

Chapter 2 Problem 43 †

Given

$$v = 3 \text{ m/s}$$

$$h = 6.5 \text{ m}$$

$$h_0 = 1.3 \text{ m}$$

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

Solution

Find the initial velocity of the frisbee.

Use the following kinematic equation.

$$v^2 = v_0^2 + 2a(x - x_0)$$

Solve for v_0 .

$$v_0^2 = v^2 - 2a(x - x_0) = (3 \text{ m/s})^2 - 2(-9.8 \text{ m/s}^2)(6.5 \text{ m} - 1.3 \text{ m}) = 110.9 \text{ m}^2/\text{s}^2$$

Take the square root gives

$$v_0 = 10.5 \text{ m/s}$$

†Problem from Essential University Physics, Wolfson