Q1. If 20 MHz of total spectrum is allocated for a duplex wireless cellular system and each simplex channel has 25kHz RF bandwidth, find:
   (a) The number of duplex channels
   (b) The total number of channels per cell site, if N=4 cell reuse is used

Q2. If a total of 33 MHz of bandwidth is allocated to a particular FDD cellular telephone system which uses two 25 KHz simplex channels, compute the number of channels available per cell if a system uses
   (a) four-cell reuse
   (b) seven-cell reuse
   (c) 12 cell-reuse
If 1 MHz of the allocated spectrum is dedicated to control channels, determine an equitable distribution of control channels and voice channels in each cell for each of the three systems

Q3. A cellular system with a 13-cell reuse is considered.
   a- What are the values of i, j, and D/R
   b- Sketch the system layout on the attached figure
   c- If the total coverage area is 262.4 km2, and we have 1000 duplex channels, Cell radius = 1 km, what is the capacity of the system.
   d- What is the effect of each of the following on the capacity of the system
      • Increasing the total number of duplex channels to 1256
      • Decreasing the cell reuse to 7
      • Decreasing the cell radius to 0.5 km