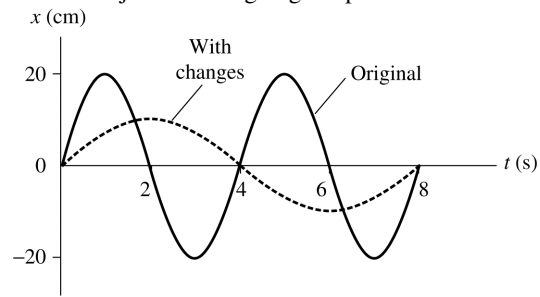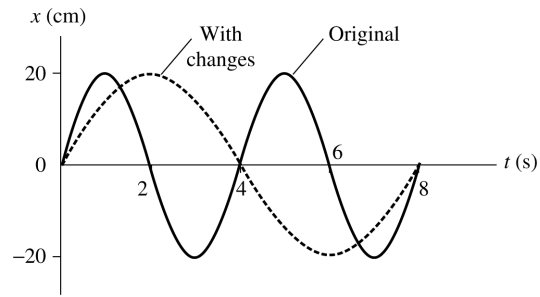**14.31.** **Model:** The object is undergoing simple harmonic motion.

Visualize:

(a)

(b)

Solve: The formula for the period is

$$T = \frac{1}{f} = 2\pi\sqrt{\frac{m}{k}}$$

(a) When the frequency f is halved, the period is doubled. That is, the period increases from 4.0 s to 8.0 s.
(b) When the mass m is quadrupled, the period doubles.