2 A resultant force F acts on an object of mass 4.0 kg. The variation with time t of F is shown in Fig. 2.1.

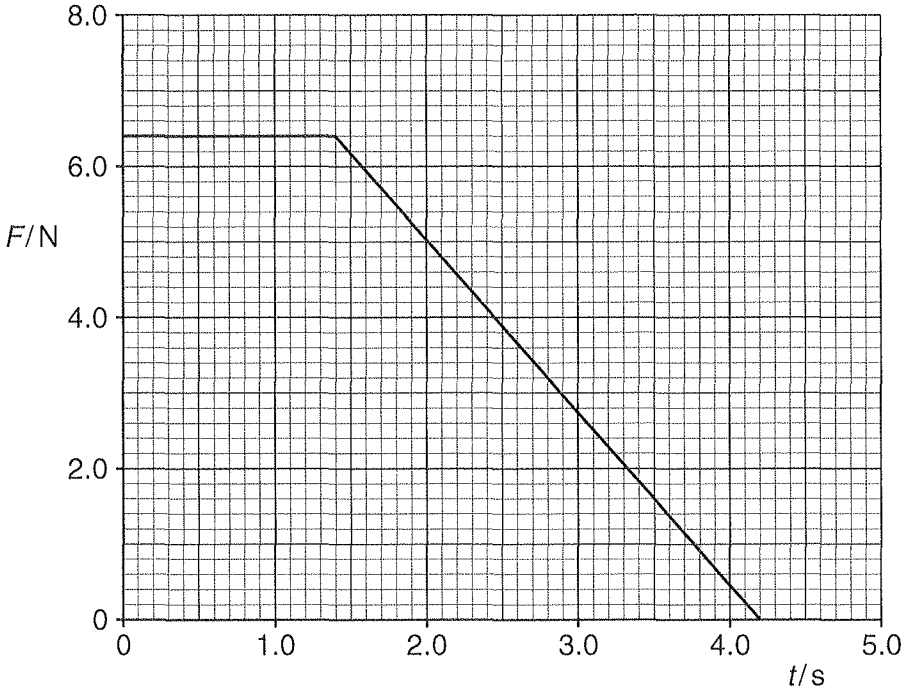

Fig. 2.1

The object starts from rest.

(a) Use Fig. 2.1 to calculate the acceleration of the object at $t = 0.70$ s.

acceleration = ... $m\,s^{-2}$ [2]

(b) On Fig. 2.2, show quantitatively the variation with t of the acceleration a of the object. Include appropriate values of a on the y-axis.

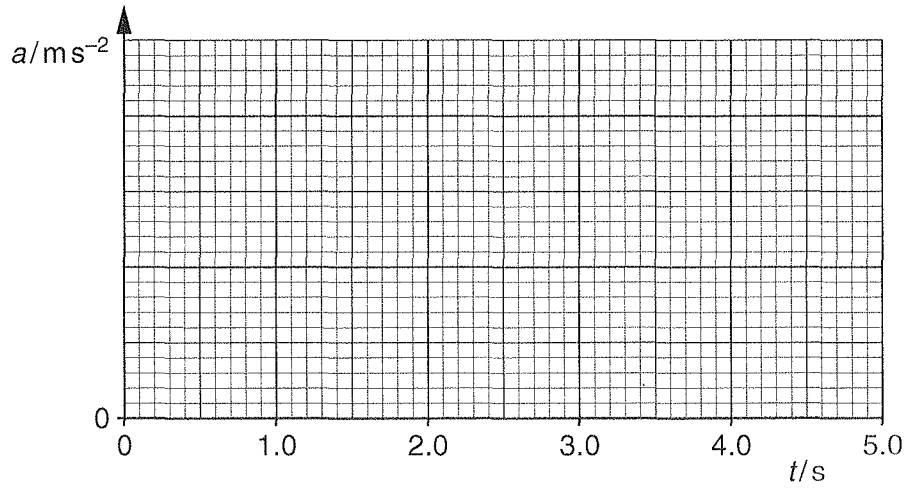

Fig. 2.2

[2]

(c) Use Fig. 2.1 to calculate the impulse acting on the object from $t = 0$ to $t = 1.4\,s$.

impulse = ... $kg\,m\,s^{-1}$ [2]

(d) On Fig. 2.3, show quantitatively the variation with t of the momentum p of the object from $t = 0$ to $t = 4.2\,s$. Include appropriate values of p on the y-axis.

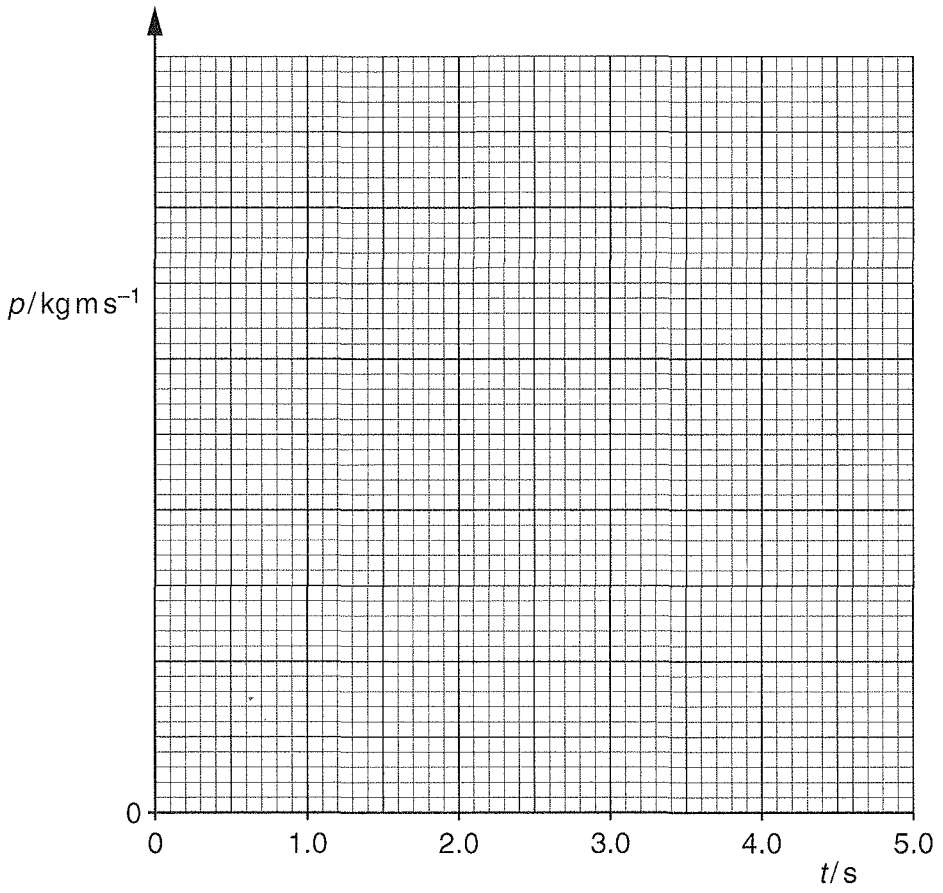

Fig. 2.3

[3]