Dear student,
Here are the answers of your question.

Question

Why do astronomers looking at distant galaxies talked about looking backward in time?

Solution

Light travels through the vacuum of space at a speed of 3×10^8 m s^{-1}. Thus an image we see from a distant star or galaxy must have been generated some time ago. For example, the star Altair is 16 lightyears away; if we look at an image of Altair taken today, we are actually seeing what Altair looked like 16 years ago. Hence we are effectively 'looking back in time'

Question
If water waves oscillate up and down three times each second and distance between wave crest is 2m what will its frequency? What is its wavelength? What is its wave speed?

Answer

The frequency of the wave is 3 Hz, its wavelength is 2 m, and its
Wave speed = Wavelength X frequency = 2 m X 3/s = 6 m/s. It is customary to express this, as the equation $v = \lambda f$ where v is wave speed, λ (the Greek letter lambda) is Wavelength, and (f is wave frequency)

Question

A transformer has N1=350 and N2=200 turns if input voltage is delta t what rme voltage is developed across the secondary v (t) = (170) volt cos coil?

Your statement of above question is incomplete, here is the complete statement.

A transformer has $N_1 = 350$ turns and $N_2 = 2\,000$ turns. If the input voltage is $\Delta v(t) = (170\ \text{V}) \cos \omega t$, what rms voltage is developed across the secondary coil?

Solution

$$(\Delta V_{\text{out}})_{\text{max}} = \frac{N_2}{N_1}(\Delta V_{\text{in}})_{\text{max}} = \left(\frac{2\,000}{350}\right)(170\ \text{V}) = 971\ \text{V}$$

$$(\Delta V_{\text{out}})_{\text{rms}} = \frac{(971\ \text{V})}{\sqrt{2}} = \boxed{687\ \text{V}}$$

Regards