

31. When the block is at the end of its path and is momentarily stopped, its displacement is equal to the amplitude and all the energy is potential in nature. If the spring potential energy is taken to be zero when the block is at its equilibrium position, then

$$E = \frac{1}{2}kx_m^2 = \frac{1}{2}(1.3 \times 10^2 \text{ N/m})(0.024 \text{ m})^2 = 3.7 \times 10^{-2} \text{ J} .$$