C[m] $= 1/\mathrm{N} \sum_{n=0}^{N-1} x[n] * exp(-2 * PI * m * n * j/N) C[0] = 1/5 * \sum_{n=0}^{4} x[n] * exp(-2 * PI * 0 * n * j/5) = 1/5 * 8 * (cos(-2 * PI * 0 * 0/5) + j * sin(-2 * PI * 0 * 0/5)) +$
$1/5 * 8 * (cos(-2 * PI * 0 * 1/5) + j * sin(-2 * PI * 0 * 1/5)) + 1/5 * 8 * (cos(-2 * PI * 0 * 2/5) + j * sin(-2 * PI * 0 * 2/5)) +$
$1/5 * 8 * (cos(-2 * PI * 0 * 3/5) + j * sin(-2 * PI * 0 * 3/5)) + 1/5 * 8 * (cos(-2 * PI * 0 * 4/5) + j * sin(-2 * PI * 0 * 4/5)) =$
$0.6 + j * 0.0 = 0.6 * e^{0.0}$

A[0]$=\sqrt{REAL(C[0])^2 + IM(C[0)^2} = \sqrt{0.36 + 0.0} = 0.6$
$PHI[0] = arctgIM(C[0])/REAL(C[0) = arctg0.0/0.6 = 0.0$

C[1] $= 1/5^* \sum_{n=0}^{4} x[n] * exp(-2 * PI * 1 * n * j/5) = 1/5 * -7 * (cos(-2 * PI * 1 * 0/5) + j * sin(-2 * PI * 1 * 0/5)) +$
$1/5 * -7 * (cos(-2 * PI * 1 * 1/5) + j * sin(-2 * PI * 1 * 1/5)) + 1/5 * -7 * (cos(-2 * PI * 1 * 2/5) + j * sin(-2 * PI * 1 * 2/5)) +$
$1/5 * -7 * (cos(-2 * PI * 1 * 3/5) + j * sin(-2 * PI * 1 * 3/5)) + 1/5 * -7 * (cos(-2 * PI * 1 * 4/5) + j * sin(-2 * PI * 1 * 4/5)) =$
$2.41 + j * 3.49 = 4.24 * e^{0.97}$

A[1]$=\sqrt{REAL(C[1])^2 + IM(C[1)^2} = \sqrt{5.8081 + 12.1801} = 4.24$
$PHI[1] = arctgIM(C[1])/REAL(C[1) = arctg3.49/2.41 = 0.97$

C[2] $= 1/5^* \sum_{n=0}^{4} x[n] * exp(-2 * PI * 2 * n * j/5) = 1/5 * -6 * (cos(-2 * PI * 2 * 0/5) + j * sin(-2 * PI * 2 * 0/5)) +$
$1/5 * -6 * (cos(-2 * PI * 2 * 1/5) + j * sin(-2 * PI * 2 * 1/5)) + 1/5 * -6 * (cos(-2 * PI * 2 * 2/5) + j * sin(-2 * PI * 2 * 2/5)) +$
$1/5 * -6 * (cos(-2 * PI * 2 * 3/5) + j * sin(-2 * PI * 2 * 3/5)) + 1/5 * -6 * (cos(-2 * PI * 2 * 4/5) + j * sin(-2 * PI * 2 * 4/5)) =$
$1.29 + j * 0.31 = 1.33 * e^{0.24}$

A[2]$=\sqrt{REAL(C[2])^2 + IM(C[2)^2} = \sqrt{1.6641 + 0.0961} = 1.33$
$PHI[2] = arctgIM(C[2])/REAL(C[2) = arctg0.31/1.29 = 0.24$

C[3] $= 1/5^* \sum_{n=0}^{4} x[n] * exp(-2 * PI * 3 * n * j/5) = 1/5 * 1 * (cos(-2 * PI * 3 * 0/5) + j * sin(-2 * PI * 3 * 0/5)) + 1/5 * 1 * (cos(-2 * PI * 3 * 1/5) +$
$j * sin(-2 * PI * 3 * 1/5)) + 1/5 * 1 * (cos(-2 * PI * 3 * 2/5) + j * sin(-2 * PI * 3 * 2/5)) +$
$1/5 * 1 * (cos(-2 * PI * 3 * 3/5) + j * sin(-2 * PI * 3 * 3/5)) + 1/5 * 1 * (cos(-2 * PI * 3 * 4/5) + j * sin(-2 * PI * 3 * 4/5)) =$
$1.29 + j * -0.31 = 1.33 * e^{-0.24}$

