

Question #70933, Physics/Mechanics | Relativity

A plane is releasing a bomb while flying with 720km/h constant velocity. if the altitude of the plane is 980m. find its position due to initial position when the bomb strikes to the ground. take $g=10m/s^2$

Solution:

The time between a bomb released and the bomb strikes can be determined as:

$$t = \sqrt{\frac{2h}{g}} = \sqrt{\frac{2 \cdot 980m}{10m/s^2}} = 14s$$

The horizontal velocity will be constant all the time before the bomb strike. Thus, it will fly:

$$l = v_0 \cdot t = 200m/s \cdot 14s = 2800m$$

The bomb will fly in a horizontal direction 2800 meters.

Answer provided by <https://www.AssignmentExpert.com>