Waves Review

1. Describe the differences and similarities between longitudinal waves and transverse waves? Give 1 example of each.

2. What travels faster light or sound? and through which mediums does light and sound travel through the fastest.

3. Draw out a wave and label the wavelength, amplitude, crest, trough, normal rest position.

4. What will happen to a light wave as it goes from air to water, draw a picture and explain why and what is happening.

5. A wave has a frequency of 20 Hz and a wavelength of 4 meters, what is its speed? You must write out the formula and show your work.

6. What is the wavelength of a wave that has a frequency of 550,000 Hz and a speed of 45,750 m/s?You must write out the formula and show your work.

7. What is the frequency of a wave that has a wavelength of 2.5 meters and a speed of 300,000 m/s? You must write out the formula and show your work.

8. An electromagnetic wave has a wavelength of 0.09 meters, what is its frequency? You must write out the formula and show your work.
*Hint: the speed of all electromagnetic waves is the same as the speed of light.

9. If a light wave hits a plane mirror with an angle of incidence of 80 degrees, then what is its angle of reflection? Show a picture of this, label **incident wave, reflected wave, normal, incident angle, reflected angle, mirror.**

10. Draw a picture illustrating constructive interference. Label wave 1, wave 2, and the wave that shows wave 1 and wave 2 added together.

11. Draw a picture illustrating destructive interference. Label wave 1, wave 2, and the wave that shows wave 1 and wave 2 added together.

12.Draw out the electromagnetic spectrum picture as found in your book.

13. What kind of waves do Cell Phones use to communicate?

14. Explain what Doppler Effect is. Draw a picture represent how the frequencies of the waves change.

15. What is a period?

16. Explain what a mechanical wave is.

17. What is resonance?

18. Explain the difference between refraction, reflection, and diffraction. Use a picture if needed.

19. Draw a picture of light waves interacting with a concave mirror and label the **focal point**.

20. Draw a picture of light waves interaction with a convex mirror.

21. Explain the difference between transparent, opaque, and translucent.

22. Explain how polarized sunglasses work.

23. Explain why we see rainbows.

24. Light acts like waves or particles?

25. Explain the difference between someone who is nearsighted and someone who is far sighted, then draw a picture to explain each.