Answer on Question #48556, Physics, Mechanics - Kinematics - Dynamics

A boy aims a target at a horizontal distance of 60m.if the muzzle speed of bullet is 600 m/s.then the height above the target which he should aim is....

Solution

Flight time of a bullet is

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

During this time the bullet will change the height:

$$h = \frac{gt^2}{2} = \frac{g\left(\frac{s}{v}\right)^2}{2} = \frac{gs^2}{2v^2}$$

The height above the target which he should aim is

$$h = \frac{9.8\frac{m}{s^2} \cdot (60m)^2}{2 \cdot \left(600\frac{m}{s}\right)^2} = 0.049m$$

Answer: $h = 0.049m$