Peak and Effective Values (18:43)

Describe the amplitude of a sine wave.

Differentiate between the peak, or maximum, value and the peak to peak value for a sine wave.

Determine the + peak, the – peak, and peak to peak value of the function 100sin(x).

Evaluate the function 100sin(x) at x=40°, 60°, and 150°.

Determine the mathematical average value of the function 100sin(x).

Calculate the instantaneous current and power delivered when v(x) = 100V sin(x) is applied to a 250Ω load at x=0°, 40°, 60°, 90°, and 150°.

Describe the shape of current when sinusoidal voltage is applied to a purely resistive load.

Determine the expression for current as a function of angle x, i(x), when v(x)=100V sin(x) is applied to a 250Ω load.

Describe the maximum and minimum values of power when v(x)=100V sin(x) is applied to a 250Ω load.

Describe the shape of power when sinusoidal voltage is applied to a purely resistive load.

Determine the average power dissipated when v(x)=100V sin(x) is applied to a 250Ω load.

Determine the effective voltage when v(x)=100V sin(x) is applied to a 250Ω load.

Describe the means of quickly calculating effective values given peak values.

Draw a diagram illustrating the peak, peak to peak, and effective or RMS value of a sine wave.

Determine the instantaneous value of the following functions at the given angle, the peak value, the peak to peak value, and the effective or RMS value:

42.1V sin(151.6°)
30.8V sin(110.7°)
97.2V sin(10.0°)

Determine the x value which satisfies the condition 9.2V = 10.4Vsin(x), determine the peak value, the peak to peak value, and the effective or RMS value.

Determine the instantaneous value at 35°, the peak value, and the peak to peak value for sinusoidal voltage with an effective or RMS value of 120V.

Describe the relationship between peak and effective or RMS values with respect to their magnitudes.