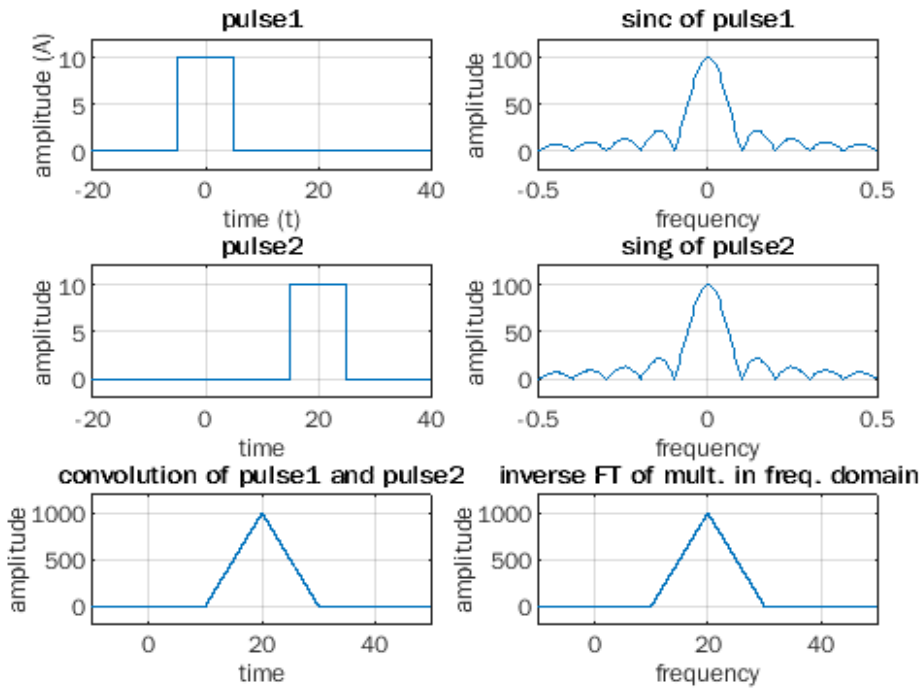
```
%2020UCO1505
%AIM - VERIFICATION OF CONVOLUTION PROPERTY OF FOURIER
%TRANSFORM
close all;
clear;
clc;
sf=10e1;
dt=1/sf;
W=10;
t=-100:dt:100;
x=10*rectpuls(t,W);
subplot(3,2,1);
plot(t,x);
axis([-20 40 -2 12]);
xlabel("time (t)");
ylabel('amplitude (A)');
title('pulse1')
grid on;
f=fft(x);
d=f.* dt;
N=length(f);
n=-(N-1)/2:(N-1)/2;
w=n/N/dt;
subplot(3,2,2);
plot(w,fftshift(abs(d)));
axis([-0.5 0.5 -20 120]);
xlabel('frequency')
ylabel('amplitude');
title('sinc of pulse1');
grid on;
x1=10*rectpuls((t-20),W);
subplot(3,2,3);
plot(t, x1);
axis([-20 40 -2 12]);
xlabel('time');
ylabel('amplitude');
title('pulse2')
grid on;
f1=fft(x1);
d=f1.*dt;
N=length(f1);
n=-(N-1)/2:(N-1)/2;
w=n/N/dt;
subplot(3,2,4);
plot(w,fftshift(abs(d)));
axis([-0.5 0.5 -20 120]);
xlabel('frequency')
1
ylabel('amplitude');
title('sing of pulse2');
grid on;
z=median(diff(t))*conv(x,x1, 'same');
```

```
subplot(3,2,5);
plot(t,z);
axis([-10 50 -200 1200]);
xlabel('time');
ylabel('amplitude');
title('convolution of pulse1 and pulse2');
grid on;
E=ifft(f.*f1);
E=E.*dt;
subplot(3,2,6);
plot(t,fftshift(E));
axis([-10 50 -200 1200]);
xlabel('frequency');
ylabel('amplitude');
title('inverse FT of mult. in freq. domain');
grid on;
```

```
ans =

     1
```



Published with MATLAB® R2022a