

Solutionbank M1

Heinemann Modular Maths for Edexcel AS and A-level

4 Forces

Exercise F, Question 1

Question:

A horizontal force of magnitude 5 N is applied to a body of mass 20 kg which is at rest on a rough horizontal plane. Find the coefficient of friction, given that friction is limiting in this position.

Solution:

Resolving horizontally

$$F_1 = 5$$

Resolving vertically

$$R = 196$$

Limiting friction, $F_1 = \mu R$

$$\therefore 5 = \mu \times 196$$

$$\therefore \mu = \frac{5}{196} = 0.02551\dots$$

$$\therefore \mu = 0.0255 \text{ (3 s.f.)}$$

