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TRANSFORMADAS DE FOURIER

$X_n = [1, 8, 3, 1, 0, 0, 6, 2]$ $\quad x(K) = \sum_{n=0}^{N-1} x_n e^{-\frac{j2\pi Kn}{N}}$

	0	1	2	3	4	5	6	7	K
0	W_8^0	W_8^0	W_8^0	W_8^0	W_8^0	W_8^0	W_8^0	W_8^0	1
1	W_8^0	W_8^1	W_8^2	W_8^3	W_8^4	W_8^5	W_8^6	W_8^7	8
2	W_8^0	W_8^2	W_8^4	W_8^6	W_8^8	W_8^{10}	W_8^{12}	W_8^{14}	3
3	W_8^0	W_8^3	W_8^6	W_8^9	W_8^{12}	W_8^{15}	W_8^{18}	W_8^{21}	1
4	W_8^0	W_8^4	W_8^8	W_8^{12}	W_8^{16}	W_8^{20}	W_8^{24}	W_8^{28}	0
5	W_8^0	W_8^5	W_8^{10}	W_8^{15}	W_8^{20}	W_8^{25}	W_8^{30}	W_8^{35}	0
6	W_8^0	W_8^6	W_8^{12}	W_8^{18}	W_8^{24}	W_8^{30}	W_8^{36}	W_8^{42}	6
7	W_8^0	W_8^7	W_8^{14}	W_8^{21}	W_8^{28}	W_8^{35}	W_8^{42}	W_8^{49}	2

	0	1	2	3	4	5	6	7	
0	1	1	1	1	1	1	1	1	1
1	1	$\frac{\sqrt{2}}{2} - j\frac{\sqrt{2}}{2}$	$-j$	$-\frac{\sqrt{2}}{2} - j\frac{\sqrt{2}}{2}$	-1	$\frac{\sqrt{2}}{2} + j\frac{\sqrt{2}}{2}$	j	$\frac{\sqrt{2}}{2} + j\frac{\sqrt{2}}{2}$	8
2	1	$-j$	-1	j	1	$-j$	-1	j	3
3	1	$\frac{\sqrt{2}}{2} - j\frac{\sqrt{2}}{2}$	j	$\frac{\sqrt{2}}{2} - j\frac{\sqrt{2}}{2}$	-1	$\frac{\sqrt{2}}{2} + j\frac{\sqrt{2}}{2}$	$-j$	$-\frac{\sqrt{2}}{2} + j\frac{\sqrt{2}}{2}$	1
4	1	-1	1	-1	1	-1	1	-1	0
5	1	$-\frac{\sqrt{2}}{2} + j\frac{\sqrt{2}}{2}$	$-j$	$\frac{\sqrt{2}}{2} + j\frac{\sqrt{2}}{2}$	-1	$\frac{\sqrt{2}}{2} - j\frac{\sqrt{2}}{2}$	j	$\frac{\sqrt{2}}{2} - j\frac{\sqrt{2}}{2}$	0
6	1	j	-1	$-j$	1	j	-1	$-j$	6
7	1	$\frac{\sqrt{2}}{2} + j\frac{\sqrt{2}}{2}$	j	$-\frac{\sqrt{2}}{2} + j\frac{\sqrt{2}}{2}$	-1	$\frac{\sqrt{2}}{2} - j\frac{\sqrt{2}}{2}$	$-j$	$\frac{\sqrt{2}}{2} - j\frac{\sqrt{2}}{2}$	2

$X(0) = 1(1) + 8(1) + 3(1) + 1(1) + 0(1) + (0)1 + 6(1) + 2(1)$

$X(0) = \underline{21}$

$X(1) = 1(1) + 8\left(\frac{\sqrt{2}}{2} - j\frac{\sqrt{2}}{2}\right) + 3(-j) + 1\left(\frac{\sqrt{2}}{2} - j\frac{\sqrt{2}}{2}\right) + \emptyset + \emptyset + 6(j) + 2\left(\frac{\sqrt{2}}{2} - j\frac{\sqrt{2}}{2}\right)$

$X(1) = \underline{\left(\frac{2+9\sqrt{2}}{2} + \frac{10-7\sqrt{2}}{2}j\right)}$

$x(2) = 1 + 8(-j) + 3(-1) + 1(j) + 0 + 0 + 6(-1) + 2(j)$

$x(2) = \underline{(-7 - 6j)}$

$x(3) = 1(1) + 8\left(\frac{\sqrt{2}}{2} - j\frac{\sqrt{2}}{2}\right) + 3(j) + 1\left(\frac{\sqrt{2}}{2} - j\frac{\sqrt{2}}{2}\right) + 0 + 0 + 6(j) + 2\left(-\frac{\sqrt{2}}{2} + j\frac{\sqrt{2}}{2}\right)$

$x(3) = \underline{\left(\frac{2 - 9\sqrt{2}}{2} + \frac{6 - 5\sqrt{2}}{2}\right)}$

$x(4) = 1(1) + 8(-1) + 3(1) + 1(-1) + 0 + 0 + 6(1) + 2(-1)$

$x(4) = \underline{-1}$

$x(5) = 1(1) + 8\left(-\frac{\sqrt{2}}{2} - j\frac{\sqrt{2}}{2}\right) + 3(j) + 1\left(\frac{\sqrt{2}}{2} + j\frac{\sqrt{2}}{2}\right) + 0 + 0 + 6(j) + 2\left(\frac{\sqrt{2}}{2} - j\frac{\sqrt{2}}{2}\right)$

$x(5) = \underline{\left(\frac{2 - 9\sqrt{2}}{2} + \frac{12 - 7\sqrt{2}}{2}\right)}$

$x(6) = 1(1) + 8(j) + 3(-1) + 1(-j) + 0 + 0 + 6(-1) + 2(j)$

$x(6) = \underline{-8 - 5j}$

$x(7) = 1(1) + 8\left(\frac{\sqrt{2}}{2} + j\frac{\sqrt{2}}{2}\right) + 3(j) + 1\left(-\frac{\sqrt{2}}{2} + j\frac{\sqrt{2}}{2}\right) + 0 + 0 + 6(j) + 2\left(\frac{\sqrt{2}}{2} - j\frac{\sqrt{2}}{2}\right)$

$x(7) = \underline{(3 + \sqrt{2} + 3j)}$