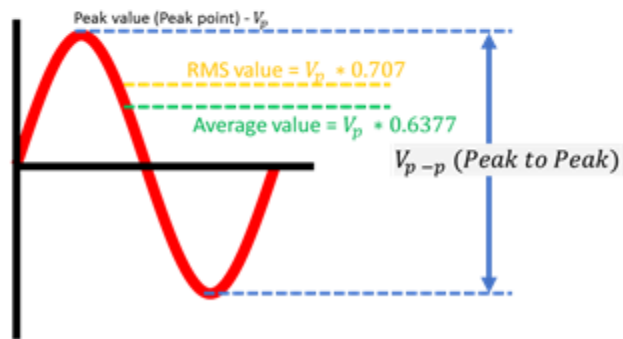


## Basic Concepts Associated with Waveforms

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## Basic Concepts Associated with Waveforms

### Introduction

Periodic waveforms have certain features such as frequency, time period, amplitude, peak value, peak to peak value, RMS value. Given hereby are some features associated with periodic waveforms



## Basic Concepts Associated with Waveforms

# Frequency

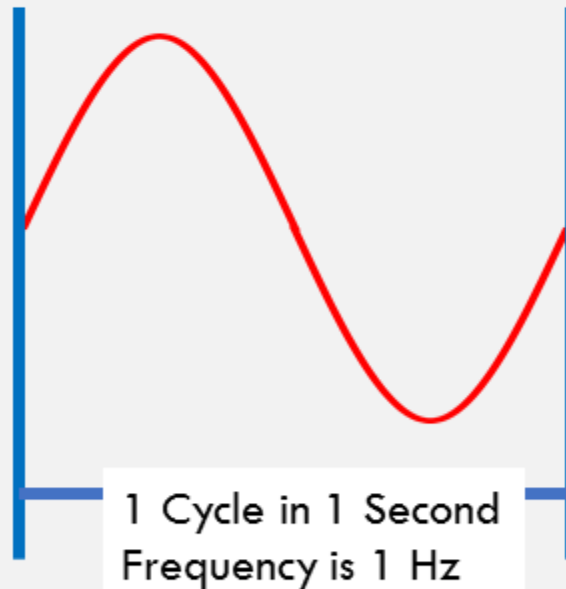
The number of cycles per second which a waveform covers is defined as its frequency

1. SI unit of frequency is Hertz
2. It is represented using symbol  $f$



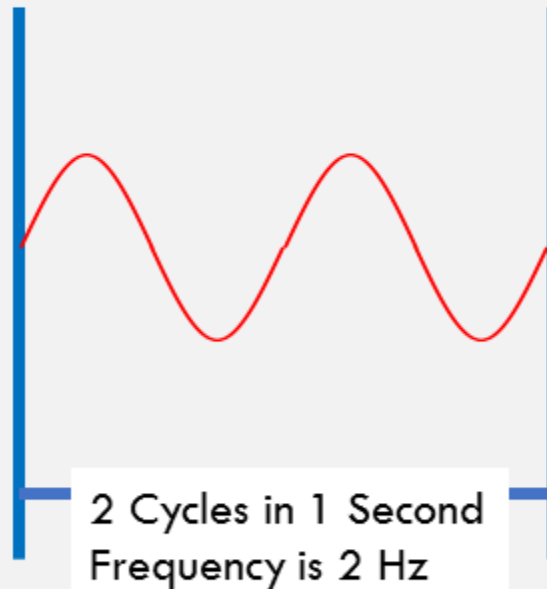
## Basic Concepts Associated with Waveforms

