

Solutions

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

2.1

- the net external force on the system must be zero

2.2

- $3.0(4.0) = (3.0 + 1.0)v \Rightarrow v = \frac{12}{4.0} = 3.0 \text{ m s}^{-1}$

2.3

- $0 = 2.0(+6.0) + 3.0v \Rightarrow v = \frac{-12}{3.0} = -4.0 \text{ m s}^{-1}$

3.1 B

3.2 A

- $0 = 0.010(400) + 2.0v \Rightarrow v = -2.0 \text{ m s}^{-1}$

3.3

(a)

- $0 = 2.0(5.0) + 60v \Rightarrow v = \frac{-10}{60} = -0.17 \text{ m s}^{-1}$, i.e. 0.17 m s^{-1}

(b)

- opposite to the tool's direction