

Light : $c = 299792458 \text{ m/s}$

$f = \text{frequency (Hz)}$

∴ All Electro magnetic waves

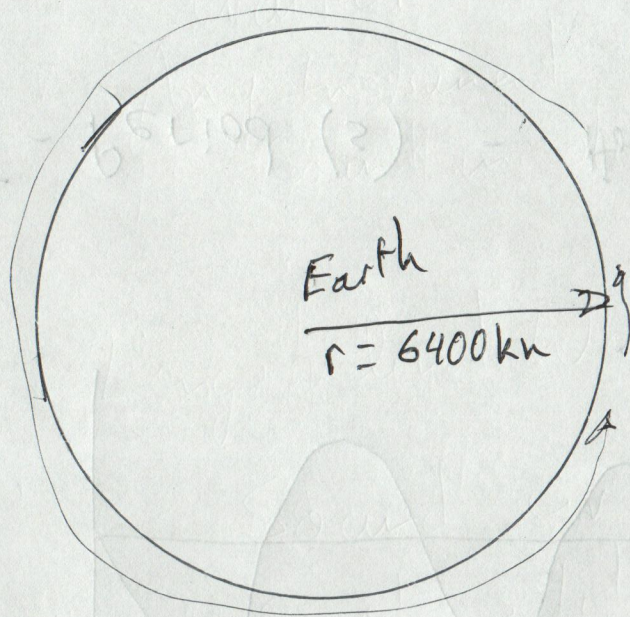
$\lambda = \text{wavelength (m)}$

$1 \text{ Hertz} = 1 \text{ Hz} = 1 \text{ cycle/s} = 1 \text{ s}^{-1}$

$1 \text{ Hz} = \frac{1}{\text{s}} = 1 \text{ s}^{-1}$

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6.



$r = 6.4 \times 10^6 \text{ m}$

$v = \frac{d}{\Delta t}$

$\text{Circum } d = 2\pi r$

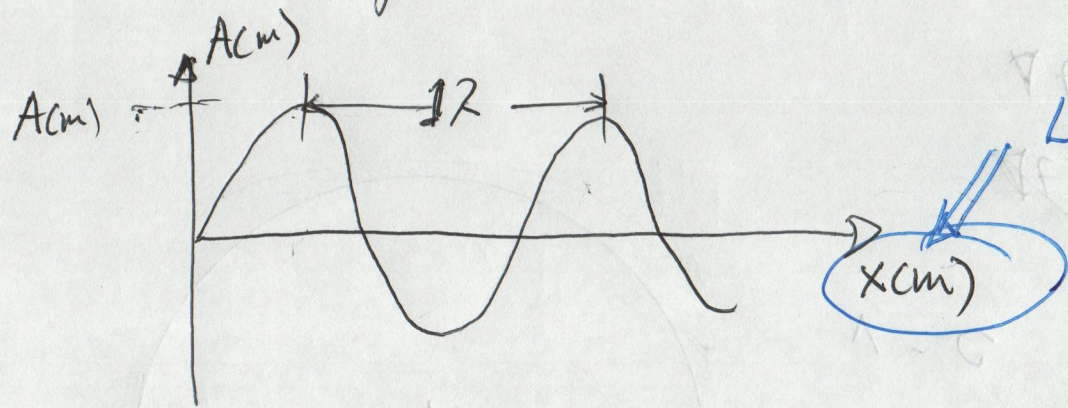
$\Delta t = \frac{d}{v} = \frac{2\pi r}{c}$

