1. What kind of symmetry, if any, does the following signal have? The n=0 index is bolded and the sequence is zero outside the area shown.
   x[n]= [**8** 2+j -7 2-j]

   It is finite length, so the only type of symmetry possible is a periodic symmetry. To see if it has any symmetry, first form the periodic extension to the left of n=0:
   [2+j -7 2-j **8** 2+j -7 2-j]
   (e.g. from [**A** B C D] to [B C D **A** B C D])

   Next conjugate the elements for n<0
   [2-j -7 2+j **8** 2+j -7 2-j]

   Last, ask if the resulting conjugate periodic extension is even (then the original sequence is periodic conjugate symmetric) or odd (the original sequence is periodic conjugate antisymmetric).

   It is even, so: **periodic conjugate symmetric**.

2. In the sequence x[n] given in problem 1, find (using the correct N for the sequence):
   a. $x[\langle 3\rangle_N]$

      N = 4 for this sequence.
      $\langle 3\rangle_4$ means "add/subtract 4's from 3 until 3 is in range $0 \le n < 4$" = 3
      $x[\langle 3\rangle_4] = x[3] =$ **2-j**

   b. $x[\langle 7\rangle_N]$

      $\langle 7\rangle_4$ means "add/subtract 4's from 7 until 7 is in range $0 \le n < 4$" = 3
      $x[\langle 7\rangle_4] = x[3] =$ **2-j**

   c. $x^*[\langle -1\rangle_N]$

      $\langle -1\rangle_4$ means "add/subtract 4's from -1 until -1 is in range $0 \le n < 4$" = 3
      $x^*[\langle -1\rangle_4] = x^*[3] = (2-j)^* =$ **2+j**