

You launch a 0.05 kg spit wad horizontally at 3.5 m/s from the 2nd floor. It lands 4.8 m below. How long did it take to hit the floor?

**Solution.**

$$m = 0.05\text{kg}, v_0 = 3.5 \frac{\text{m}}{\text{s}}, h = 4.8\text{m};$$

$$t = ?$$

$v_0$  is horizontal, then:

$$h = \frac{gt^2}{2};$$

$$t = \sqrt{\frac{2h}{g}}.$$

$$t = \sqrt{\frac{2 \cdot 4.8}{9.8}} = 0.98(\text{s}).$$

**Answer:**  $t = 0.98\text{s}$ .