CONCEPT: SPEED OF LIGHT

- The **Speed of Light** is the product of wavelength and frequency, and in a vacuum travels at a speed of _____.
  - □ It is a physical constant and uses the variable of _____.

Speed of Light Formula

$c = \_\_\_ \bullet \_\_\_$

- □ ___ = Speed of Light
- □ ___ = Frequency in s^{-1} or Hz.
- □ ___ = Wavelength in m.

EXAMPLE: Calculate the frequency of the red light emitted by a neon sign with a wavelength of 663.8 nm.

PRACTICE: Even the music we listen to deals with how energy travels to get to our car radio. If an FM Radio station broadcasts its music at 97.7 MHz find the wavelength in angstroms of the radio waves. One angstrom is equal to 10^{-10} m.

CONCEPT: SPEED OF LIGHT

PRACTICE: The distance between the earth and the sun is 1.496×10^{17} μm. How long (in mins) will it take for light to go from the sun to earth?

PRACTICE: When they are burned, certain elements emit light at a specific wavelength. Some wavelengths for certain elements are provided below:

Standard Wavelengths

Element	Wavelength (λ) in nm
Ag	328.1
Ba	455.4
Cu	324.8
Na	589.6

When burned, an unknown element emits light at a frequency of 9.23×10^{14} s^{-1}. What is the identity of this unknown element?