Matrix Convolution.

Write the method int[][] convolve(int[][] src, int[][] kernel, int xAnchor, int yAnchor).

The resulting int[][] should be generated such that each (r, c) in the result is given by the sum of the results of offsetting the kernel by (r, c) into the source and multiplying the overlapping elements.

The origin of the kernel for the purposes of the offsets is given by (xAnchor, yAnchor).

If src =   
1 0 0 1 0 0 1 2  
1 0 0 1 2 0 1 0  
0 1 0 1 1 0 2 1  
3 3 3 3 3 3 3 3  
0 1 2 3 4 3 2 1  
0 2 0 1 0 2 0 1  
0 1 0 1 0 1 0 1  
0 0 0 1 0 0 0 1  
and kernel =  
-1 0 1  
-1 0 1  
-1 0 1  
then convolve(src, kernel, 1, 1) =  
0 -2 2 2 -2 0 2 -2  
1 -2 3 3 -3 1 3 -4  
4 -1 1 3 -2 0 1 -6  
5 2 2 3 -1 -1 -1 -7  
6 2 1 2 1 -2 -3 -5  
4 2 1 2 1 -2 -3 -2  
3 0 0 0 0 0 0 0  
1 0 1 0 -1 0 1 0

To calculate the value at row 3 column 2, the kernel is offset such that its anchor point is at (3, 2) giving the overlapping pairs (src, kernel):  
(1, -1) (0, 0) (1, 1)  
(3, -1) (3, 0) (3, 1)  
(1, -1) (2, 0) (3, 1)  
Then the two elements of each pair are multiplied giving the values {{-1, 0, 1}, {-3, 0, 3}, {-1, 0, 3}}.  
These values are then summed, giving the value 2.

What is the relationship of patterns in the original matrix to the result if you take the square root of the sum the squares of the results of convolving by ({{-3, 0, 3}, {-10, 0, 10}, {-3, 0, 3}}, 1, 1) and ({{-3, -10, -3}, {0, 0, 0}, {3, 10, 3}}, 1, 1)?

What is the relationship of patterns in the original matrix to the result if you convolve with the kernel ({{0, 1, 0}, {1, -4, 1}, {0, 1, 0}}, 1, 1)

What is the relationship of patterns in the original matrix to the result if you convolve with the kernel ({  
{30, 133, 219, 133, 30},  
{133, 596, 983, 596, 133},  
{219, 983, 1621, 983, 133},  
{133, 596, 983, 596, 133},  
{30, 133, 219, 133, 30}}, 2, 2)  
Then divide by 10000?