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%Assignment 5
% Done by Mahmoud Yassin Mahmoud
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% Submitted To Dr. Wail A. Mousa
% Bism Allah and I will start with
%(Q1):
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
clc;
clear;
%-----
%defining time
syms w
n1 = -5:-1;
n2 = 0:2;
n3 = 3:5;
n = [n1 n2 n3] ;

%-----
h = [1/3 1/3 1/3];
hno=[zeros(1,length(n1)) h zeros(1,length(n3))]; %calculations of h[n]

%-----
H = sum(hno.*exp(-j*w*n));% H(w)

%-----
%ploting
subplot(311)
stem(n, hno)
title('plot of h[n]')
xlabel('n')
ylabel('h[n]')
grid minor

subplot(312)
ezplot(abs(H), [-pi pi])
grid minor
title('Magnitude of DTFT')
ylim([-0.5 1.5]);

subplot(313)
w1=-pi:(2*pi/512):pi-(2*pi/512); %Define w1 to be of 512 points.
L = subs(H,w,w1);
plot(w1, angle(L));
grid minor
xlim([-pi pi])
ylim([-5 5])
title('Phase of DTFT')

```

