Question #60632, Physics – Mechanics | Relativity

Omar kicks a ball from a level field, at an initial velocity of 29.4 m/s at an initial angle of 60 with respect to the horizontal. The ball is in its trajectory for a total time of 3 s before it hits the ground. What is the ball's horizontal displacement, X?

Solution

The equation of the ball's horizontal motion:

$x = v_{0x}t$;

where

$v_{0x} = v_0 \cos 60°$

The total horizontal displacement:

$x(3) = 29.4 \times \cos 60° \times 3 = 44.1$ m