
```

% Anthony Rosenblum
% EELE 203
% 6/4/2018
% ICA 24

t = [0:.1:10];

y = 0.5 + sin(t)/pi;
subplot(2,2,1),plot(t,y, 'k')

y = 0.5;
for m = 1:5;
    y = y + sin(m*t)/(m*pi);
end;

subplot(2,2,2),plot(t,y, 'k')

y = 0.5;
for m = 1:10;
    y = y + sin(m*t)/(m*pi);
end;
subplot(2,2,3),plot(t,y, 'k')

y = 0.5;
for m = 1:1000;
    y = y + sin(m*t)/(m*pi);
end;
subplot(2,2,4),plot(t,y, 'k')

% A smooth sawtooth is achieved at n = 1000 harmonics

clf RESET

Error using clo (line 40)
Unknown command option.

Error in clf (line 110)
clo(fig, extra{:});

Error in ica42314325423432432 (line 33)
clf RESET

```

2

```

T = 2 * pi;
A = 2;
ao = 0;
wo = 2*pi/T;
tf = 10;
dt = tf/1000;
t=0:dt:tf;

```

```
f=ao*ones(size(t));
num_harm=1000;
for n=1:2:num_harm
    bn = ((2*A)/(pi*n));
    f = f + bn * sin(n*wo*t);
end
plot(t,f)

% A proper square wave can be achieved around a harmonic number of
% 1000,
% with a time step of 1 ms. There is some distortion on the ends of
% the
% squares but this model is reasonably accurate.

% f = a0 * ones(size(t)) creates an array filled with the value a0 for
% every point in time
```

Published with MATLAB® R2017a