1 A ball of mass 58 g collides horizontally with a wall. Fig. 1.1 shows the variation of magnitude of force on the ball F with time.

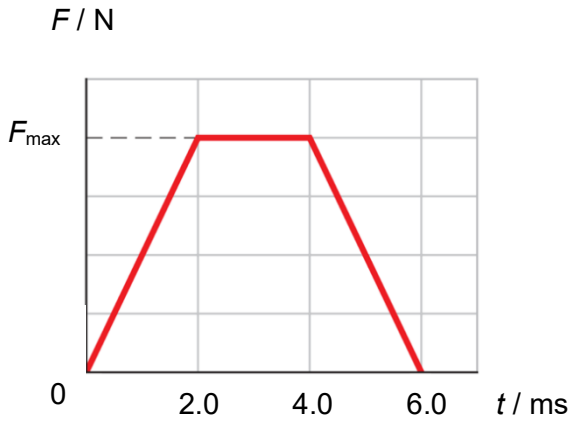

Fig. 1.1

The initial velocity of the ball is 34 m s^{-1} perpendicular to the wall. The ball rebounded with the same speed and also perpendicular to the wall.

(a) Explain what is impulse on the wall.

.....

.....

..... [1]

(b) Calculate the change in momentum of the ball. Take initial direction of the ball to be positive.

change in momentum = ... kg m s^{-1} [2]

(c) Hence, use Fig. 1.1 to find F_{max} on the ball.

F_{max} = ... N [2]

(d) On Fig. 1.2 complete the sketch of the variation of velocity of the ball with time.

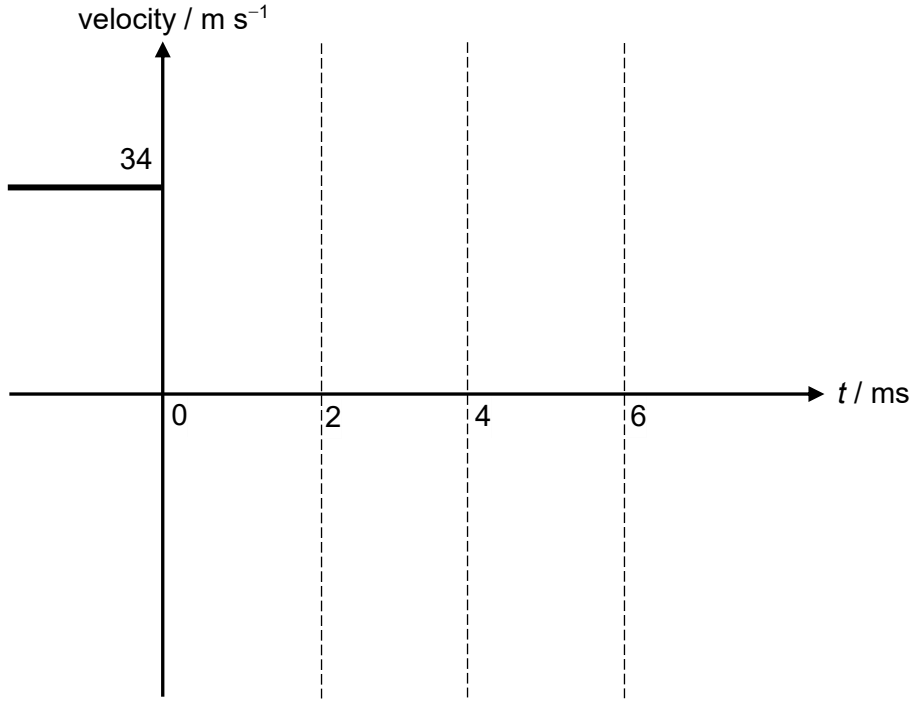

Fig. 1.2

[3]