*//DIT-FFT*

*//Performed by Sonu Sharma T2b 630 EXTC B*

clc

x = input ( 'Enter the sequence' ) ;

N = length ( x )

n = 1 : N

k = 1 : N

w1 = exp ( - 1 \* %i \* 2 \* %pi ) ;

w2 = exp ( - 1 \* %i \* 4 \* %pi ) ;

for i = 1 : N

if ((( i + 1 ) / 2 ) == floor (( i + 1 ) / 2 ))

xe (( i + 1 ) / 2 ) = x ( i ) ;

else

xo ( i / 2 ) = x ( i ) ;

end

end

for k = 1 : N

G ( k ) = 0 ;

for n = 1 : N / 2

G ( k ) = G ( k ) + xe ( n ) \* w2 .^ n (( n - 1 ) \* ( k - 1 ))

end

end

for n = 1 : N

H ( k ) = 0 ;

for k = 1 : N / 2

H ( k ) = H ( k ) + xo ( n ) \* w2 .^ n (( n - 1 ) \* ( k - 1 ))

end

end

for k = 1 : N

X ( k ) = G ( k ) + w1 ^ ( n - 1 ) \* H ( k )

end

disp ( X, 'X = ' )

*//OUTPUT:*

*//Enter the sequence*

*// [1 2 3 4 5 6 7 8]*

*// X =*

*// 36. -4.+9.656.i -4.+4.i -4.+1.656.i -4. -4.-1.656.i -4-4.i -4.-9.656.i.*

*//DIT-IFFT*

*//Performed by : Sonu Sharma, T2b 630, EXTC B*

clc

x = input ( 'Enter the sequence' )

N = length ( x )

n = 1 : N

k = 1 : N

w1 = exp ( 1 \* %i \* 2 \* %pi ./ N )

w2 = exp ( 1 \* %i \* 4 \* %pi ./ N )

for ( i = 1 : N )

if ((( i + 1 ) / 2 ) == floor (( i + 1 ) / 2 ))

xe (( i + 1 ) / 2 ) = x ( i ) ;

else

xo ( i / 2 ) = x ( i ) ;

end

end

for ( k = 1 : N )

G ( k ) = 0

for ( n = 1 : N / 2 )

G ( k ) = G ( k ) + xe ( n ) \* w2 ^ (( n - 1 ) \* ( k - 1 ))

end

end

for ( k = 1 : N )

H ( k ) = 0

for ( n = 1 : N / 2 )

H ( k ) = H ( k ) + xo ( n ) \* w2 ^ (( n - 1 ) \* ( k - 1 )) ;

end

end

for ( n = 1 : N )

X ( n ) = G ( n ) + w1 ^ ( n - 1 ) \* H ( n ) ./ N

end

disp ( X, 'X= ' )

*//OUTPUT:*

*//Enter the sequence*

*//[36 -4+9.656\*%i -4+4\*%i -4+1.656\*%i -4 -4-1.656\*%i -4-4\*%i -4-9.656\*%i]*

*// X=*

*// 1. 2. 3. 4. 5. 6. 7. 8.*