DFT FUNCTION

function [XK]=dft(xn,N)

xn=[xn,zeros(1,N-length(xn))]

n=0:N-1;

k=0:N-1;

wN=exp(-j\*2\*pi/N);

nk=n'\*k;

wNnk=wN.^nk;

XK=xn\*wNnk;

End

IDFT FUNCTION

function [xn]=idft(XK,N)

n=0:N-1;

k=0:N-1;

WN=exp(-j\*2\*pi/N);

nk=n'\*k;

wNnk=WN.^-nk;

xn=1/N\*XK\*wNnk;

end

Q.1:

clc;

clear all;

close all;

xn=[1,2,3,4]

N=4

[XK]=dft(xn,N)

Q.2:

clc;

clear all;

close all;

xn=[1,2,3,4]

N=8

[XK]=dft(xn,N)

Q.3:

clc;

clear all;

close all;

xn=[1,2,3,4]

N=16

[XK]=dft(xn,N)

Q.4:

clc;

clear all;

close all;

xn=[1,2,3,4]

N=4

[XK]=dft(xn,N)

[xn]=idft(XK,N)

Q.5:

clc;

clear all;

close all;

xn=[1,2,3,4]

N=8

[XK]=dft(xn,N)

[xn]=idft(XK,N)

Q.6:

clc;

clear all;

close all;

x1=[2,1,2,1]

N=4

[XK1]=dft(x1,N)

x2=[1,2,3,4]

[XK2]=dft(x2,N)

XK=XK1.\*XK2

[xn]=idft(XK,N)