

80. (a) Hooke's law provides the spring constant: $k = (20 \text{ N})/(0.20 \text{ m}) = 100 \text{ N/m}$.
(b) The attached mass is $m = (5.0 \text{ N})/(9.8 \text{ m/s}^2) = 0.51 \text{ kg}$. Consequently, Eq. 16-13 leads to

$$T = 2\pi\sqrt{\frac{m}{k}} = 2\pi\sqrt{\frac{0.51}{100}} = 0.45 \text{ s} .$$