1. Define the following terms:
   a. Acoustics

science + tech. of sound

   b. Trough

low pt. of a transverse wave

   c. Crest

high pt. of " " "

   d. Wavelength

distance from 1 pt. in a wave to next similar pt

   e. Amplitude

dist. a waves moves from EQuilib.

   f. Wave speed

how fast a waves moves from place to place

   g. Frequency

how often a wave repeats

   h. Period

time for 1 complete cycle

   i. Pitch

"highness" or "lowness" of sound

   j. Harmonic motion

motion that repeats in cycles

   k. Cycle

unit of motion that repeats

   l. Wave

travelling oscillation - has freq. / amplitude

m. Transverse wave

matter is disturbed perpendicular to wave dir.

n. Longitudinal wave

matter is disturbed parallel " " "

2. How are frequency and period related?

inversely ($f = \frac{1}{per}$) ($per = \frac{1}{f}$)

3. What is the unit of frequency?

Hertz (Hz)

4. If a wave has a frequency of 2 Hz, what is its period?

1/2 sec

5. If a wave has a period of 0.5 seconds, what is its frequency?

1/0.5 Hz = 2 Hz

6. If a pendulum swings back and forth one time every 1.6 seconds, what is its period?

1.6 sec

7. If an electric tooth brush vibrates 65 times each second, what is the frequency?

65 Hz

8. What is the unit for measuring the strength or intensity of a sound?

decibels

9. What property of a sound wave is related to its pitch?

FREQUENCY / WAVELENGTH

10. What property of a sound wave is related to its loudness?

AMPLITUDE

11. What causes a pendulum to swing back and forth?

GRAVITY

12. In the lab "Harmonic Motion," which variable affected the period of the pendulum the most?

LENGTH of string

13. What symbol do we use to indicate wavelength?

λ

14. What kind of wave is a sound wave?

LONGITUDINAL

15. What kind of wave is a microwave?

TRANSVERSE

16. What kind of wave is a water wave?

TRANSVERSE

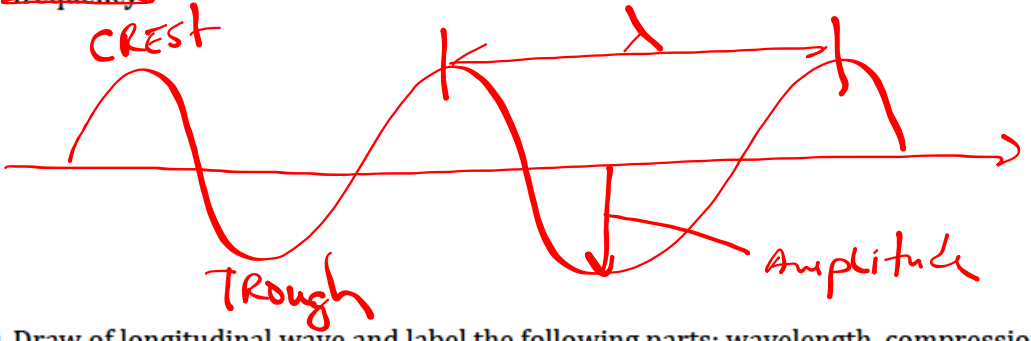
17. What kind of wave is an X-ray?

TRANSVERSE

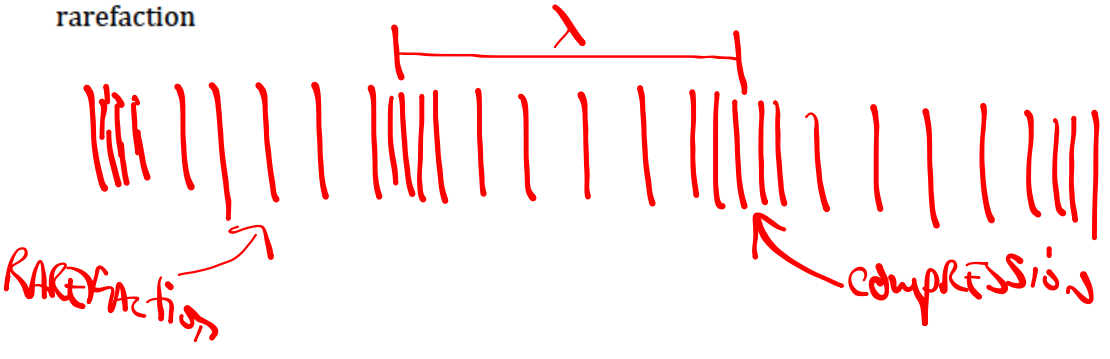
18. What is the formula relating wave speed, wavelength and frequency?

$V = f\lambda$

19. Draw a transverse wave and label the following parts: crest, trough, wavelength, ~~frequency~~



20. Draw of longitudinal wave and label the following parts: wavelength, compression, rarefaction



21. Do waves carry matter from place to place? If not, what DO waves carry from place to place?

NO – ENERGY

22. If a wave has a frequency of 400 Hz and a wavelength of 1.5 m, what is the speed of this wave? (show your work, don't forget sig digs!)

$v = f\lambda$

$v = (400\,Hz)(1.5\,m) = 600\,m/s$

23. If a wave has a wavelength of 0.05 m and is traveling at 70 m/s, what is the frequency of the wave? (show your work, don't forget sig digs!)

$f = \frac{v}{\lambda} = \frac{70\,m/s}{0.05\,m} = 1000\,Hz$

24. If a wave has a frequency of 500 Hz and is traveling at 1200 m/s, what is the wavelength of the wave? (show your work, don't forget sig digs!)

$\lambda = \frac{v}{f} = \frac{1200\,m/s}{500\,Hz} = 2\,m$