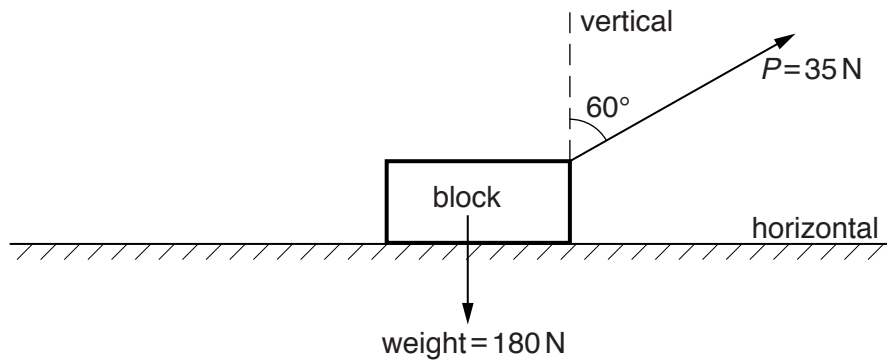


- 4 A block is pulled on a horizontal surface by a force  $P$  as shown in Fig. 4.1.



**Fig. 4.1**

The weight of the block is 180 N. The force  $P$  is 35 N at  $60^\circ$  to the vertical.  
The block moves a distance of 20 m at constant velocity.

**(a)** Calculate

- (i)** the vertical force that the surface applies to the block (normal reaction force),

force = ..... N [2]

- (ii)** the work done by force  $P$ .

work done = ..... J [2]

- (b) (i) Explain why the block continues to move at constant velocity although work is done on the block by force  $P$ .

.....  
.....  
.....[1]

- (ii) Explain, in terms of the forces acting, why the block remains in equilibrium.

.....  
.....  
.....  
.....[2]