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Question no. 2
Values of w^{**}-(n^*k)
      where w = e^{(2*pi/N)}, N = 16, range of n, k is [0, 16)
for n = 0
         (1+0j)
         (1+0j)
for n = 1
         (1+0j)
         (0.9239 - 0.3827j)
         (0.7071-0.7071j)
         (0.3827 - 0.9239j)
         (-0-1j)
         (-0.3827 - 0.9239j)
         (-0.7071-0.7071j)
         (-0.9239 - 0.3827j)
         (-1+0j)
         (-0.9239+0.38271)
         (-0.7071+0.7071 i)
         (-0.3827+0.9239j)
         (0.+1j)
         (0.3827+0.9239j)
         (0.7071+0.7071j)
         (0.9239+0.3827j)
for n = 2
         (1+0j)
         (0.7071-0.7071j)
         (-0-1j)
         (-0.7071-0.7071j)
         (-1+0j)
         (-0.7071+0.7071j)
         (0.+1j)
         (0.7071+0.7071j)
         (1-0j)
         (0.7071-0.7071j)
         (-0-1j)
         (-0.7071-0.7071j)
         (-1+0j)
         (-0.7071+0.7071j)
         (0.+1j)
         (0.7071+0.7071j)
for n = 3
         (1+0i)
         (0.3827 - 0.9239j)
         (-0.7071-0.7071j)
         (-0.9239+0.3827j)
         (0.+1j)
         (0.9239+0.3827j)
         (0.7071-0.7071j)
         (-0.3827 - 0.9239j)
         (-1+0j)
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(-0.3827+0.9239j)
         (0.7071+0.7071j)
         (0.9239 - 0.3827j)
         (-0-1j)
         (-0.9239 - 0.3827j)
         (-0.7071+0.7071j)
         (0.3827+0.9239j)
for n = 4
         (1+0j)
         (-0-1i)
         (-1+0j)
         (0.+1j)
         (1-0j)
         (-0-1j)
         (-1+0j)
         (0.+1j)
         (1-0j)
         (-0-1j)
         (-1+0j)
         (0.+1j)
         (1-0j)
         (-0-1j)
         (-1+0j)
         (0.+1j)
for n = 5
         (1+0j)
         (-0.\overline{3}827 - 0.9239j)
         (-0.7071+0.7071j)
         (0.9239+0.3827j)
         (-0-1j)
         (-0.9239+0.38271)
         (0.7071+0.7071j)
         (0.3827 - 0.9239j)
         (-1+0j)
         (0.3827+0.9239j)
         (0.7071 - 0.7071 j)
         (-0.9239 - 0.3827j)
         (0.+1j)
         (0.9239 - 0.3827j)
         (-0.7071-0.7071j)
         (-0.3827+0.9239j)
for n = 6
         (1+0j)
         (-0.7071-0.7071j)
         (0.+1j)
         (0.7071 - 0.7071 j)
         (-1+0j)
         (0.7071+0.7071j)
         (-0-1j)
         (-0.7071+0.7071j)
         (1-0j)
         (-0.7071-0.7071j)
         (0.+1j)
         (0.7071-0.7071j)
         (-1+0j)
         (0.7071+0.7071j)
         (-0-1i)
         (-0.7071+0.7071j)
for n = 7
         (1+0j)
         (-0.9239-0.3827j)
         (0.7071+0.7071j)
         (-0.3827 - 0.9239j)
         (0.+1j)
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(0.3827 - 0.9239j)
         (-0.7071+0.70711)
         (0.9239 - 0.3827 j)
         (-1+0j)
         (0.9239+0.3827j)
         (-0.7071-0.7071\dot{1})
         (0.3827+0.9239j)
         (-0-1i)
         (-0.3827+0.9239j)
         (0.7071 - 0.7071 \dot{1})
         (-0.9239+0.3827j)
