Dan Wortmann, Lab 1, February 3rd 2014

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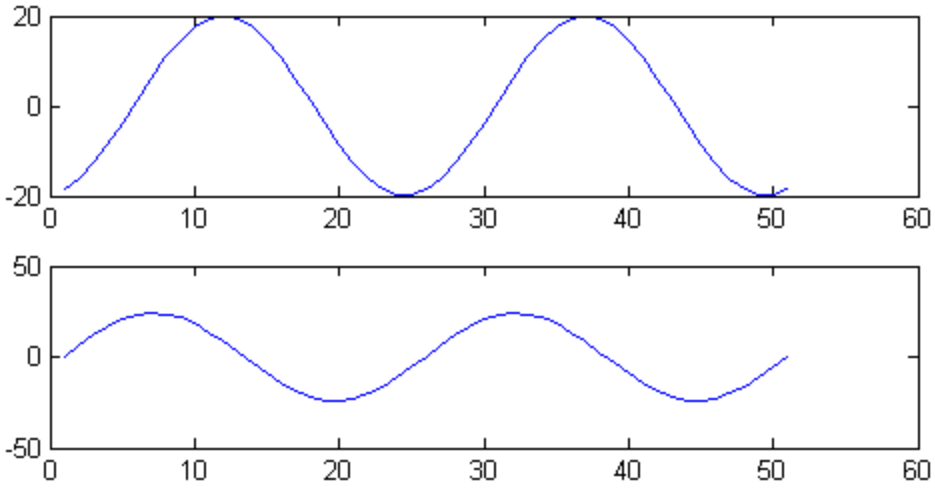
3.0(a)

```
f1 = 4000;
fs = f1*25;
T = 1/f1;
tt = -T:1/fs:T;
```

3.0(b)

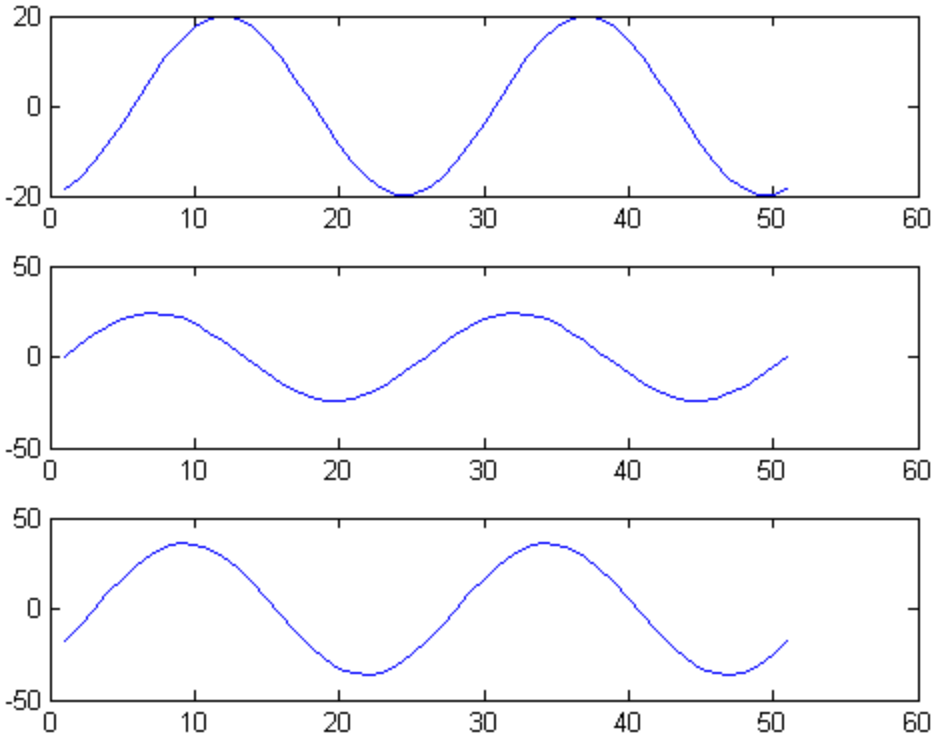
```
%Birthday = 05/15/1993
x1 = 20*cos( 2*pi*f1*(tt-(37.2/5)*T) );
x2 = 24*cos( 2*pi*f1*(tt+(41.3/15)*T) );

subplot(3,1,1),plot(x1);
subplot(3,1,2),plot(x2);
```



