Symmetry in Fourier Series

Even functions

\[ b_k = 0 \]

Odd functions

\[ a_k = 0 \]

Half-wave symmetric functions

\[ a_k, \ b_k = 0 \text{ for even } k \]

Fourier Series & Frequency Domain

https://en.wikipedia.org/wiki/Fourier_transform
Frequency Domain

https://www.falstad.com/fourier/Fourier.html

Application: Digital Communication
Applying Superposition

Calculated Output Voltage
Simulation Verification

Frequency Domain Interpretation
Reducing Capacitance

Complex Form of Fourier Series