

Solutionbank M1

Heinemann Modular Maths for Edexcel AS and A-level

5 Newton's laws of motion

Exercise B, Question 13

Question:

A particle of mass m kg slides down a smooth inclined plane with an acceleration of 2 m s^{-2} . Find the inclination of the plane to the horizontal.

Solution:

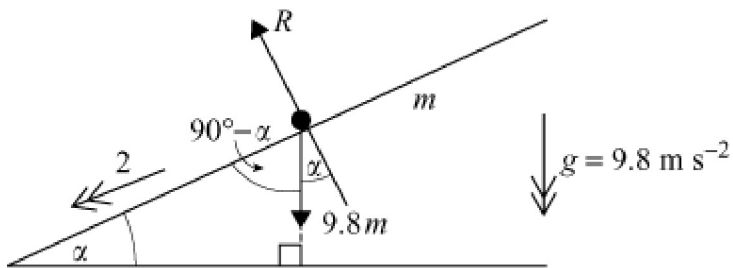
Newton's 2nd Law down plane

$$(9.8m) \sin \alpha = m \times 2$$

$$\therefore \sin \alpha = \frac{m \times 2}{9.8m}$$

$$\alpha = 11.775\dots$$

$$\alpha = 11.8^\circ \text{ (3 s.f.)}$$



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