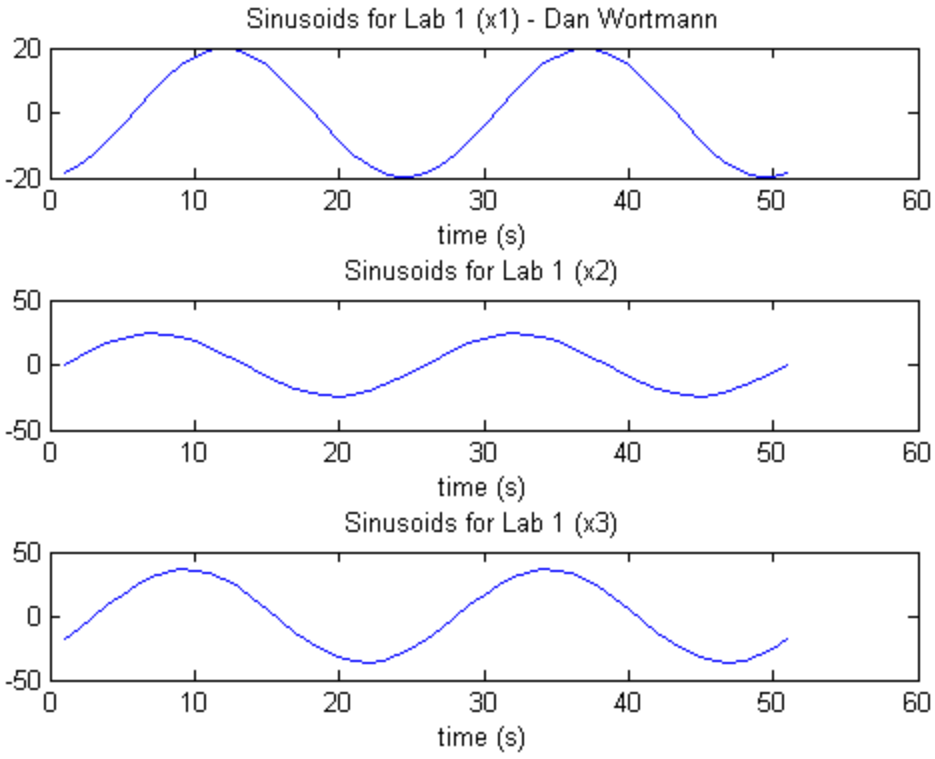
3.0(c)

```
x3 = x1 + x2;
subplot(3,1,3),plot(x3);
```



3.0(d)

```
%Titles
title(subplot(3,1,1),'Sinusoids for Lab 1 (x1) - Dan Wortmann');
title(subplot(3,1,2),'Sinusoids for Lab 1 (x2)');
title(subplot(3,1,3),'Sinusoids for Lab 1 (x3)');
%Axes
xlabel(subplot(3,1,1),'time (s)');
xlabel(subplot(3,1,2),'time (s)');
xlabel(subplot(3,1,3),'time (s)');
%orient
orient TALL;
%print
```



3.1(a)

- A1 = 20 t1 = 12 phi = 1.909 rad
- A2 = 24 t1 = 7 phi = 1.114 rad

3.1(b)

- A3 = 38.09 t1 = 9 phi = 1.430 rad

```
% The amplitudes and time peaks were found using the graphs
% by finding the first positive peak for the shift, and the
% largest value for the Amplitude (leading coefficient).
```

3.1(c)

- A3 = 40.59 phi = 1.470 rad

```
% Looks like the Amplitudes were a little apart, but the phase
% was very close after doing the complex addition.
```

3.2

```
% x1 = 20cos(8000pi*t + 1.909)
```

```
% w = 8000pi
% A = 20
%phi = 1.909

real( 20*exp(tt*8000j*pi) );
```

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