

Solutions

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

2.1

- $\frac{1}{2}mv^2 = mgh \Rightarrow v = \sqrt{2gh} = \sqrt{2(10)(3.0)} = 7.7 \text{ m s}^{-1}$

2.2

- mechanical energy is converted to thermal energy (heat)

2.3

- $v = \sqrt{2gh} = \sqrt{2(10)(0.20)} = 2.0 \text{ m s}^{-1}$

3.1 B

3.2 C

3.3

(a)

- $U_g = mgh = 0.50 \times 10 \times 8.0 = 40 \text{ J}$

(b)

- $KE = \frac{1}{2}(0.50)(10)^2 = 25 \text{ J}$

(c)

- $40 - 25 = 15 \text{ J lost to thermal/other forms}$