Answer on Question 67736, Physics, Mechanics, Relativity

Question:

From the ground, a projectile is fired at an angle of 60° to the horizontal with a speed of $20\ m/s$. Take accelaration due to gravity as $10\ m/s^2$. The horizontal range of the projectile is?

Solution:

We can find the horizontal range of the projectile from the formula:

$$R = \frac{v_0^2 sin2\theta}{g},$$

here, v_0 is the initial velocity of the projectile, θ is the angle of projection of the projectile, g is the acceleration due to gravity.

Then, we get:

$$R = \frac{v_0^2 sin2\theta}{g} = \frac{\left(20\ \frac{m}{s}\right)^2 \cdot \sin(2 \cdot 60^{\circ})}{10\ \frac{m}{s^2}} = 34.64\ m.$$

Answer:

$R = 34.64\ m.$