Lab 12 Post lab

Q1

```
 syms t
 x1 = sinc(5*t).*heaviside(t);
 x2 = heaviside(t+2);
 x = 4.*x1+3.*x2;

 X1 = fourier(x1);
 X2 = fourier(x2);
 X = fourier(x);

t=[-5:0.01:5];
w=[-2*pi:.1:2*pi];

x1 = sinc(5*t).*heaviside(t);
x2 = heaviside(t+2);
x = 4.*x1+3.*x2;

% X1(t) = (1/5) * rect(t/10)
X1 = (1/5).*rectangularPulse(-5, 5, w);  % rect(t/10) = rectangularPulse(-5,5,t)

% X2(f) = e^(j4πf) * [πδ(f) + 1/(j2πf)]
X2 = exp(1j.*4.*pi.* w).*(pi.*dirac(w) + 1./(1j.*2.*pi.*w));

X = 4.*X1+3.*X2;

subplot(311),plot(t,x,'linewidth',2),grid,title('plot of x(t)=4*x_1 (t)+ 3*x_2(t)')
subplot(312),plot(w,(4*X1+3*X2),'linewidth',2),grid,
title('plot of 4*X_1(w)+ 3*X_2 (w)')
subplot(313),plot(w,(X),'linewidth',2),grid,title('plot of X(w)')
```

Editor - C:\Users\hp\OneDrive\Desktop\Matlab\Lab 12\untitled8.m

untitled8.m

```
syms t
x1 = sinc(5*t).*heaviside(t);
x2 = heaviside(t+2);
x = 4.*x1+3.*x2;

X1 = fourier(x1);
X2 = fourier(x2);
X = fourier(x);

t=[-5:0.01:5];
w=[-2*pi:.1:2*pi];

x1 = sinc(5*t).*heaviside(t);
x2 = heaviside(t+2);
x = 4.*x1+3.*x2;

% X1(t) = (1/5) * rect(t/10)
X1 = (1/5).*rectangularPulse(-5, 5, w);  % rect(t/10) = rectangularPulse(-5,5,t)

% X2(f) = e^(j4πf) * [πδ(f) + 1/(j2πf)]
X2 = exp(1j.*4.*pi.* w).*(pi.*dirac(w) + 1./(1j.*2.*pi.*w));

X = 4.*X1+3.*X2;

subplot(311),plot(t,x,'linewidth',2),grid,title('plot of x(t)=4*x_1 (t)+ 3*x_2(t)')
subplot(312),plot(w,(4*X1+3*X2),'linewidth',2),grid,
title('plot of 4*X_1(w)+ 3*X_2 (w)')
subplot(313),plot(w,(X),'linewidth',2),grid,title('plot of X(w)')
```

Command Window

```
fx >>
```