for n = 8
         (1+0j)
         (-1+0j)
         (1-0j)
         (-1+0j)
         (1-0j)
         (-1+0j)
         (1-0j)
         (-1+0j)
         (1-0j)
         (-1+0j)
         (1-0i)
         (-1+0j)
         (1-0j)
         (-1+0j)
         (1-0j)
         (-1+0j)
for n = 9
         (1+0j)
         (-0.9239+0.3827j)
         (0.7071-0.7071)
         (-0.3827+0.9239j)
         (-0-1i)
         (0.3827+0.9239j)
         (-0.7071-0.7071j)
         (0.9239+0.3827j)
         (-1+0j)
         (0.9239 - 0.3827j)
         (-0.7071+0.7071j)
         (0.3827 - 0.9239j)
         (0.+1j)
         (-0.3827 - 0.9239j)
         (0.7071+0.7071j)
         (-0.9239 - 0.3827j)
for n = 10
         (1+0j)
         (-0.7071+0.7071j)
         (-0-1j)
         (0.7071+0.7071j)
         (-1+0j)
         (0.7071-0.7071j)
         (0.+1j)
         (-0.7071-0.7071j)
         (1-0j)
         (-0.7071+0.7071j)
         (-0-1i)
         (0.7071+0.7071j)
         (-1+0j)
         (0.7071 - 0.7071 j)
         (0.+1j)
         (-0.7071-0.7071j)
for n = 11
         (1+0j)
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(-0.3827+0.9239j)
         (-0.7071-0.7071j)
         (0.9239 - 0.3827j)
         (0.+1j)
         (-0.9239 - 0.3827j)
         (0.7071-0.7071j)
         (0.3827+0.9239j)
         (-1+0i)
         (0.3827 - 0.9239 j)
         (0.7071+0.7071i)
         (-0.9239+0.3827j)
         (-0-1j)
         (0.9239+0.3827j)
         (-0.7071+0.7071j)
         (-0.3827 - 0.9239j)
for n = 12
         (1+0j)
         (0.+1j)
         (-1+0j)
         (-0-1i)
         (1-0j)
         (0.+1j)
         (-1+0i)
         (-0-1j)
         (1-0j)
         (0.+1j)
         (-1+0j)
         (-0-1j)
         (1-0j)
         (0.+1j)
         (-1+0j)
         (-0-1j)
for n = 13
         (1+0j)
         (0.3827+0.9239j)
         (-0.7071+0.7071j)
         (-0.9239 - 0.3827j)
         (-0-1j)
         (0.9239 - 0.3827j)
         (0.7071+0.7071j)
         (-0.3827+0.9239j)
         (-1+0j)
         (-0.3827 - 0.9239j)
         (0.7071 - 0.7071 i)
         (0.9239+0.3827j)
         (0.+1j)
         (-0.9239+0.3827j)
         (-0.7071-0.7071j)
         (0.3827 - 0.9239j)
for n = 14
         (1+0j)
         (0.7071+0.7071j)
         (0.+1j)
         (-0.7071+0.7071j)
         (-1+0j)
         (-0.7071-0.7071 \frac{1}{1})
         (-0-1i)
         (0.7071 - 0.7071 j)
         (1-0j)
         (0.7071+0.7071j)
         (0.+1j)
         (-0.7071+0.7071j)
         (-1+0j)
         (-0.7071-0.7071j)
         (-0-1j)
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(0.7071-0.7071j)
for n = 15
(1+0j)
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(0.9239+0.3827j) (0.7071+0.7071j)

(0.3827+0.9239j)

(0.+1j)

(-0.3827+0.9239j)

(-0.7071+0.7071j)

(-0.9239+0.3827j)

(-1+0j)

(-0.9239 - 0.3827j)

(-0.7071-0.7071j)

(-0.3827-0.9239j)

(-0-1j)

 $(0.38\overline{27} - 0.9239j)$

(0.7071-0.7071j)

(0.9239-0.3827j)