

Solutionbank M1

Heinemann Modular Maths for Edexcel AS and A-level

5 Newton's laws of motion

Exercise B, Question 4

Question:

A crane lifts a load of mass 2 tonnes vertically from rest. The tension in the cable is 21 kN. Find the acceleration of the load.

Solution:

Newton's 2nd Law vertically

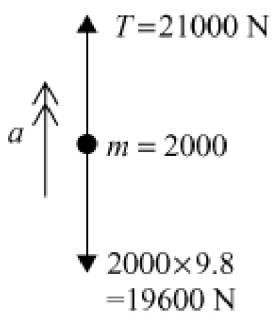
$$21000 - 19600 = 2000 \times a$$

$$\therefore 1400 = 2000a$$

$$\therefore a = \frac{1400}{2000}$$

$$a = 0.7$$

$$\therefore \text{acceleration} = 0.7 \text{ m s}^{-2}$$



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