

**9** A football of mass  $0.42\text{ kg}$  is travelling towards a player at  $3.0\text{ ms}^{-1}$ .

The player kicks the ball with an impulse of  $6.3\text{ N s}$ , returning it in the direction of approach.

What is the new speed of the ball?

A  $4.6\text{ ms}^{-1}$

B  $6.2\text{ ms}^{-1}$

C  $12\text{ ms}^{-1}$

D  $18\text{ ms}^{-1}$

**10** Two forces act on a small object. The forces are approximately perpendicular in direction and