Answer on Question #62297-Physics -Mechanics

A projectile is launched at ground level with an initial speed of 50.0 m/s and an elevation angle (i.e., at an angle above the horizontal) of 30.0°. It strikes a target above the ground 3.00 s later. What are the horizontal and vertical distances of the target from the place where the projectile was launched? Ignore air resistance.

Solution

$$x = v\cos 30\, t = 50\cos 30\ \ 3 = 130\, m.$$

$$y = v\sin 30\, t - \frac{gt^2}{2} = 50\sin 30\, 3 - \frac{9.81\cdot 3^2}{2} = 30.9\, m.$$