

82. (a) Hooke's law provides the spring constant: $k = (4.00 \text{ kg})(9.8 \text{ m/s}^2)/(0.160 \text{ m}) = 245 \text{ N/m}$.
(b) The attached mass is $m = 0.500 \text{ kg}$. Consequently, Eq. 16-13 leads to

$$T = 2\pi\sqrt{\frac{m}{k}} = 2\pi\sqrt{\frac{0.500}{245}} = 0.284 \text{ s} .$$