**Section 1-1 and 1-2 Study Guide 1**

**Fill in the triangle and write out the four steps to solve the problems.**

S

1. Write out the equation – what are you solving for? S = W x F, F = S, W = S

F

W

W F

2. Plug in the numbers with units

3. Do the math

4. Write the answer with the units

**Give me an example of a unit of measurement that can be used in your answer for each of the following.**

Speed = cm/s m/s mm/s km/s

Wavelength = cm m mm km

Frequency = Hz

**If a wave travels at 672 cm/s and has a frequency of 32Hz, its wavelength would be?**

21

* 1. W = S 3. 32 672

F 64

32

32

0

* 1. 4. W = 21 cm

W = 672cm/s

32HZ

**If the wavelength of a wave is 40cm and its speed is 250cm/s what is its frequency?**

**6.25**

1. F = S 3. 40 250.00

W 240

100

80

200

200

0

1. F = 250cm/s

40cm 4. F = 6.25 Hz

**A wave on a guitar has a frequency of 18Hz and a wavelength of 26m. What is its speed?**

1. S= W x F 3. 26

X 18

208

26

468

1. S = 26m x 48 HZ 4. S = 468 m/s

**The speed of a wave on a rope is 255cm/s and its wavelength is 30cm. What is the frequency?**

**8.5**

1. F = S 3. 30 255.0

W 240

150

150

0

1. F = 255cm/s

30cm 4. F = 8.5 Hz

The speed of a wave on a guitar string is 560m/s and the frequency is 28000 Hz. What is the wavelength of the wave?

.02

1. W = S 3. 28000 560.00

F 56000

0

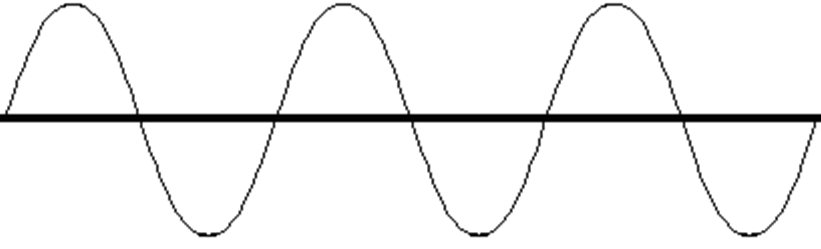
2. W = 560 m/s 4. W = .02 m

28000 HZ

**Draw a transverse wave and label:**

Rest position, amplitude, wavelength, crest and trough

Crest



wavelength

amplitude

Rest position

trough

**Draw a longitudinal wave and label:**

Rarefaction, compression, wavelength

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rarefaction

Compression

wavelength

**Write the correct word that goes with the following definitions:**

1. A wave that vibrates the medium at right angles or perpendicular to the direction in which the wave is travels. **Transverse wave**
2. A repeated back and forth or up and down motion**. Vibration**
3. A wave that requires a medium through which to travel. **Mechanical wave**
4. A wave that is the combination of a transverse wave and a longitudinal wave (it occurs at the surface between two mediums). **Surface wave**
5. A disturbance involving the transfer of energy from place to place. **Wave**
6. A wave in which the particles vibrate the medium in the same direction in which the wave travels (parallel). **Longitudinal wave**
7. How far the wave travels in a given amount of time. **Speed**
8. The maximum distance the medium vibrates from the rest position (rest to crest or rest to trough) **amplitude**
9. Material through which a wave travels. **Medium**
10. The number of waves that pass a given point in a certain amount of time. **Frequency**
11. The distance from any point on a wave to an identical point on the next wave. (crest to crest, trough to trough, compression to compression). **Wavelength**