# Frequency



## Basic Concepts Associated with Waveforms

# Frequency



## Basic Concepts Associated with Waveforms

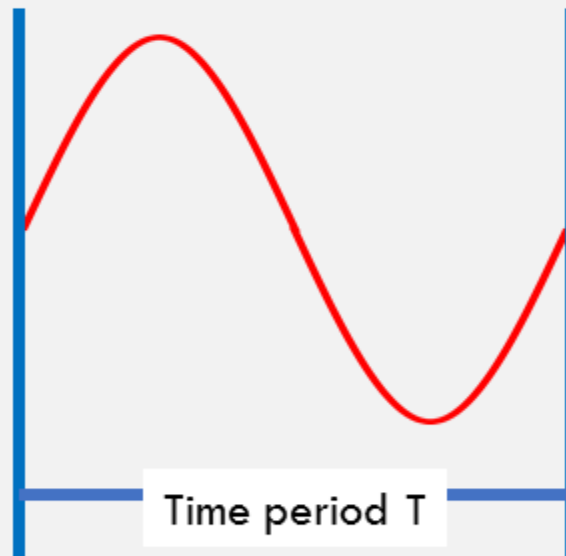
# Time Period

Time period is defined as the duration required to complete one cycle



## Basic Concepts Associated with Waveforms

# Frequency



## Relationship between Frequency & Time Period

$$\text{Time period} = \frac{1}{\text{Frequency}}$$

Find period of 60 Hz  
wave

$$T = \frac{1}{f} = \frac{1}{60} \\ = 16.66 \text{ ms}$$

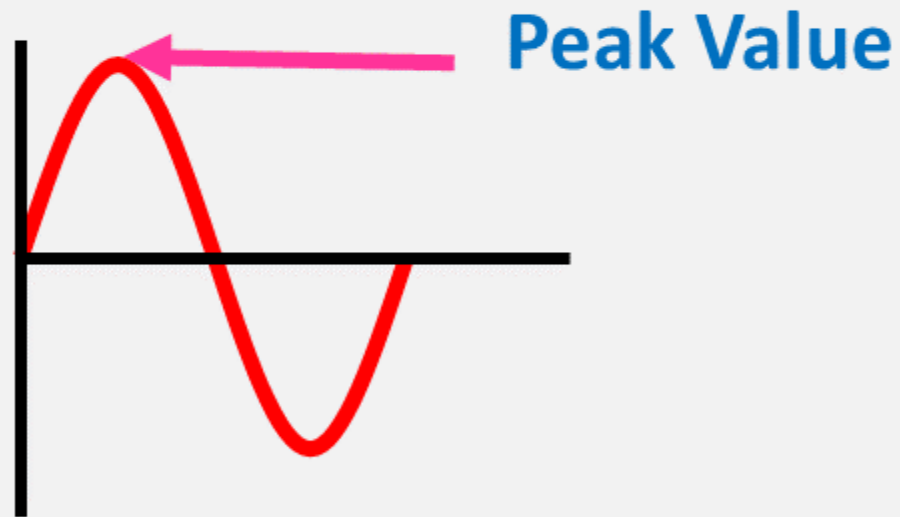
Find frequency of wave  
which completes one  
cycle in 0.5 second.

