

Solutions

Each answer shows the steps, then the **result**.

2.1

- $p = mv = 0.5 \times 8 = 4 \text{ kg m s}^{-1}$

2.2

- (linear) momentum

3.1 C

- $3(4) = (3 + 2)v \Rightarrow v = \frac{12}{5} = 2.4 \text{ m s}^{-1}$

3.2

- take A 's direction positive: $0.4(5) + 0.6(-2) = (0.4 + 0.6)v$; $2 - 1.2 = 1.0v \Rightarrow v = 0.8$;
 0.8 m s^{-1} in A 's original direction

3.3

- $2(6) + 4(0) = 2(1) + 4v$; $12 = 2 + 4v \Rightarrow v = \frac{10}{4} = 2.5 \text{ m s}^{-1}$