

Solutionbank M1

Heinemann Modular Maths for Edexcel AS and A-level

2 Kinematics in one dimension

Exercise B, Question 8

Question:

A rocket is travelling with a velocity of 80 m s^{-1} . The engines are switched on for 6 seconds and the rocket accelerates uniformly at 40 m s^{-2} . Assume that the rocket is always moving in the same direction. Calculate the distance travelled over the 6 seconds.

Solution:

$$s = ut + \frac{1}{2}at^2$$

$$s_1 = 80 \times 6 + \frac{1}{2} \times 40 \times 6^2$$

$$s_1 = 1200 \text{ m}$$

