

Solutionbank M1

Heinemann Modular Maths for Edexcel AS and A-level

5 Newton's laws of motion

Exercise Test yourself, Question 4

Question:

A van, of mass 1200 kg, rolls down a slope, inclined at 3° to the horizontal and experiences a resistance force of magnitude 400 N. Find the acceleration of the van.

Solution:

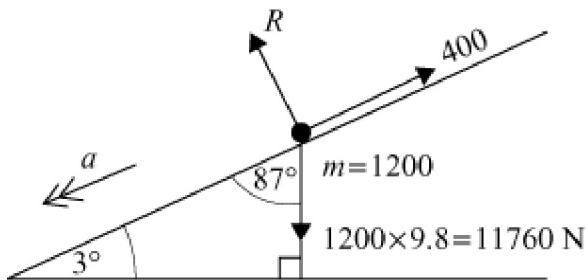
Newton's 2nd Law down slope

$$11760 \times \cos 87^\circ - 400 = 1200 \times a$$

$$\therefore \frac{11760 \cos 87^\circ - 400}{1200} = a$$

$$a = 0.17955..$$

$$a = 0.180 \text{ m s}^{-2} \text{ (3 s.f.)}$$



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