**Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Objective: Solve equations** relating wave speed to wavelength and frequency or period.

**Practice Problems - Wave Equation:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. A tuning fork produces a wave at 280 Hz and with a wavelength of 1.5 m. Calculate its velocity.

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| **given** | **work** | answer |
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1. A wave moves toward shore at 5.0 m/s. What is its wavelength if its frequency is 2.5 Hz?

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| **given** | **work** | answer |
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1. The speed of light is 3 × 108 m/s (300,000,000 m/s). Red light has a wavelength of 7 × 10-7 m (0.0000007 m). What is its frequency?

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| **given** | **work** | answer |
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1. A piano emits frequencies that range from a low of about 28 Hz to a high of about 4200 Hz. Find the range of wavelengths in air attained by this instrument when the speed of sound in air is 340 m/s.

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| **given** | **work** | answer |
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1. The speed of all electromagnetic waves in empty space is 3.00 x 108 m/s. Calculate the wavelength of electromagnetic waves emitted at the following frequencies?
2. Radio wave at 88.0 MHz

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| **given** | **work** | answer |
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1. Visible light at 6.0 x 108 MHz

|  |  |  |
| --- | --- | --- |
| **given** | **work** | answer |
|  |  |  |

1. X Ray at 3.0 x 1012 MHz

|  |  |  |
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| **given** | **work** | answer |
|  |  |  |

1. Red light emitted by He-Ne laser has a wavelength of 633 nm in air and travels at 3.00 x 108 m/s. Find the frequency of the laser light.

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| **given** | **work** | answer |
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