CS 3630

Practice Problems on Image Processing

1. What is the effect of convolving an image using the following filter:

    a. Convert the image to grayscale
    b. Blur the image
    c. Sharpen the image
    d. This is not a valid filter

1/9	1/9	1/9
1/9	1/9	1/9
1/9	1/9	1/9

2. You have taken an image of a scene that contains a single dominant plane (e.g., the front wall of a building) at unknown orientation, plus a smaller number of other scene points (e.g., from trees, poles and a street) that are not part of this plane. Describe the steps required to use RANSAC to detect the orientation of the plane in the scene from the scene points.

3. Give an example of a monadic (single pixel) image processing operation.

4. How do spatial convolutions, such as linear filtering, compare to monadic image processing? (1-2 sentences)

5. When running RANSAC, suppose 20% of the points are outliers, and we want to fit the correct line with 99% probability. How many iterations of RANSAC do we need?