A[3]$=\sqrt{REAL(C[3])^2 + IM(C[3)^2} = \sqrt{1.6641 + 0.0961} = 1.33$
$PHI[3] = arctgIM(C[3])/REAL(C[3) = arctg-0.31/1.29 = -0.24$

C[4] $= 1/5^* \sum_{n=0}^{4} x[n] * exp(-2 * PI * 4 * n * j/5) = 1/5 * 7 * (cos(-2 * PI * 4 * 0/5) + j * sin(-2 * PI * 4 * 0/5)) + 1/5 * 7 * (cos(-2 * PI * 4 * 1/5) +$
$j * sin(-2 * PI * 4 * 1/5)) + 1/5 * 7 * (cos(-2 * PI * 4 * 2/5) + j * sin(-2 * PI * 4 * 2/5)) +$
$1/5 * 7 * (cos(-2 * PI * 4 * 3/5) + j * sin(-2 * PI * 4 * 3/5)) + 1/5 * 7 * (cos(-2 * PI * 4 * 4/5) + j * sin(-2 * PI * 4 * 4/5)) =$

$2.41 + j * -3.49 = 4.24 * e^{-0.97}$

A[4]=$\sqrt{REAL(C[4])^2 + IM(C[4)^2} = \sqrt{5.8081 + 12.1801} = 4.24$
$PHI[4] = arctgIM(C[4])/REAL(C[4) = arctg-3.49/2.41 = -0.97$

————2————

X[0] = $\sum_{n=0}^{4} C[n] * exp(-2 * PI * 0 * n * j/5) = (0.6 + j * 0.0) * (cos(-2 * PI * 0 * 0/5) + j * sin(-2 * PI * 0 * 0/5)) +$
$(2.41 + j * 3.49) * (cos(-2 * PI * 0 * 1/5) + j * sin(-2 * PI * 0 * 1/5)) + (1.29 + j * 0.31) * (cos(-2 * PI * 0 * 2/5) + j * sin(-2 * PI * 0 * 2/5)) +$
$(1.29 + j * -0.31) * (cos(-2 * PI * 0 * 3/5) + j * sin(-2 * PI * 0 * 3/5)) + (2.41 + j * -3.49) * (cos(-2 * PI * 0 * 4/5) + j * sin(-2 * PI * 0 * 4/5)) =$
$(0.6 + j * 0.0) * (1.0 + j * 0.0) + (2.41 + j * 3.49) * (1.0 + j * 0.0) +$
$(1.29 + j * 0.31) * (1.0 + j * 0.0) + (1.29 + j * -0.31) * (1.0 + j * 0.0) + (2.41 + j * -3.49) * (1.0 + j * 0.0) = 8.0 + j * 0.0$

X[1] = $\sum_{n=0}^{4} C[n] * exp(-2 * PI * 1 * n * j/5) = (0.6 + j * 0.0) * (cos(-2 * PI * 1 * 0/5) + j * sin(-2 * PI * 1 * 0/5)) +$
$(2.41 + j * 3.49) * (cos(-2 * PI * 1 * 1/5) + j * sin(-2 * PI * 1 * 1/5)) + (1.29 + j * 0.31) * (cos(-2 * PI * 1 * 2/5) + j * sin(-2 * PI * 1 * 2/5)) +$
$(1.29 + j * -0.31) * (cos(-2 * PI * 1 * 3/5) + j * sin(-2 * PI * 1 * 3/5)) + (2.41 + j * -3.49) * (cos(-2 * PI * 1 * 4/5) + j * sin(-2 * PI * 1 * 4/5)) =$
$(0.6 + j * 0.0) * (1.0 + j * 0.0) + (2.41 + j * 3.49) * (0.31 + j * 0.95) + (1.29 + j * 0.31) * (-0.81 + j * 0.59) + (1.29 + j * -0.31) * (-0.81 + j *$
$-0.59) + (2.41 + j * -3.49) * (0.31 + j * -0.95) = -6.9924 + j * 4.4408920985e - 16$

