Question#25143

an apple drops from a tree and hits the ground in one second. what is it's speed upon striking the ground? what is the average speed during the one second? how high above ground was it when it's first dropped?

Solution:

Let:

$t = 1\ sec$

$v = ?,\ v_{average} = ?,\ H = ?$

$v = gt, were\ g\ is\ the\ acceleration\ of\ gravity$

$H = \frac{1}{2}gt^2$

$v_{average} = \frac{H}{t} = \frac{1}{2}gt$

$v = 9.8 * 1 = 9.8\ m/sec$

$H = \frac{1}{2}9.8 * 1 = 4.9\ m$

$v_{average} = \frac{4.9}{1} = 4.9\ m/sec$

Answer: the speed is 9.8 m/sec, the average speed is 4.9 m/sec, the high above the ground is 4.9 m.