**Name:**

**Date:**

**School:**

**Facilitator:**

9.03 Wave Calculations

**Complete the 10 wave problems below. You may use the following formulas to solve the problems. Remember to show your work, including identifying the given values.**

**Formulas:**

λ **=** $ \frac{v}{f}$ **v =** $\frac{d}{t}$

1. A radio wave has a frequency of 600,000 Hz and travels at a speed of 300,000,000 m/s. What is the wavelength of the radio wave?

1. A sonar pulse has a wavelength of 3.2 cm and a speed of 1,500 m/s in water. What is the frequency of the pulse? (HINT: Convert cm to m)

1. A seismic wave produced by an earthquake has a wavelength of 650 m and a frequency of 10 Hz. How fast does the wave travel?

1. A certain sound wave has a frequency of 440 Hz in air. The speed of sound in air is 340 m/s. What is the wavelength of the sound wave?

1. Sound travels at approximately 1,500 m/s in sea water. How far will a sonar pulse travel in 90 s?

1. It takes 5 s for a sonar pulse to travel to travel 6 km. What is the speed of the sonar pulse? (HINT: Convert km to m)

1. Middle C on a piano vibrates at 262 Hz. The sound waves produced by this string have a wavelength in air of 1.30 m. What is the speed of the sound waves?

1. What is the frequency of green light waves that have a wavelength of 5.2 x 10-7 m.? The speed of light is 3.0 x 108 m/s.

1. Middle A on a piano vibrates at 220 Hz. What is the wavelength of the sound waves produced by this string? The speed of sound is 340 m/s.

1. A satellite transmits a radio wave with a wavelength of 5.0 x 105 m. Calculate the frequency of the wave. The speed of light is 3.0 x 108 m/s