

Mathematics Questions by Topic

Motion and Force

Answer 44

Source: K8SM2SQ18

Question 44

A hot air balloon is accelerating vertically upwards with an acceleration of 1 m/s^2 . A stone is dropped from the balloon when it is h metres above the ground. The stone strikes the ground 8 seconds later. Assuming the air resistance is negligible, the value of h is closest to

- A. 282.
- B. 290.
- C. 314.
- D. 322.
- E. 346.

ANSWER C

Using constant acceleration formulae $a = -9.8$ $u = 0$ $t = 8$ $s = ?$

$$s = ut + \frac{1}{2}at^2 \quad s = 0 - \frac{1}{2} \times 9.8 \times 8^2 = -313.6$$

The height h is 313 metres.

The stone hits the ground 314 metres below the initial point.