clc;

close all;

x1=[1 2 3 4 5 2 3 1];

x2=[1 1 3 2 5 4 3 2];

L=length(x1);

L1=length(x2);

N=8;

x3=[x1 zeros(1,(N-L))];

x4=[x2 zeros(1,(N-L1))];

for k=0:1:N-1;

X1(k+1)=0;

X2(k+1)=0;

for n=0:1:N-1;

X1(k+1)=X1(k+1)+(x3(n+1)\*exp((-2\*pi\*1i\*k\*n)/N));

X2(k+1)=X2(k+1)+(x4(n+1)\*exp((-2\*pi\*1i\*k\*n)/N));

end

end

display(X1)

X2

subplot(4,1,1),stem(abs(X1));

title('magnitude plot');

subplot(4,1,2),stem(angle(X1));

title('phase plot');

subplot(4,1,3),stem(abs(X2));

title('magnitude plot');

subplot(4,1,4),stem(angle(X2));

title('phase plot');

X1 =

Columns 1 through 7

21.0000 -6.1213 - 2.1213i -0.0000 + 1.0000i -1.8787 - 2.1213i 3.0000 + 0.0000i -1.8787 + 2.1213i -0.0000 - 1.0000i

Column 8

-6.1213 + 2.1213i

X2 =

Columns 1 through 7

21.0000 -6.1213 + 2.1213i 0.0000 - 1.0000i -1.8787 + 2.1213i 3.0000 + 0.0000i -1.8787 - 2.1213i -0.0000 + 1.0000i

Column 8

-6.1213 - 2.1213i

clc;

close all;

clear all;

x1=[1 2 3 4];

L=length(x1);

N=4;

l=2;

%x1=[x zeros(1,(N-L))];

for k=0:1:N-1;

X1(k+1)=0;

for n=0:1:N-1;

X1(k+1)=X1(k+1)+(x1(n+1)\*exp((-2\*pi\*1i\*k\*n)/N));

end

end

for k=0:1:N-1

X2(k+1)=X1(k+1)\*exp((-2\*pi\*i\*k\*l)/N);

end

for n=0:1:N-1;

x2(n+1)=0;

for k=0:1:N-1;

x2(n+1)=(x2(n+1)+(1/N)\*(X2(k+1)\*exp((2\*pi\*1i\*k\*n)/N)));

end

end

x1

x2

subplot(4,1,1),stem(abs(x1));

title('magnitude plot');

subplot(4,1,2),stem(angle(x1));

title('phase plot');

subplot(4,1,3),stem(abs(x1));

title('magnitude plot');

subplot(4,1,4),stem(angle(x1));

title('phase plot');

x1 =

1 2 3 4

x2 =

3.0000 + 0.0000i 4.0000 + 0.0000i 1.0000 - 0.0000i 2.0000 - 0.0000i

clc;

close all;

clear all;

x1=[2 1 2 1];

x2=[1 2 3 4];

L=length(x1);

L1=length(x2);

N=4;

x3=[x1 zeros(1,(N-L))];

x4=[x2 zeros(1,(N-L1))];

for k=0:1:N-1;

X1(k+1)=0;

X2(k+1)=0;

for n=0:1:N-1;

X1(k+1)=X1(k+1)+(x3(n+1)\*exp((-2\*pi\*1i\*k\*n)/N));

X2(k+1)=X2(k+1)+(x4(n+1)\*exp((-2\*pi\*1i\*k\*n)/N));

end

end

Y=X1.\*X2;

for n=0:1:N-1;

x5(n+1)=0;

for k=0:1:N-1;

x5(n+1)=(x5(n+1)+(1/N)\*(Y(k+1)\*exp((2\*pi\*1i\*k\*n)/N)));

end

end

x1

x2

x5

x1 =

2 1 2 1

x2 =

1 2 3 4

x5 =

14.0000 - 0.0000i 16.0000 + 0.0000i 14.0000 - 0.0000i 16.0000 - 0.0000i

>>

clc;

close all;

clear all;

x=[1 2 3 4];

L=length(x);

N=4;

l=2;

x1=[x zeros(1,(N-L))];

for k=0:1:N-1;

X1(k+1)=0;

for n=0:1:N-1;

X1(k+1)=X1(k+1)+(x1(n+1)\*exp((-2\*pi\*1i\*k\*n)/N));

end

end

for n=0:1:N-1;

x2(n+1)=x1(n+1)\*exp((2\*pi\*1i\*n\*l)/N);

end

for k=0:1:N-1;

X2(k+1)=0;

for n=0:1:N-1;

X2(k+1)=X2(k+1)+(x2(n+1)\*exp((-2\*pi\*1i\*k\*n)/N));

end

end

X1

X2

X1 =

10.0000 -2.0000 + 2.0000i -2.0000 - 0.0000i -2.0000 - 2.0000i

X2 =

-2.0000 + 0.0000i -2.0000 - 2.0000i 10.0000 -2.0000 + 2.0000i

>>