



QUESTION WORKBOOK

Statics of a particle

Mechanics · Year 12–13

6 questions · 27 marks

NAVY SCREEN EDITION

SECTION A · Warm-up

A1 State the condition for a particle to be in equilibrium, and how it is used in practice. [2]

A2 A particle of weight 30 N rests on a smooth slope inclined at 25° , held by a string parallel to the slope. Find the tension and the normal reaction. [4]

SECTION B · Standard

B1 A 10 N weight hangs in equilibrium from two strings making 20° and 70° with the horizontal. Find both tensions. [5]

- B2** A particle of weight 40 N is held at rest on a smooth 30° slope by a horizontal force P. Find P and the normal reaction. [5]

- B3** A particle of mass 3 kg rests in limiting equilibrium on a rough slope inclined at 35° to the horizontal. Find the coefficient of friction between the particle and the slope. [4]

SECTION C · Stretch

- C1** A particle of mass 4 kg rests on a rough horizontal plane with coefficient of friction 0.25. A force P is applied at 20° above the horizontal. Find the least value of P that will move the particle. [7]