Exercises on Basic Concepts of DIP
(Convolution)

1. For each two sequences, f[n1, n2] and h[n1,n2], sketch them and determine and sketch their convolution. Comment on your results. [Hint: embed f with zeros]

   a. f[n1,n2] = [(5,5,5,5,5), (5,0,0,0,5), (5,0,0,0,5), (5,0,0,0,5), (5,5,5,5,5)]
      h[n1,n2]=[(1,1),(0,0)]

   b. f[n1,n2] = [(5,5,5,5,5), (5,0,0,0,5), (5,0,0,0,5), (5,0,0,0,5), (5,5,5,5,5)]
      h[n1,n2]=[(1,0),(1,0)]

   c. f[n1,n2] = [(0,0,0,0,0), (0,0,0,0,0), (0,0,90,0,0), (0,0,0,0,0), (0,0,0,0,0)]
      h[n1,n2]=(1/9)[(1,1,1),(1,1,1),(1,1,1)]

   d. f[n1,n2] = [(0,0,0,5,5,5), (0,0,0,5,5,5), (0,0,0,5,5,5), (5,5,5,0,0,0),
      (5,5,5,0,0,0),(5,5,5,0,0,0)]
      h[n1,n2]=[(1,1,1),(1,-8,1),(1,1,1)]

   e. f[n1,n2] = [(0,0,0,0,0,5), (0,0,0,0,5,5), (0,0,0,5,5,5), (0,0,5,5,5,5),
      (0,5,5,5,5,5),(5,5,5,5,5,5)]
      h[n1,n2]=[(0,0,1),(0,1,0),(1,0,0)]

   f. f[n1,n2] = [(0,0,0,0,0,5), (0,0,0,0,5,5), (0,0,0,5,5,5), (0,0,5,5,5,5),
      (0,5,5,5,5,5),(5,5,5,5,5,5)]
      h[n1,n2]=[(1,0,0),(0,1,0),(0,0,1)]