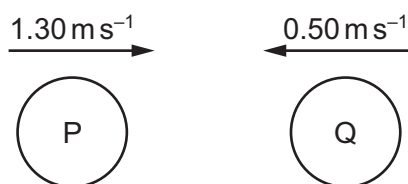


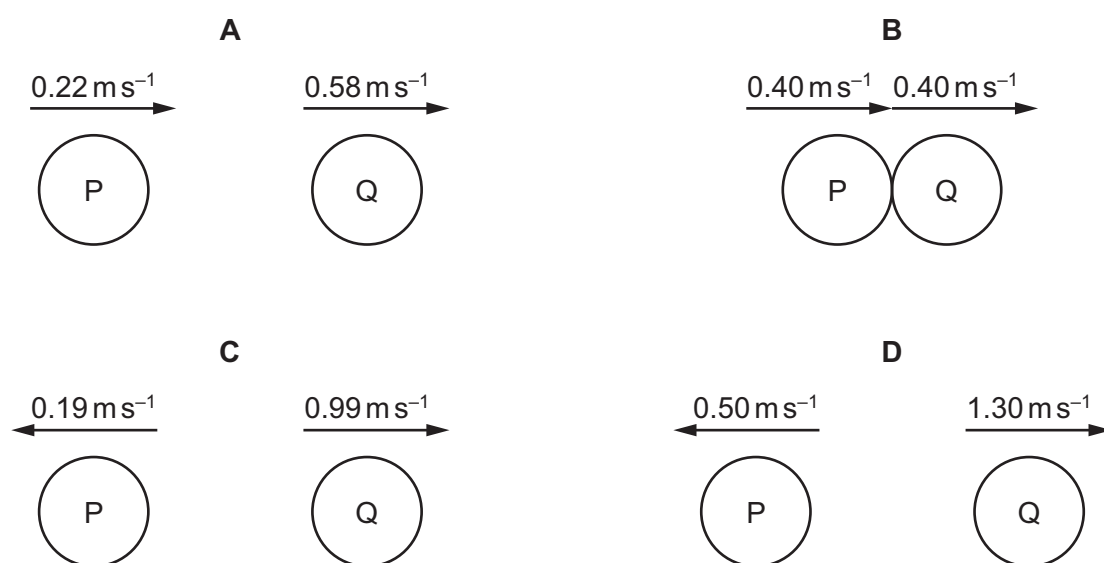
- 8 Two balls P and Q, of equal mass, move along a straight line directly towards each other as shown.



Ball P has velocity  $1.30 \text{ ms}^{-1}$  to the right. Ball Q has velocity  $0.50 \text{ ms}^{-1}$  to the left.

P and Q collide with one another. The collision is perfectly elastic and the total momentum is conserved.

Which diagram correctly shows the motion of P and Q after the collision?



- 9 A basketball player hits a ball vertically downwards with a speed of  $2.4 \text{ ms}^{-1}$  from a height of  $0.90 \text{ m}$ .

Air resistance is negligible.

What is the speed of the ball as it hits the ground?

- A**  $4.2 \text{ ms}^{-1}$       **B**  $4.8 \text{ ms}^{-1}$       **C**  $18 \text{ ms}^{-1}$       **D**  $23 \text{ ms}^{-1}$