Lab 2

EEET-332-01:Signals, Systems, and Transforms

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1 Section 1

```
init()
t=linspace(0, 4*pi, 201)
w=0.5
phase=-pi/3
theta=w*t+phase;
y=(exp(1j*theta)+exp(-1j*theta))/2;
make_plot(t,y,"Section 1: Cosine Wave with 60 degree shift","Time (t)","Amplitude (y)")
```

2 Section 2

```
init()
x=linspace(0,10,1751)
num=[1 0 -16];
ynum=polyval(num,x)
den=[1 -4]
yden=polyval(den,x)
y=ynum./yden
k=find(isnan(y))
x(k)
y(k)=4
make_plot(x,y,"Section 2: (x^2-16)/(x-4)","x","y")
```

3 Section 3

```
init()
t=linspace(0,20,201);
ey=exp(-0.2.*t)
y=ey.*cos(t)
make_plot(t,y,"Section 3: Damping Equation")
```

4 Section 4

Identify the Euler Phasor and complex s variable.

a) $x(t) = 4\cos(5t + 60)$
$\overrightarrow{X} = 4\angle 60^\circ$
$s = j5$

b) $x(t) = 3\cos(2t + 12)$
$\overrightarrow{X} = 3\angle 12^\circ$
$s = j2$

c) $x(t) = \cos(t)$
$\overrightarrow{X} = 1\angle 0^\circ$
$s = j$