Question #76290, Physics / Mechanics | Relativity

A bullet is fired at a target placed 10m away. If the initial velocity is 200 $ms^{-1}$ horizontally what is the deviation of the bullet from its original part due to gravity?

**Solution**

The flight time of the bullet is

$t$ = 10 / 200 = 0.05 s

The vertical displacement of the bullet is

$d = \frac{gt^2}{2}$, where $g$ = 9.81

$$d = \frac{9.81\left(0.05\right)^2}{2} = 0.0123\,\text{m} = 12.3\ \text{mm}$$

**Answer:** 12.3 mm.