Solutionbank M1

Heinemann Modular Maths for Edexcel AS and A-level

5 Newton's laws of motion

Exercise B, Question 11

Question:

A particle of mass 6 kg starts from rest and accelerates uniformly. The resultant force on the particle has magnitude 15 N. Find the time taken to reach a speed of 10 m s^{-1}.

Solution:

Newton's 2nd Law, $\rightarrow$

$$15 = 6 \times a$$

$$\therefore a = \frac{15}{6}$$

$$a = 2.5 \text{ m } s^{-2}$$

$$v = u + at, \rightarrow$$

$$10 = 0 + 2.5 \times t$$

$$\therefore t = \frac{10}{2.5}$$

$$t = 4 \text{ seconds}$$