

Solutionbank M1

Heinemann Modular Maths for Edexcel AS and A-level

5 Newton's laws of motion

Exercise A, Question 6

Question:

A car of mass 1 tonne travels up a slope inclined at 3° to the horizontal, with constant velocity. If the engine exerts a force of 700 N, what is the magnitude of the resistive force on the car?

Solution:

Resistive force is R_1

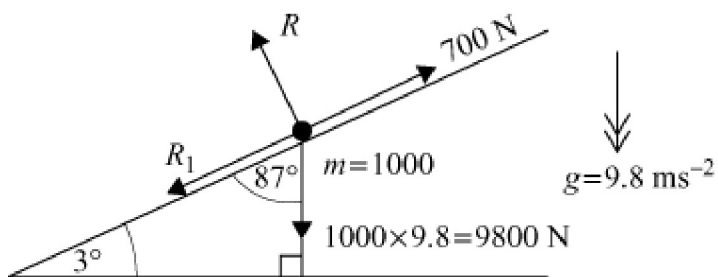
Newton 1 along the slope

$$700 - 9800 \cos 87^\circ - R_1 = 0$$

$$\therefore 700 - 9800 \cos 87^\circ = R_1$$

$$R_1 = 187.10\dots$$

\therefore resistive force is 187 N (3 s.f.)



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