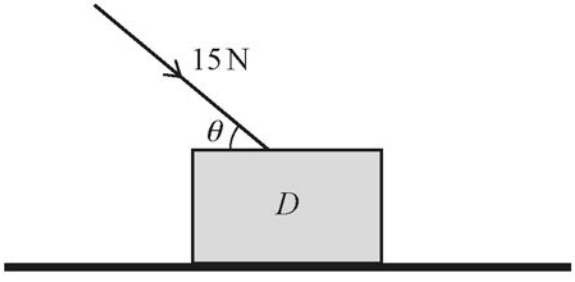
10



A block D of weight 50 N lies at rest in equilibrium on a fixed rough horizontal surface. A force of magnitude 15 N is applied to D at an angle θ to the horizontal (see diagram).

(a) Complete the diagram in the Printed Answer Booklet showing all the forces acting on D. **[1]**

It is given that D remains at rest and the coefficient of friction between D and the surface is 0.2.

(b) Show that

$$15\cos\theta - 3\sin\theta \leqslant 10.$$ **[5]**