X[2] = $\sum_{n=0}^{4} C[n] * exp(-2 * PI * 2 * n * j/5) = (0.6 + j * 0.0) * (cos(-2 * PI * 2 * 0/5) + j * sin(-2 * PI * 2 * 0/5)) +$
$(2.41 + j * 3.49) * (cos(-2 * PI * 2 * 1/5) + j * sin(-2 * PI * 2 * 1/5)) + (1.29 + j * 0.31) * (cos(-2 * PI * 2 * 2/5) + j * sin(-2 * PI * 2 *$
$2/5)) + (1.29 + j * -0.31) * (cos(-2 * PI * 2 * 3/5) + j * sin(-2 * PI * 2 * 3/5)) +$
$(2.41 + j * -3.49) * (cos(-2 * PI * 2 * 4/5) + j * sin(-2 * PI * 2 * 4/5)) = (0.6 + j * 0.0) * (1.0 + j * 0.0) +$
$(2.41 + j * 3.49) * (-0.81 + j * 0.59) + (1.29 + j * 0.31) * (0.31 + j * -0.95) + (1.29 + j * -0.31) * (0.31 + j * 0.95) + (2.41 + j * -3.49) * (-0.81 + j * -0.59) =$
$-6.0336 + j * 0.0$

X[3] = $\sum_{n=0}^{4} C[n] * exp(-2 * PI * 3 * n * j/5) = (0.6 + j * 0.0) * (cos(-2 * PI * 3 * 0/5) + j * sin(-2 * PI * 3 * 0/5)) +$
$(2.41 + j * 3.49) * (cos(-2 * PI * 3 * 1/5) + j * sin(-2 * PI * 3 * 1/5)) + (1.29 + j * 0.31) * (cos(-2 * PI * 3 * 2/5) + j * sin(-2 * PI * 3 *$
$2/5)) + (1.29 + j * -0.31) * (cos(-2 * PI * 3 * 3/5) + j * sin(-2 * PI * 3 * 3/5)) +$
$(2.41 + j * -3.49) * (cos(-2 * PI * 3 * 4/5) + j * sin(-2 * PI * 3 * 4/5)) =$
$(0.6 + j * 0.0) * (1.0 + j * 0.0) + (2.41 + j * 3.49) * (-0.81 + j * -0.59) + (1.29 + j * 0.31) * (0.31 + j * 0.95) +$
$(1.29 + j * -0.31) * (0.31 + j * -0.95) + (2.41 + j * -3.49) * (-0.81 + j * 0.59) = 1.0248 + j * 0.0$

X[4] = $\sum_{n=0}^{4} C[n] * exp(-2 * PI * 4 * n * j/5) = (0.6 + j * 0.0) * (cos(-2 * PI * 4 * 0/5) + j * sin(-2 * PI * 4 * 0/5)) +$
$(2.41 + j * 3.49) * (cos(-2 * PI * 4 * 1/5) + j * sin(-2 * PI * 4 * 1/5)) + (1.29 + j * 0.31) * (cos(-2 * PI * 4 * 2/5) + j * sin(-2 * PI * 4 *$
$2/5)) + (1.29 + j * -0.31) * (cos(-2 * PI * 4 * 3/5) + j * sin(-2 * PI * 4 * 3/5)) +$
$(2.41 + j * -3.49) * (cos(-2 * PI * 4 * 4/5) + j * sin(-2 * PI * 4 * 4/5)) =$

$(0.6 + j * 0.0) * (1.0 + j * 0.0) + (2.41 + j * 3.49) * (0.31 + j * -0.95) + (1.29 + j * 0.31) * (-0.81 + j * -0.59) +$
$(1.29 + j * -0.31) * (-0.81 + j * 0.59) + (2.41 + j * -3.49) * (0.31 + j * 0.95) = 7.0012 + j * 0.0$

SIGMA $= \sqrt{1/N * \sum_{n=0}^{N-1} x[n] - X[n]^2} = \sqrt{1/5 * \sum_{n=0}^{4} x[n] - X[n]^2} =$
$\sqrt{1/5 * ((8 - 8.0)^2 + (-7 - -6.9924)^2 + (-6 - -6.0336)^2 + (1 - 1.0248)^2 + (7 - 7.0012)^2)} =$
$\sqrt{1/5 * (0.0^2 + -0.0076^2 + 0.0336^2 + -0.0248^2 + -0.0012^2)} = 0.0189905239528$

————3————

8+-7+-6+1+7+0+0+0
8+7+-6+-1+7+0+0+0
8+-7+6+-1+7+0+0+0
8+7+6+1+7+0+0+0
8+-7+-6+1+-7+0+0+0
8+7+-6+-1+-7+0+0+0
8+-7+6+-1+-7+0+0+0
8+7+6+1+-7+0+0+0

