CS 591.003: HW 1

Given the following vectors

x = [1, 3, 5, 7, 6, 8, 5, 2], y = [7, 11, 9, 6, 4, 3, 1, 3], z = [3, 5, 7, 9, 8, 7, 6, 5]

Calculate the following.

a) Haar wavelet transforms of x, y, z.

b) Fourier transforms of x, y, z.

c) Minkowski distances between (x,y), (y,z) and (z,x) for h = 1 and 2 using

c.0) the raw vectors.

c.1) the first 3 wavelet coefficients.

c.2) the largest 3 wavelet coefficients of x.

c.3) the largest 3 wavelet coefficients of y.

c.4) which one of the above approximations (c.2-c.4) matches the ordering of the distances from the raw vectors (c.0)?