

A woman holds a hose 0.8 m above the ground such that the water shoots out horizontally. The water hits the ground at a point 2 m away. What is the speed/velocity with which the water leaves the hose?

Solution:

Let:

$$H = 0.8 \text{ m}$$

$$S = 2 \text{ m}$$

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$$v = ?$$

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$S = vt$ , where  $t$  – is the time of free falling water from height  $H$

$$v = \frac{S}{t}$$

Such as:  $H = \frac{1}{2}gt^2, t = \sqrt{\frac{2H}{g}}$

$$v = S \sqrt{\frac{g}{2H}}$$

$$v = 2 * \sqrt{\frac{9.8}{2*0.8}} \approx 2.95 \text{ m/s}$$

**Answer: 2.95 m/s.**