Part I: Multiple-Choice Questions

1. A
2. A
3. A
4. C
5. B

Part II: Problem-Solving Question

We can use the following formula for RANSAC:

P = 1 - (1 - (1 - e)^n)^N

Where:

P is the desired probability of at least one inlier sample.

e is the proportion of outliers.

n is the number of points in a sample.

N is the number of samples.

Given:

P = 0.25

e = 0.25

The formula simplifies to:

0.25 = 1 - (1 - (1 - 0.25)^n)^N

0.25 = 1 - (1 – (0.75) ^ n )^N

- 0.75= - ( 1 - (0.75) ^ n )^ N

(1 -(0.75) ^ n )^ N = 0.75

N log( 1 – (0.75) ^ n) = log(0.75)

Therefore , N = log(0.75) / log( 1 – (0.75) ^ n)