Math

Explore

math program

Frequency Formula

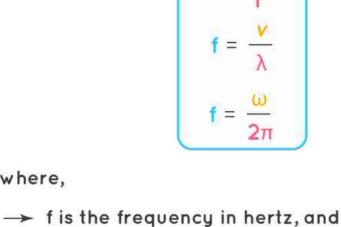
The frequency formula is used to find the frequency of a wave. Frequency is defined as the number of cycles completed per unit time. It also tells about how many crests go through a fixed point per unit time. Sometimes it is known as reciprocal of time. Frequency is expressed in Hertz(Hz). The frequency formula is used to find the frequency of the wave. Let us understand it better using solved examples.

Frequency is the total number of occurrences of a repeating

What is the Frequency Formula?

event per unit of the given time. There are different frequency formulas to calculate frequency depending upon the quantities known. The formula for the frequency of a wave is used to find frequency (f), time period (T), wave speed (V), and wavelength (λ). 1 Hertz refers to one cycle per second. Frequency Formula





T is the time to complete one cycle in seconds

where,

- v is the wave speed, and
- \rightarrow λ is the wavelength of the wave \rightarrow ω is the angular frequency
- **Frequency Formula**
- The frequency formula is given as,

Formula 1: The frequency formula in terms of time is given as:

f = 1/T

and wave speed is given as,

where, f is the frequency in hertz measured in m/s, and

Formula 2: The frequency formula in terms of wavelength

 $f = \nu/\lambda$ where,

• T is the time to complete one cycle in seconds

• ν is the wave speed in m/s, and

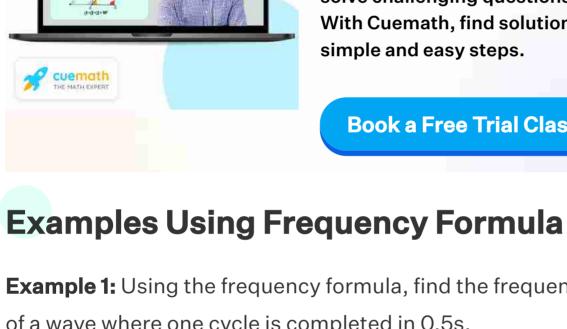
• λ is the wavelength of the wave in m Formula 3: Frequency in terms of angular frequency is

- articulated as,
- $f = \omega/2\pi$

where ω is the angular frequency Let us understand the frequency formula better through a

few solved examples.

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solve challenging questions.

Example 1: Using the frequency formula, find the frequency of a wave where one cycle is completed in 0.5s.

To find: Frequency

Solution:

Given:

Time = 0.5s

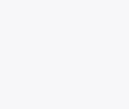
We use cookies on this site to enhance your experience. To learn more, visit our Privacy Pol **Answer: Frequency is 2Hz.**

To find: Frequency

Solution:

Using frequency formula f = 1 / T

Example 2: Find the frequency of lightwave when the



 $= 6 \times 10^{-7} \,\mathrm{m}$

wavelength of the light is 600nm.

Using frequency formula

Answer: Frequency is 5 ×10¹⁴ Hz.

takes 4 seconds to complete one cycle.

Given: Wavelength = $600 \text{ nm} = 600 \times 10^{-9} \text{ m}$

We know that the speed of the light = 3×10^8 m/s

 $f = 5 \times 10^{14} \text{ sec}^{-1}$

 $f = 3 \times 10^8 / 6 \times 10^{-7}$

 $f = \nu / \lambda$

Solution: To find: Frequency

Time = 4sUsing frequency formula

f = 1/4

Given:

Answer: Frequency is 0.25 Hz. FAQs on Frequency

f = 0.25

What is Frequency Formula?

f = 1 / T

Example 3: Determine the frequency of the pendulum that

What are the Applications of Frequency Formula?

What is 'T' in Frequency Formula? Math Topics Math Worksheets

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How is Frequency Formula Applied For the Given values?

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