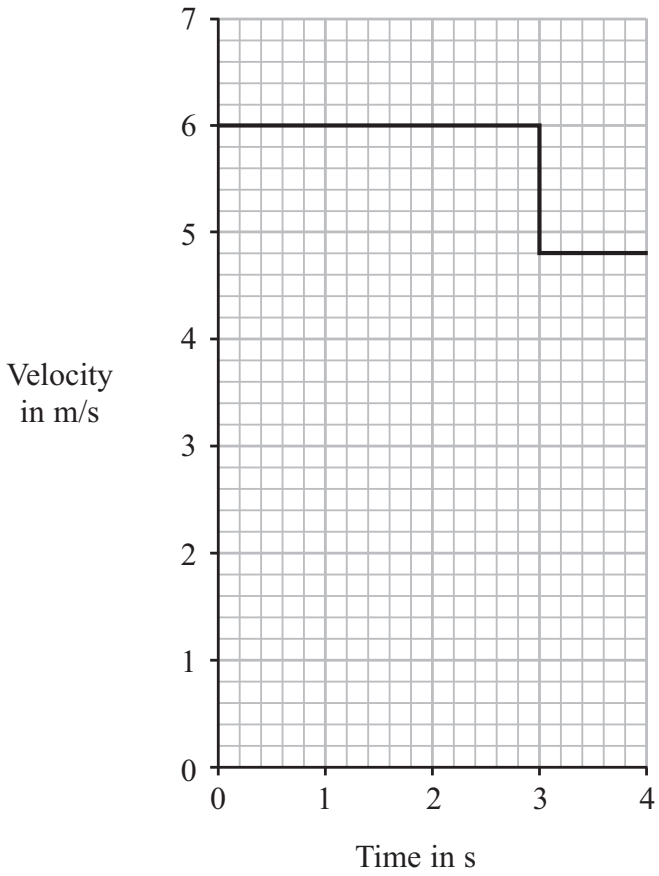
8 A bowling ball rolls for 3 s and hits a pin.

The graph shows how the velocity of the ball changes with time.



(a) How can the graph be used to find the distance that the ball rolls before it hits the pin?

(1)

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.....

.....

(b) The mass of the ball is 6.4 kg.

(i) State the equation linking momentum, mass and velocity.

(1)

(ii) Calculate the momentum of the ball before it hits the pin.
Give the unit.

(3)

Momentum = ... Unit .....

(c) (i) What is the velocity of the ball after it hits the pin?

(1)

Velocity = ... m/s

(ii) After the collision, the ball and the pin have the same velocity.

Calculate the mass of the pin.

(3)

Mass = ... kg

(Total for Question 8 = 9 marks)

TOTAL FOR PAPER = 60 MARKS

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