

Answer on Question 68339, Physics, Other

Question:

What is the length of the wave whose frequency is 1 kHz?

Solution:

There is an inverse relationship between the frequency and the wavelength of the wave:

$$f = \frac{c}{\lambda}$$

here, f is the frequency, c is the speed of light in vacuum and λ is the wavelength.

So, from this formula we can find the wavelength λ :

$$\lambda = \frac{c}{f} = \frac{3.0 \cdot 10^8 \frac{m}{s}}{1.0 \cdot 10^3 \text{ Hz}} = 3 \cdot 10^5 \text{ m.}$$

Answer:

$$\lambda = 3 \cdot 10^5 \text{ m.}$$

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