Question#22883

A jet is travelling at a speed of 1200 km/h and drops cargo from a height of 25 km above the ground. Calculate the time it takes for the cargo to hit the ground and the range it travels

Solution:

Let:

$v = 1200\,km/h = 333.33\ m/sec$

$H = 25km = 25000\,m$

$t = ?\,, S = ?$

$S = vt$

Such as cargo freely falls from height H:

$t = \sqrt{\frac{2H}{g}}, were\ g$ is the acceleration due the gravitation.

$$\boldsymbol{t = \sqrt{\frac{2*25000}{9.8}} = 71.4\ sec}$$

$$\boldsymbol{S = 333.33 * 71.4 = 23800\ m}$$

Answer: the time is 71.4 sec., the traveling distance is 23800 m.