

- 3 (a) State what is meant by *work done*.

.....
 [1]

- (b) A trolley of mass 400 g is moving at a constant velocity of 2.5 m s^{-1} to the right as shown in Fig. 3.1.



Fig. 3.1

Show that the kinetic energy of the trolley is 1.3 J.

[2]

- (c) The trolley in (b) moves to point P as shown in Fig. 3.2.

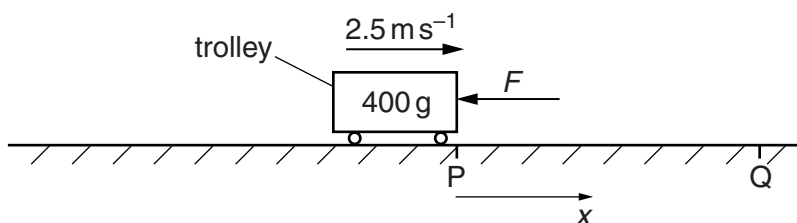


Fig. 3.2

At point P the speed of the trolley is 2.5 m s^{-1} .

A variable force F acts to the left on the trolley as it moves between points P and Q.

The variation of F with displacement x from P is shown in Fig. 3.3.

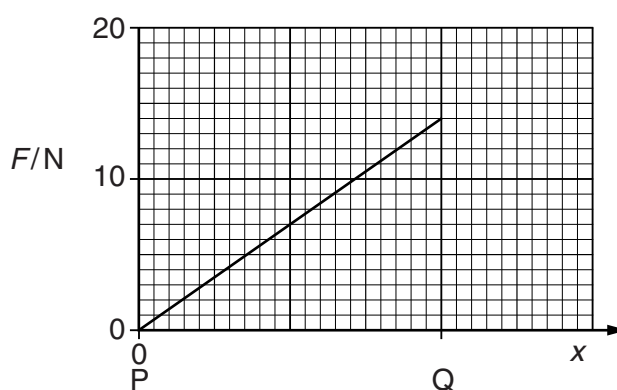


Fig. 3.3

The trolley comes to rest at point Q.

- (i) Calculate the distance PQ.

distance PQ = m [3]

- (ii) On Fig. 3.4, sketch the variation with x of velocity v for the trolley moving between P and Q.

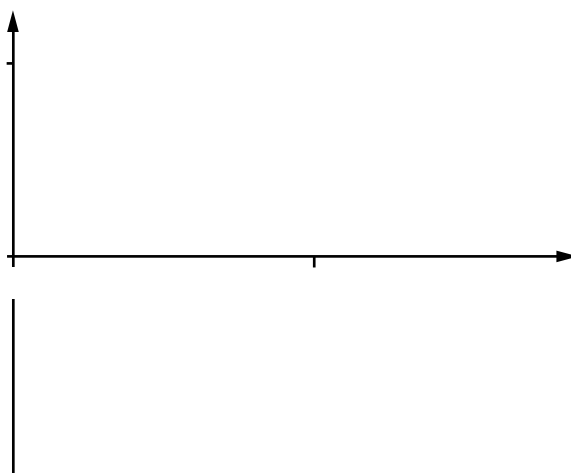


Fig. 3.4

[2]