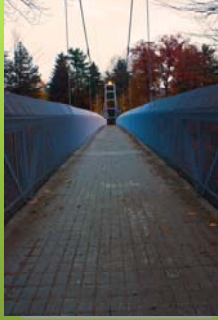


Example 3

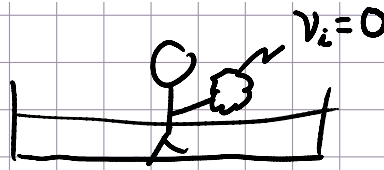
Tuesday, January 22, 2013
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Example 3 (Parallel Exercise Group B #17)



3) An object is observed to fall from a bridge, striking the water below 2.5 s later.

- With what velocity did it strike the water
- What was its average velocity during the fall?
- How high was the bridge?



$$a = g = 9.8 \text{ m/s}^2 \downarrow$$
$$g \approx 10 \text{ m/s}^2$$

$$t = 2.5 \text{ s}$$

$$v_f \downarrow$$
$$v = ?$$

$$a) \quad v = a t$$

$$v = (10 \text{ m/s}^2)(2.5 \text{ s})$$

$$v_f =$$

$$v = 25 \text{ m/s}$$

$$b) \quad \bar{v} = \frac{v_i + v_f}{2}$$

$$\bar{v} = \frac{0 + 25 \text{ m/s}}{2}$$

$$\bar{v} = 12.5 \text{ m/s}$$

$$c) \quad d = \frac{1}{2} a t^2$$

$$d = \frac{1}{2} (10 \text{ m/s}^2) (2.5 \text{ s})^2$$

$$d = \frac{1}{2} (10 \text{ m/s}^2) (6.25 \text{ s}^2)$$

$$d = 31.25 \text{ m}$$