

**Answer on Question #42112, Physics, Mechanics — Kinematics — Dynamics — for completion**

Question: A stone is thrown with an initial velocity of 12.0 m/s at an angle of 55 with the ground. The initial velocity of the stone in the x-direction is ? and the initial velocity of the stone in the y-direction is ?

Solution

The initial velocity of the stone in the x-direction is

$$v_{x0} = v_0 \cdot \cos 55^\circ \approx 12 \cdot 0.5736 = 6.882 \text{ m/s}$$

The initial velocity of the stone in the x-direction is

$$v_{y0} = v_0 \cdot \sin 55^\circ \approx 12 \cdot 0.8192 = 9.8298 \text{ m/s}$$