[0.375, 1.875, 1.625, 3.625, -1.375, 0.125, -0.125, 1.875]

————4————

0.375+1.875+1.625+3.625+-1.375+0.125+-0.125+1.875
0.375+-1.875+1.625+-3.625+-1.375+-0.125+-0.125+-1.875
0.375+1.875+-1.625+-3.625+-1.375+0.125+0.125+-1.875
0.375+-1.875+-1.625+3.625+-1.375+-0.125+0.125+1.875
0.375+1.875+1.625+3.625+1.375+-0.125+0.125+-1.875
0.375+-1.875+1.625+-3.625+1.375+0.125+0.125+1.875
0.375+1.875+-1.625+-3.625+1.375+-0.125+-0.125+1.875
0.375+-1.875+-1.625+3.625+1.375+0.125+-0.125+-1.875

————5————

Z $= 1/\mathrm{N} * \sqrt{\sum_{n=0}^{N-1} x_1[n] * \sum_{n=0}^{N-1} x_2[n]} = 1/5 * \sqrt{\sum_{n=0}^{4} x_1[n] * \sum_{n=0}^{4} x_2[n]} =$
$1/5\sqrt{(8^2 + -7^2 + -6^2 + 1^2 + 7^2)^2} = 1/5 * (64 + 49 + 36 + 1 + 49) = 39.8$

r12[0] = 1/N*$\sum_{n=0}^{N-1} x[n] * x[n-1]$ = 1/5 * ($x[0] * x[0] + x[1] * x[1] + x[2] * x[2] + x[3] * x[3] + x[4] * x[4]$) = 1/5 * (8 * 8 + −7 * −7 + −6 * −6 + 1 * 1 + 7 * 7) = 1/5 * (8 * 8 + −7 * −7
+ −6 * −6 + 1 * 1 + 7 * 7) = 39.8

r12[1] = 1/N*$\sum_{n=0}^{N-1} x[n] * x[n-1]$ = 1/5 * ($x[0] * x[-1] + x[1] * x[0] + x[2] * x[1] + x[3] * x[2] + x[4] * x[3]$) = 1/5 * (8 * 0 + −7 * 8 + −6 * −7 + 1 * −6 + 7 * 1) = 1/5 * (8 * 0 + −7 * 8
+ −6 * −7 + 1 * −6 + 7 * 1) = −2.6

r12[2] = 1/N*$\sum_{n=0}^{N-1} x[n] * x[n-1]$ = 1/5 * ($x[0] * x[-2] + x[1] * x[-1] + x[2] * x[0] + x[3] * x[1] + x[4] * x[2]$) = 1/5 * (8 * 0 + −7 * 0 + −6 * 8 + 1 * −7 + 7 * −6) = 1/5 * (8 * 0 + −7 *
0 + −6 * 8 + 1 * −7 + 7 * −6) = −19.4

r12[3] = 1/N*$\sum_{n=0}^{N-1} x[n] * x[n-1]$ = 1/5 * ($x[0] * x[-3] + x[1] * x[-2] + x[2] * x[-1] + x[3] * x[0] + x[4] * x[1]$) = 1/5 * (8 * 0 + −7 * 0 + −6 * 0 + 1 * 8 + 7 * −7) = 1/5 * (8 * 0 + −7 *
0 + −6 * 0 + 1 * 8 + 7 * −7) = −8.2

r12[4] = 1/N*$\sum_{n=0}^{N-1} x[n] * x[n-1]$ = 1/5 * ($x[0] * x[-4] + x[1] * x[-3] + x[2] * x[-2] + x[3] * x[-1] + x[4] * x[0]$) = 1/5 * (8 * 0 + −7 * 0 + −6 * 0 + 1 * 0 + 7 * 8) = 1/5 * (8 * 0 + −7 *
0 + −6 * 0 + 1 * 0 + 7 * 8) = 11.2

B12[0] = r12[0]/Z = 39.8/39.8 = 1.0
B12[1] = r12[1]/Z = -2.6/39.8 = -0.0653266331658
B12[2] = r12[2]/Z = -19.4/39.8 = -0.48743718593
B12[3] = r12[3]/Z = -8.2/39.8 = -0.206030150754
B12[4] = r12[4]/Z = 11.2/39.8 = 0.281407035176