

Solutions

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

2.1

- $\Delta U_g = mg \Delta h = 5.0 \times 10 \times 2.0 = 100 \text{ J}$

2.2

- $U_s = \frac{1}{2}(300)(0.20)^2 = 6.0 \text{ J}$

2.3

- it is a point of stable equilibrium (the object tends to stay or oscillate about it)

3.1 C

3.2 B

- $U_s \propto x^2$

3.3

(a)

- $U_g = 0.30 \times 10 \times 1.5 = 4.5 \text{ J}$

(b)

- $\frac{1}{2}mv^2 = U_g \Rightarrow v = \sqrt{2g \Delta h} = \sqrt{30} = 5.5 \text{ m s}^{-1}$