

- 2 A ball of mass 0.62 kg is dropped from rest. It hits a horizontal surface and rebounds. The variation with time t of the momentum p of the ball when not in contact with the ground is shown in Fig. 2.1.

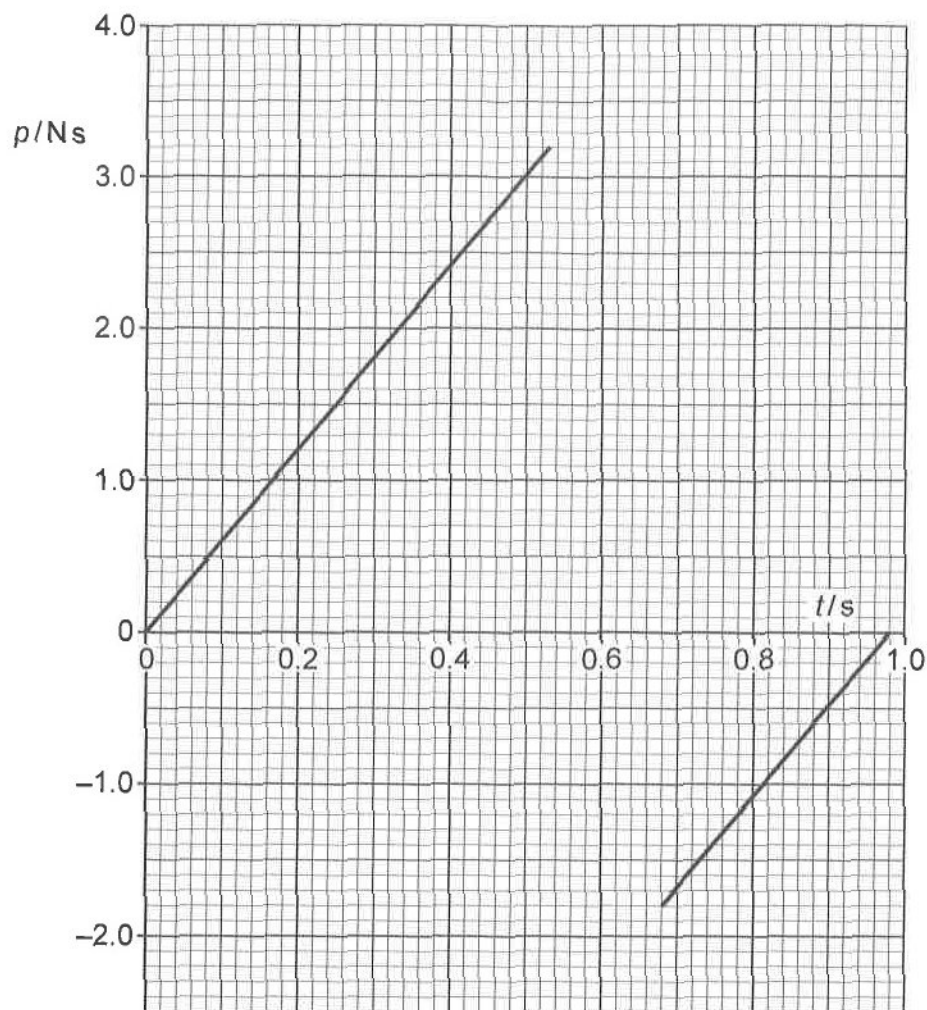


Fig. 2.1

- (a) Calculate the kinetic energy E_k of the ball as it makes contact with the surface.

$E_k = \dots\dots\dots \text{ J [3]}$



- (b) Determine the magnitude of the average force exerted by the ground on the ball when the ball is in contact with the surface. Show your working.

force = N [4]

- (c) The ball loses the same percentage of its kinetic energy every time it rebounds.

Determine the number of times the ball rebounds before its total energy decreases to less than 5.0% of its initial energy. Show your working.

number = [3]

[Total: 10]