

### Answer on Question #72998-Physics-Other

A rescue pilot drops a survival kit while her plane is flying at an altitude of 2000.0 m with a forward velocity of 1000.0 m/s. If air friction is disregarded, how far in advance of the starving explorer's drop zone should she release the package?

#### Solution

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

The time of flight is

$$t = \sqrt{\frac{2h}{g}}$$

The horizontal distance is

$$x = vt = v \sqrt{\frac{2h}{g}} = 1000.0 \sqrt{\frac{2(2000.0)}{9.8}} = 20200 \text{ m} = 20.20 \text{ km}.$$

The plane must release the package 20.20 km before the landing zone.

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