Estimation of Fourier Coefficient of a Periodic Signal
A Fourier series is an expansion of a periodic function in terms of the infinite sum of sines and cosines. Fourier series make use of the orthogonality relationships of the sine and the cosine functions. The computation and study of Fourier series is known as harmonic analysis and is extremely useful as a way to break up an arbitrary periodic function into a set of simple terms that can be plugged in, solved individually, and then recombined to obtain the solution to the original problem or an approximation to it to whatever accuracy is desired or practical.
Periodic Signal

- A signal is a periodic signal if it completes a pattern within a measurable time frame, called a period and repeats that pattern over identical subsequent periods.

- A period is defined as the amount of time (expressed in seconds) required to complete one full cycle.
Circuit Topology
Clock Pulse

Clock Pulse with 1:3 Gain
Clock Pulse Gain
With sine Function

Sine with [1, -1/2, 1/3] Gain
Fourier Coefficient Of periodic Signal
Conclusion

- The periodic signal is fed to the Gain block, where the gain obtained is passed through the sine block, the obtained gain parameters are converted into the sine wave parameters, based on the gain input the time period is adjusted and then the Fourier coefficient of the periodic signal is obtained using the Activate Tool.