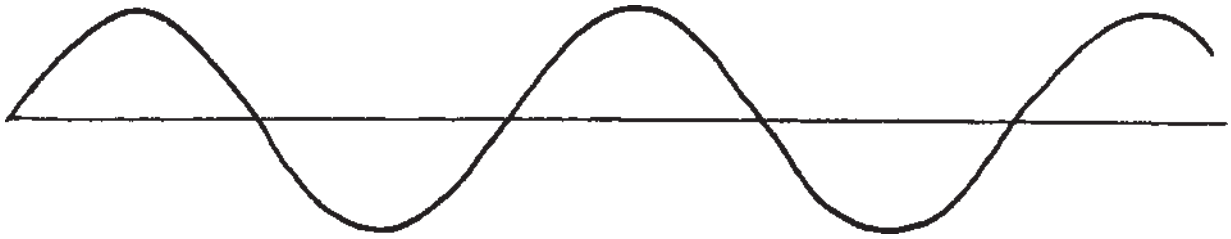
Name _____ Class _____ Date _____

Concept-Development Practice Page **25-1**

Vibrations and Waves

1. A sine curve that represents a transverse wave is drawn below. With a ruler, measure the wavelength and amplitude of the wave.



a. Wavelength = 7 cm

b. Amplitude = 1.5 cm

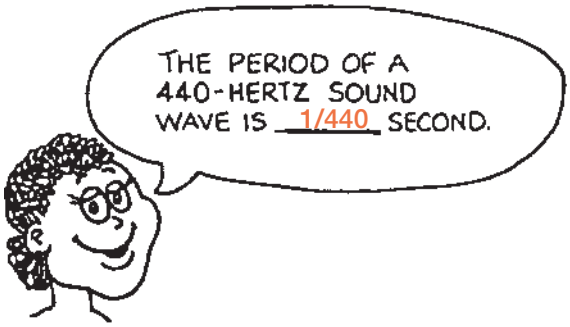
2. A kid on a playground swing makes a complete to-and-fro swing each 2 seconds. The frequency of swing is

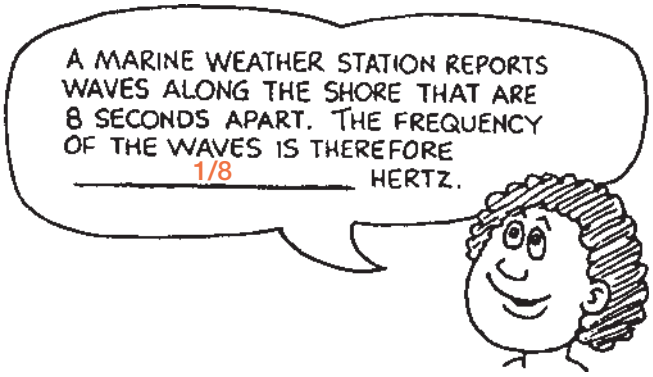
(0.5 hertz) (1 hertz) (2 hertz)

and the period is

(0.5 second) (1 second) (2 seconds).

3. *Complete the statements.*





4. The annoying sound from a mosquito is produced when it beats its wings at the average rate of 600 wingbeats per second.

a. What is the frequency of the soundwaves?

600 Hz

b. What is the wavelength? (Assume the speed of sound is 340 m/s.)

0.57 m

CONCEPTUAL PHYSICS

5. A pitching machine goes haywire and pitches at 10 rounds per second. The speed of the balls is an incredible 300 m/s.

   a. What is the distance in the air between the flying balls? 30 m

   b. What happens to the distance between the balls if the rate of pitching is increased?
   The distance between the balls decreases.

6. Consider a wave generator that produces 10 pulses per second. The speed of the waves is 300 cm/s.

   a. What is the wavelength of the waves? 30 cm

   b. What happens to the wavelength if the frequency of pulses is increased?
   The wavelength decreases, just as the distance between the balls in Question 5 decreases.

7. The bird at the right watches the waves. If the portion of a wave between two crests passes the pole each second, what is the speed of the wave?
   1 m/s

   What is its period?
   1 s

8. If the distance between crests in the above question was 1.5 meters, and two crests pass the pole each second, what would be the speed of the wave?
   1.5 m/s

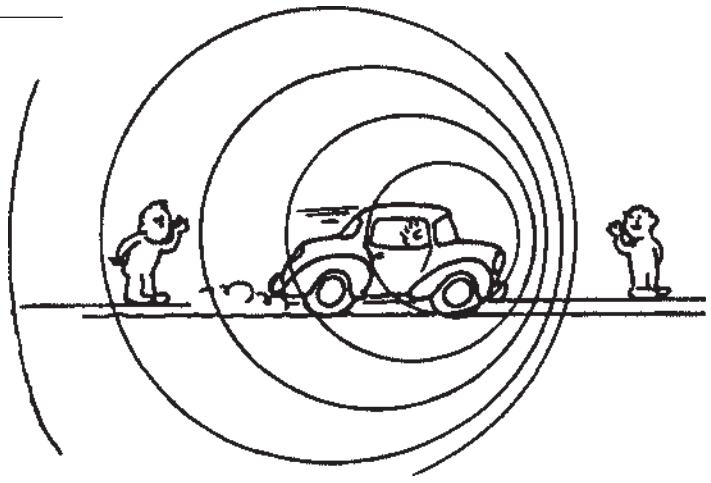
   What would be its period?
   1 s (the same)

9. When an automobile moves toward a listener, the sound of its horn seems relatively

   (low pitched) (normal)
   (high pitched)

   and when moving away from the listener, its horn seems

   (low pitched) (normal)
   (high pitched).



10. The changed pitch of the Doppler effect is due to changes in
    (wave speed) (wave frequency).