3.

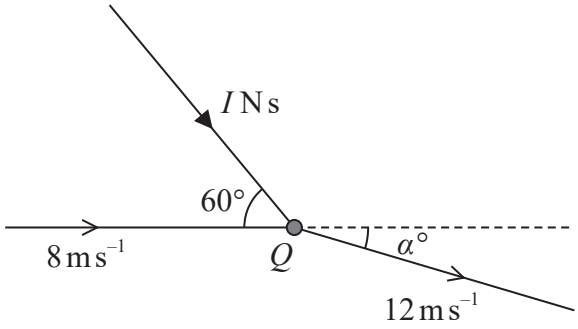


Figure 2

A particle Q of mass 0.25 kg is moving in a straight line on a smooth horizontal surface with speed $8\,\text{m s}^{-1}$ when it receives an impulse of magnitude I N s.

The impulse acts parallel to the horizontal surface and at 60° to the original direction of motion of Q.

Immediately after receiving the impulse, the speed of Q is $12\,\text{m s}^{-1}$

As a result of receiving the impulse, the direction of motion of Q is turned through $\alpha°$, as shown in Figure 2.

Find the value of I

(6)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Question 3 continued

Question 3 continued

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Question 3 continued

(Total for Question 3 is 6 marks)