```matlab
% 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
```
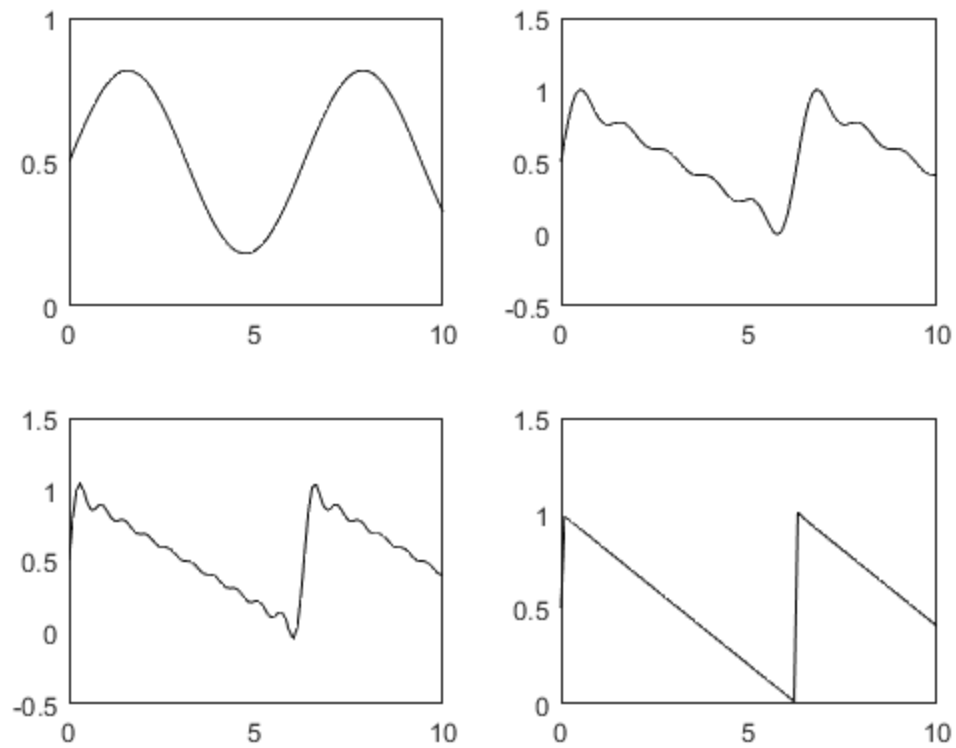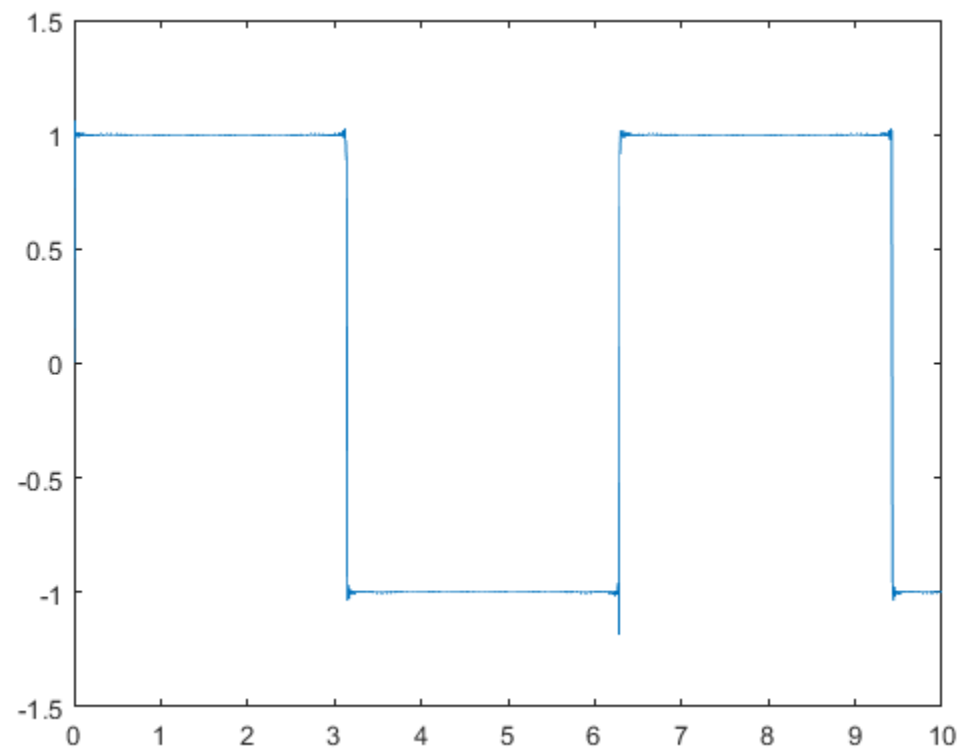
2

```
clf

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 ao for
% every point in time
```


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