Fourier Series.

Fourier Series. This illustrates Fourier's Theorem, which states that any complex periodic waveform can be constructed from the sum of a set of sinusoidal signals.

Rectangular Wave. This function plots the first five terms of a fourier series which approximates a squarewave.

Triangle Wave. This function shows the fourier approximation of a triangle wave.

Sawtooth. This is similar to a triangle wave, but is assymetric. Sawtooth waves are often used in electronics.

Half-Wave Rectifier. This function illustrates that the process of half-wave rectification of a sinewave produces harmonics which were not present in the original signal.

Full-Wave Rectifier. Similar to the above function for full-wave rectification.

If you wish to experiment with the fourier series, it is instructive to open the Define Function dialog after plotting one of the built-in functions, and change the parameters as you wish.