative value indicates that it is 95 m below the starting point.

†Problem from Essential University Physics, Wolfson