Physics 101Rec
Quiz#1
Chapter 2

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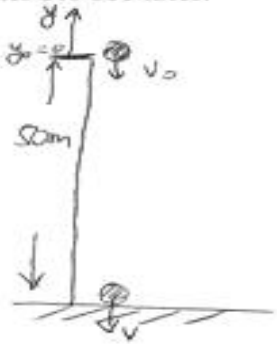
Name: Key Id: Sect:

A ball is thrown downward from a tall building of high 50 m. It hits the ground after 3.0 sec later.



(a) What is the initial velocity of the ball?

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

$$-50 = v_0(3) - 4.9(3)^2$$

$$\boxed{v_0 = -1.96 \text{ m/s}}$$

(b) What is the velocity of the ball just before it hits the ground?

$$V = v_0 - gt = -1.96 - (9.8)(3)$$

$$\boxed{V = -31.4 \text{ m/s}}$$

(c) What is the position of the ball at t = 1.0 sec?

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

$$= -(-1.96)(1) - 4.9(1)^2 = \boxed{-7 \text{m}}$$

(d) What is the displacement of the ball during the second (t = 2) and the third (t = 3) seconds?

$t = 2\,s \Longrightarrow$ $y_2 - y_0 = -v_0 t - \frac{1}{2} g t^2$

$= -23.6 \text{ m}$

$t = 3\,s \Longrightarrow$ $y_3 - y_0 = -v_0 t - \frac{1}{2} g t^2$

$= -50. \text{ m}$

$\Delta y = y_3 - y_2 = \boxed{-26.4 \text{m}}$