$$f = \frac{1}{T} = \frac{1}{0.5 \text{ s}} = 2 \text{ Hz}$$



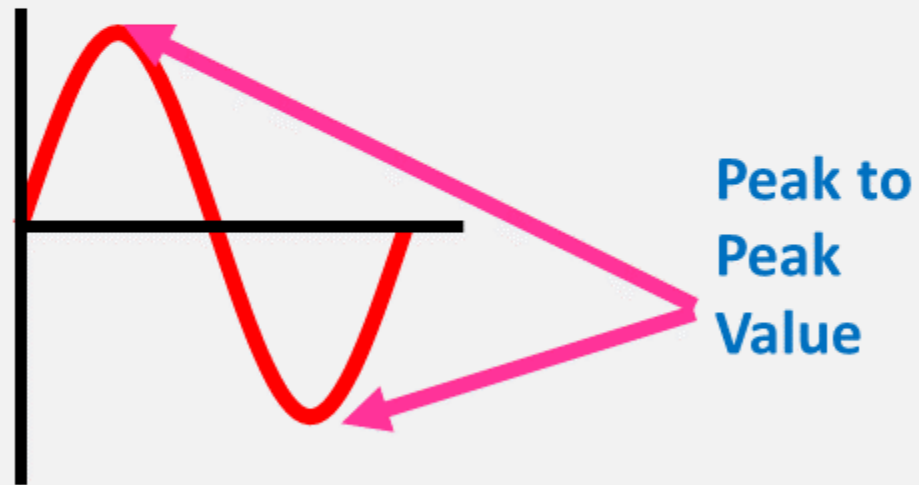
## Peak Value

Peak value is the maximum value with respect to zero



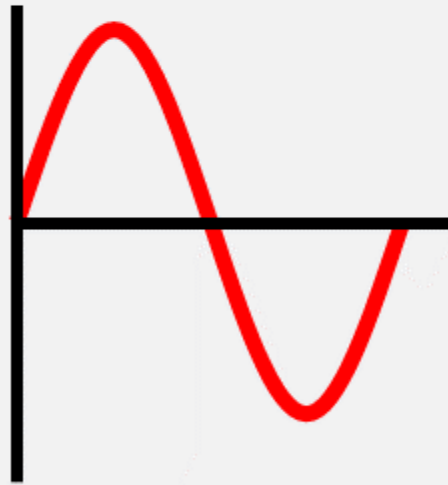
## Peak to Peak Value

Peak to peak value is measurement from peak and trough values

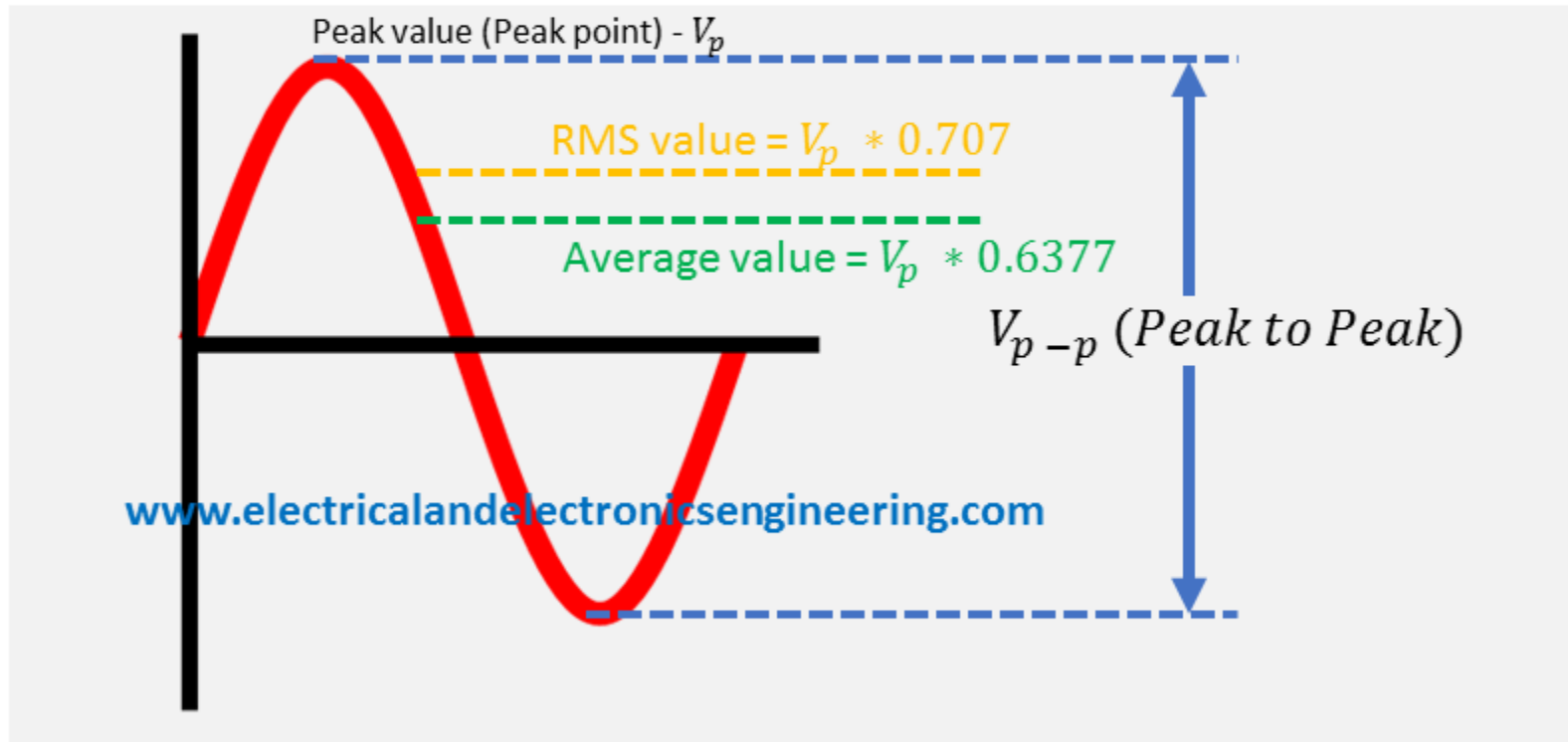


## Sine Wave

The wave shown here is a Sine Wave



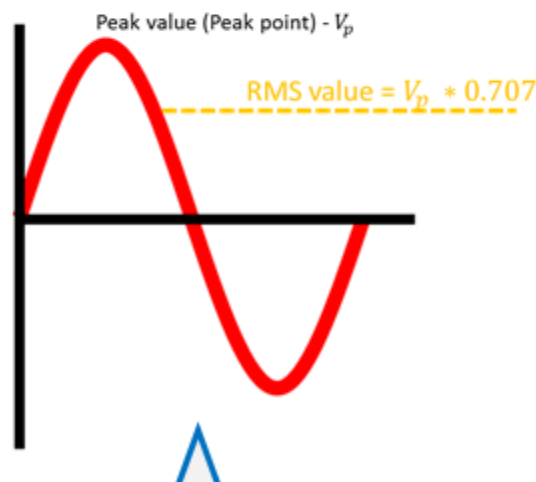
## In Sine Wave



## Effective value

An effective value is an equivalent dc value that a wave can provide

The effective values are also known as root mean square or rms values



## Average Value

Average value of waveform is defined as the area under curve divided by length of its base  
Given below is the average value of full sine wave



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The End

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