

Solutions

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

2.1

- $E = \frac{1}{2}kA^2 = \frac{1}{2}(100)(0.2)^2 = 2 \text{ J}$

2.2

- At the equilibrium position

2.3

- Four times

2.4

- $U = \frac{1}{2}kx^2 = \frac{1}{2}(100)(0.1)^2 = 0.5 \text{ J}$

3.1 A

- $E = \frac{1}{2}kA^2$

3.2 B

- $E \propto A^2$, so $2^2 = 4$

3.3

(a)

- $E = \frac{1}{2}(400)(0.1)^2 = 2 \text{ J}$

(b)

- 2 J (all kinetic there)

3.4

(a)

- At the extremes (maximum x)

(b)

- No — each is greatest where the other is zero