Answer on Question #49944 – Physics - Mechanics | Kinematics | Dynamics

An object is dropped from a helicopter which is moving horizontally at a constant velocity of 45 m/s 180m above the ground. Find the time taken for the object to reach the ground.

Solution:

$h = 180\ m - height\ of\ the\ helicopter;$

$V = 45\frac{m}{s} velocity\ of\ the\ helicopter;$

Equation of motion for the object along $Y - axis$:

$y: h = \frac{gt^2}{2}$

$t = \sqrt{\frac{2h}{g}} = \sqrt{\frac{2 \cdot 180m}{9.8\frac{m}{s^2}}} = 6\ s$

Answer: time taken for the object to reach the ground is equal to $6\ s$.