

---

```
% fs3.m : FOURIER SERIES - PERIODIC TRIANGULAR PULSE SIGNAL
% Triangular Wave (20)
% Relatively good approximation of a triangle wave with 20 iterations
% This function is periodic and smooth so we know that a Fourier
% transform will represent this signal well, but this isn't a
% sinusoidal
% signal so it will be represented slightly worse

T = 2;                % T = period
t = -2*T:0.005:2*T;   % t = time axis

wo = 2*pi/T;          % fundamental frequency
c0 = 1/2;             % from the formula for c(k)
x = c0*ones(size(t)); % DC component of x(t)

Kv = 20;              % Number of sinusoids

figure(2)
clf
for k = 1:Kv

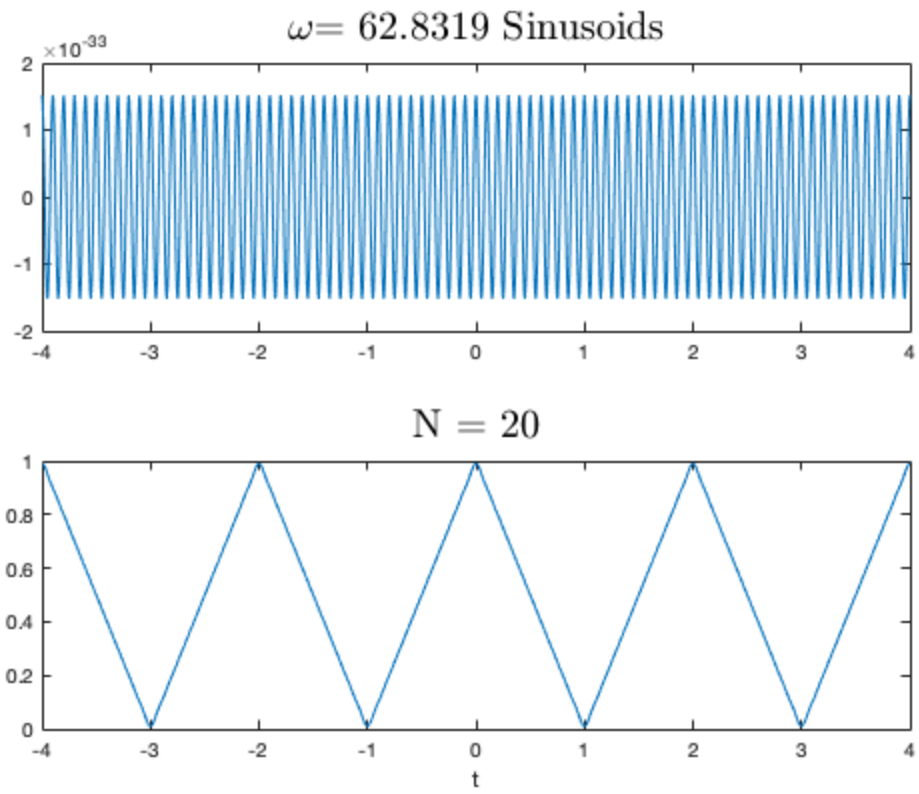
    ck = 1/T*(sinc(k/T))^2; % the formula for c(k)
    xk = 2*ck*cos(k*wo*t); % The kw0 sinusoids

    subplot(2,1,1)
    plot(t,xk);
    title(['$\omega$= ',num2str(k*wo),' Sinusoids'],...
        'FontSize',20,'Interpreter','latex')
    %hold on
    %hold off

    x = x + xk;           % Next iteration

    subplot(2,1,2)

    plot(t,x)
    xlabel('t')
    title(['N = ',num2str(k)],...
        'FontSize',20,'Interpreter','latex')
    pause(0.3)
end
```



*Published with MATLAB® R2018a*