Question#14530

At an altitude of 2.8 km, a plane is flying horizontally due north at 130 m/s. A ball is dropped out of the window when the plane is directly over the Washington Monument. How long does it take for the ball to hit the ground? And where does it land in respect to the Washington Monument?

Solution:

Let:

$h = 2.8\ km = 2800\ m$

$v = 130\ m/s$

$S-?$

$S = v * t,\ were\ t - time\ of\ free\ falling\ of\ the\ ball$

As: $h = \frac{1}{2}gt^2;\ t = \sqrt{\frac{h}{2g}}$

$S = v\sqrt{\frac{h}{2g}} = 130\sqrt{\frac{2800}{2*9.8}} = 1554\ m$

Answer: 1554 m. due north.