Physics 11: Waves Intro 2

1. An electric motor rotates 100.0 times in 0.500s. The radius of the spinning disc on the motor is 0.25cm.

 a. What is the period of the rotation?

 b. What is the frequency of the rotation?

 c. What is the circumference of the spinning disc?

 d. How far does a point on the outer edge of the disc travel in one rotation?

 e. How far does a point on the outer edge of the disc travel in 1.0s?

2. The CD-Rom drive in a typical computer rotates at 10400RPM. The radius of a standard CD (Compact Disc) is 12.0cm.

 a. What is the frequency in Hertz?

 b. How many rotations per second is the disc making?

 c. How far does a point at the outer edge of a CD travel in 1.00 minute?

 d. What is the period of the rotation?

3. A wave has a speed of 3.5m/s and a wavelength of 48cm.

 a. What is the frequency of the oscillation?

 b. What is the period of the vibration?

c. How far does the wave travel in one period?

d. How far does the wave travel in one second?

 e. How far does the wave travel in 22 seconds?

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4. A wave has a frequency of 33Hz. The distance from a crest to a trough (see diagram) is 1.2m.

 1.2m

a. What is the period of the vibration?

 b. What is the speed of propagation?

5. A transverse wave in a string has an amplitude of 2.20cm, a wavelength of 1.80m and propagates 130m in 6.40s.

 a. What is the speed of the wave?

 b. What is the frequency of the wave?

 c. What is the period of the oscillation?

 d. How far will a point on the string travel in one period?

 e. What is the average speed of a point on the string?

 f. How far will a point on the string travel in 24.0s?

6. A longitudinal wave travels through a spring at 5.00m/s. A point on the spring travels 2.00m in 1.750s. The frequency of the vibration is 10.0Hz.

 a. What is the wavelength?

 b. What is the period of the vibration?

 c. What is the amplitude of the wave?

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 c. What is the period of the oscillation?

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 e. What is the average speed of a point on the string?

 f. How far will a point on the string travel in 24.0s?

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