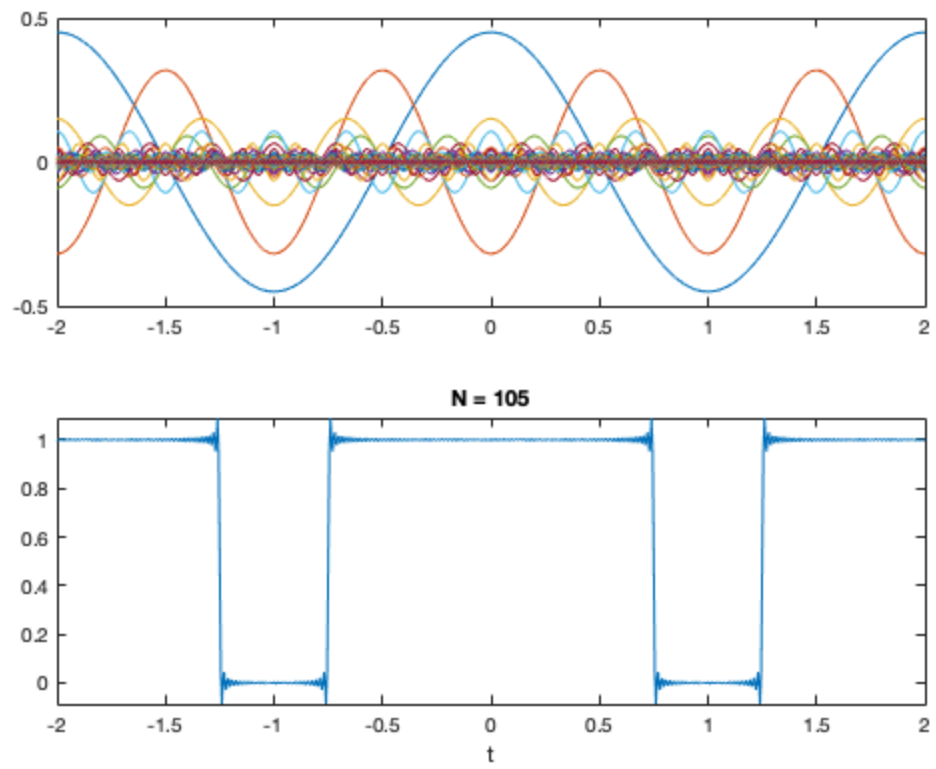

```
% fs1.m : FOURIER SERIES - PERIODIC RECTANGULAR PULSE SIGNAL
% Periodic Pulse Signal Convergence (105)
% Longest convergence due to the instantaneous spike characteristics
% of a
% pulse signal which needs a cos(infinity) for the vertical line
% resulting in the Gibb's Phenomena => continuously differentiable
% periodic function has a jump discontinuity resulting in "ears"

T = 2;                % T = period
Tp = 1.5;             % Tp = width of pulse
t = -T:0.005:T;       % t = time axis
wo = 2*pi/T;          % fundamental frequency
c0 = Tp/T;            % from the formula for c(k)
x = c0*ones(size(t)); % DC component of x(t)
figure(1)
clf

for k = 1:105
    figure(1)
    subplot(2,1,1)
    ck = Tp/T*sinc(k*wo*Tp/2/pi); % the formula for c(k)
    xk = 2*ck*cos(k*wo*t);        % Plotted y value
    plot(t,xk);                   % Aggregate plot of all cos
    functions
    hold on
    x = x + xk;                   % Next Iteration by adding next xk
    subplot(2,1,2)
    hold off
    plot(t,x)                     % Plot of mimicked pulse wave
    xlabel('t')
    title(['N = ',num2str(k)])
    pause(0.2)
end
```



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