$v = c$

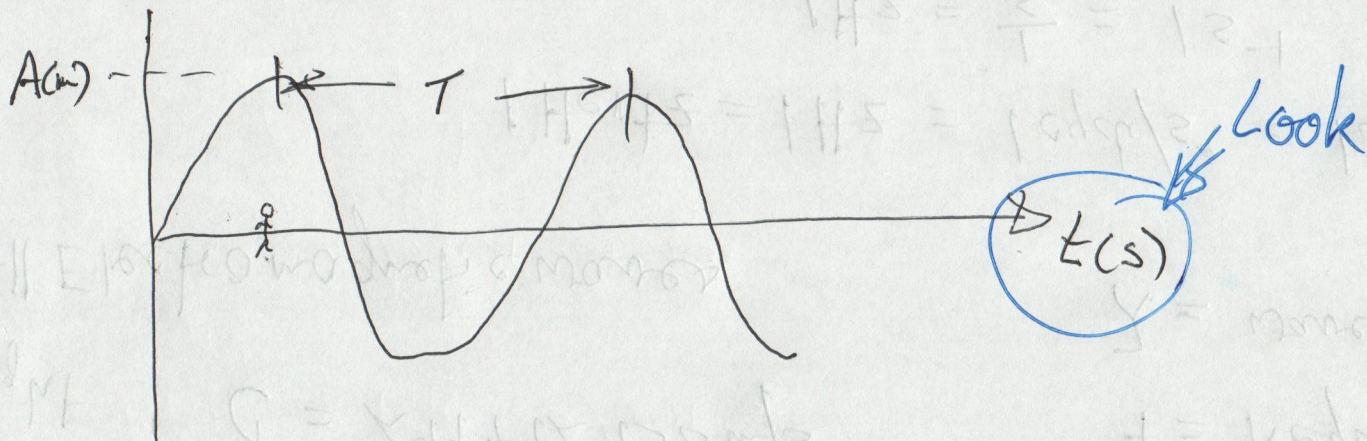
~~$\Delta t = 2\pi (3.00 \times 10^8 \text{ m/s})$~~

$\Delta t = \frac{2\pi (6.4 \times 10^6 \text{ m})}{3.00 \times 10^8 \text{ m/s}} = 0.134 \text{ s}$

λ - wavelength (m) = how far apart in space are two peaks



T - Period (s) - how long between peaks; standing in the same place



$$v = \frac{\lambda}{T}$$

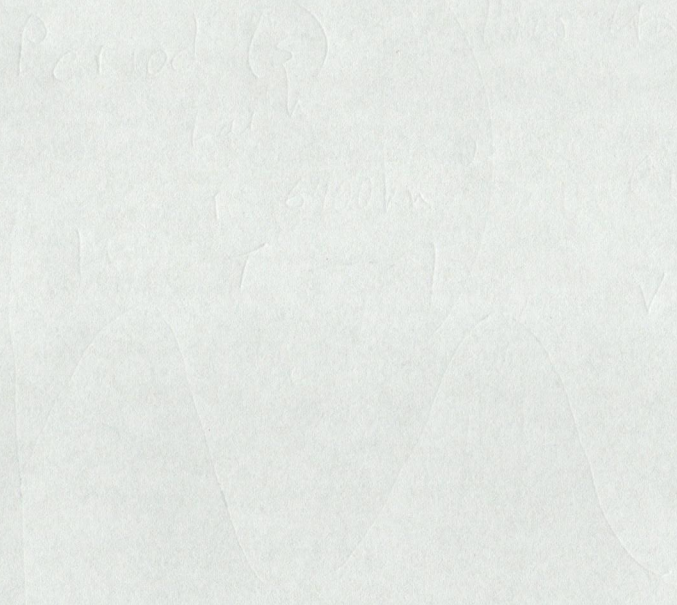
$$\text{Velocity} = \frac{\text{wavelength}}{\text{Period}}$$

Frequency f

$$f = \frac{1}{T}$$

velocity: $v = \lambda \cdot f$

$$1 \text{ Hz} = 1 \text{ s}^{-1}$$



$$\lambda = 2\pi (6.4 \times 10^6 \text{ m})$$

$$\frac{3.00 \times 10^8 \text{ m/s}}{2\pi (6.4 \times 10^6 \text{ m})} = 0.739 \text{ s}$$