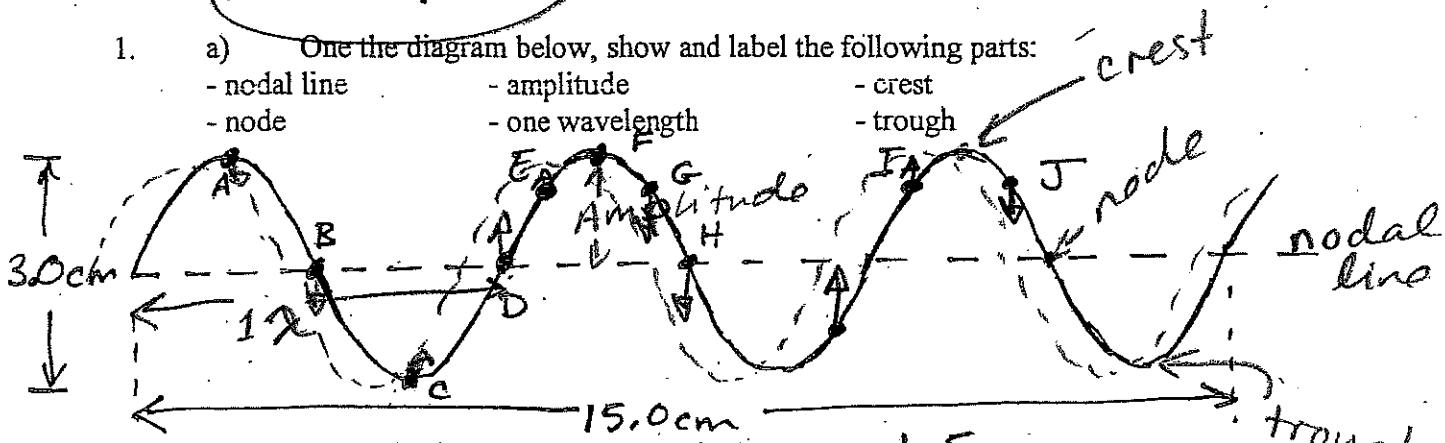
Bernabei Practice Oct. 2000

Physics 11 Quiz - Waves

Name: KEY **Block:** _____

1. a) On the diagram below, show and label the following parts:
   - nodal line - amplitude - crest
   - node - one wavelength - trough



b) Give the magnitude of: one amplitude: 1.5 cm
one wavelength: 5.0 cm

c) If the wave is moving to the LEFT, **on the diagram** show (with arrows) the direction of motion of each of the lettered particles (A, B, C, D, etc.).

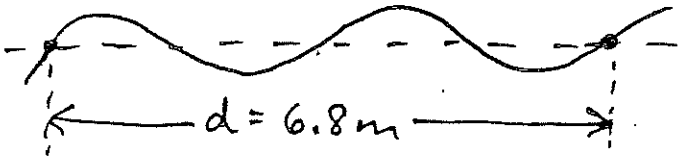
d) List all of the pairs of points that are perfectly **in phase**. AF BH EI GJ B+I

e) List all of the pairs of points that are perfectly **out of phase**. BD AC CF DH

2. Calculate the frequency of a tuning fork that vibrates 2.4×10^3 times in 56.0 seconds.

$$f = \frac{\#cycles}{time} = \frac{2.4\times10^3}{56.0\,s} = \boxed{42.9\,Hz}$$

3. The frequency of vibration of the string shown below is 5.8 Hz. What is the speed of the waves on the string?



$f = 5.8\,Hz$

$\lambda = \frac{6.8m}{2}$

$v = f\lambda = (5.8\,Hz)\left(\frac{6.8m}{2}\right)$

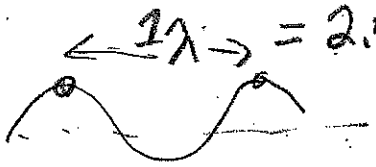
$\boxed{v = 2.0\times10^1\,m/s}$

4. How many vibrations would your eardrums experience in 4.0 seconds if your walkman is emitting sound at 2500.0 Hz?

$f = \frac{\#cycles}{t}$ $\therefore \#cycles = f\times t = (2500.0\,Hz)(4.0\,s)$

$\boxed{\#cycles = 1.0\times10^4\,cycles}$

5. The distance between crests in certain water waves is 2.5 m. The waves are observed to travel 15.0 m in 4.0 seconds. Calculate the frequency and period of the waves.



$v = \frac{d}{t} = \frac{15.0m}{4.0s}$

$v = f\lambda$ $\therefore f = \frac{v}{\lambda} = \frac{\left(\frac{15}{4}\right)m/s}{2.5m} = \boxed{1.5\,Hz}$