

A soccer ball is kicked horizontally off a 22.0-meter high hill and lands a distance of 35.0 meters from the edge of the hill.

Determine the initial horizontal velocity of the soccer ball.

Vertical displacement

$$\text{use } \Delta y = \frac{1}{2} g t^2$$

Horizontal displacement

$$= 22 \text{ m}$$

To find the time

$$= 35 \text{ m}$$

To find the initial velocity

$$\text{use } \Delta x = v_{ix} \cdot t$$

Solve