

Solutions

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

2.1

(a)

- both momentum and kinetic energy

(b)

- momentum only

2.2

- $1.0(6.0) = (1.0 + 2.0)v \Rightarrow v = 2.0 \text{ m s}^{-1}$

2.3

- KE before = $\frac{1}{2}(1.0)(6.0)^2 = 18 \text{ J}$; after = $\frac{1}{2}(3.0)(2.0)^2 = 6.0 \text{ J}$; lost = 12 J

3.1 B

3.2 B

3.3

(a)

- $0.50(4.0) = (1.0)v \Rightarrow v = 2.0 \text{ m s}^{-1}$

(b)

- KE before = $\frac{1}{2}(0.50)(4.0)^2 = 4.0 \text{ J}$; after = $\frac{1}{2}(1.0)(2.0)^2 = 2.0 \text{ J}$; not conserved, so it is **inelastic**