

Name: _____ Roll Number: _____

1. (1 point) Which of the following is not an invariant under affine transformations?
A. Angles
B. Parallelism
C. Collinearity
D. Midpoints of line segments
2. (1 point) What is the minimum number of point correspondences required to estimate a 2D homography matrix?
A. 4
B. 3
C. 5
D. 6
3. (1 point) Which of the following methods is commonly used to estimate affine transformations from noisy point correspondences?
A. Pseudoinverse
B. Direct Linear Transform
C. Gradient Descent
D. Convolution
4. (1 point) When performing image warping, what is the common approach to avoid holes in the output image?
A. Use inverse mapping with interpolation.
B. Use forward mapping with interpolation.
C. Pad the image boundaries.
D. Apply a Gaussian filter.
5. (1 point) Which of the following can be the last row of an affine transformation matrix in \mathbb{P}^2 ?
A. $[1 \ 0 \ 0]$ **B. $[0 \ 0 \ 3]$** C. $[0 \ 0 \ 0]$ D. $[0 \ 1 \ 0]$
6. (1 point) True or False: A 2D affine transformation can represent translation, scaling, rotation, and shearing. **A. True** B. False
7. (1 point) True or False: An affine transformation is a special case of a homography. **A. True**
B. False
8. (1 point) True or False: Homographies can represent perspective transformations, unlike affine transformations. **A. True** B. False
9. (1 point) True or False: A homography can be estimated even if corresponding points in both images are collinear. **A. True** B. False
10. (1 point) True or False: Image warping with a homography requires knowledge of the transformation matrix beforehand. **A. True** B. False