**AIM :-** TO VERIFY THE DIFFERENT PROPERTIES OF CONVOLUTION IN THE TIME AND FREQUENCY DOMAINS

clc;

clear;

N = 9;

x = -10:0.1:10;

y = sign(x+0.5)\*0.5 - sign(x-0.5)\*0.5;

z = sign(x+1) \* 0.5 - sign(x-5)\*0.5;

c = conv(y,z,'same');

fconv = fft(c);

f1 = fft(y);

f2 = fft(z);

size(c)

subplot(N,1,1)

plot(x,ifftshift(ifft(f1.\*f2)));

subplot(N,1,2)

plot(x,c);

subplot(N,1,3)

plot(x,real(fftshift(fconv)));

subplot(N,1,4)

plot(x,real(fftshift(f1.\*f2)));

subplot(N,1,5)

plot(x,real(conv(f1,f2,'same')));

subplot(N,1,6)

plot(x,real(fftshift(fft(y.\*z))));

yshift = y.\*exp(j\*2\*pi\*1\*x);

subplot(N,1,7)

plot(x,real(fftshift(fft(yshift))));

subplot(N,1,8)

plot(x,real(fftshift(f1)))

fshift = f1.\*real(exp(-j\*2\*pi\*1));

subplot(N,1,9)

plot(x,real(ifft(fshift)));



