4 questions

1 point

1.

What is the least number of noncolinear points required to estimate a projective transformation $H : \mathbb{P}^2 \rightarrow \mathbb{P}^2$?

4 Enter answer here

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2.

A projective transformation M preserves the points $(1, 0, 0)$, $(0, 1, 0)$, and the origin of the coordinate system. However, it maps the point $(1, 1, 1)$ to the points $(2, 1, 1)$, meaning $(2, 1, 1)^T = M(1, 1, 1)^T$. Compute M.

- $M \sim \begin{pmatrix} 2 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$
- $M \sim \begin{pmatrix} 2 & 0 & 1 \\ 0 & 1 & 1 \\ 0 & 0 & 1 \end{pmatrix}$
- $M \sim \begin{pmatrix} 2 & 0 & 0 \\ 0 & 1 & 1 \\ 0 & 0 & 1 \end{pmatrix}$
- $M \sim \begin{pmatrix} 2 & 0 & 1 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$

1 point

3.

Find the projective transformation A which will keep the points $(0, 0, 1)$ and $(1, 1, 1)$ fixed and will map point $(1, 0, 1)$ to $(1, 0, 0)$ and point $(0, 1, 1)$ to $(0, 1, 0)$?

- $A \sim \begin{pmatrix} -1 & 0 & 0 \\ 0 & -1 & 0 \\ 1 & 1 & -1 \end{pmatrix}$
- $A \sim \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 1 & 1 & 1 \end{pmatrix}$
- $A \sim \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ -1 & -1 & 1 \end{pmatrix}$
- $A \sim \begin{pmatrix} -1 & 0 & 0 \\ 0 & -1 & 0 \\ -1 & -1 & 1 \end{pmatrix}$

1 point

4.

Find the projective transformation A that maps the points $(1, 0, 0)$, $(0, 1, 0)$, $(0, 0, 1)$, and $(1, 1, 1)$ to the points $(-2, 0, 1)$, $(0, 1, -1)$, $(-1, 2, -1)$ and $(-1, 1, 1)$, respectively.

- $A \sim \begin{pmatrix} -2/3 & 0 & 1 \\ 0 & 5/3 & -2 \\ 1/3 & -5/3 & 1 \end{pmatrix}$
- $A \sim \begin{pmatrix} -2/3 & 0 & 1 \\ 0 & 5/3 & 2 \\ 1/3 & -5/3 & 2 \end{pmatrix}$
- $A \sim \begin{pmatrix} 2/3 & 0 & 1 \\ 0 & 5/3 & 2 \\ 1/3 & -5/3 & 1 \end{pmatrix}$

$$A \sim \begin{pmatrix} 1/3 & 0 & 1 \\ 0 & 5/3 & -2 \\ 1/3 & 5/3 & 1 \end{pmatrix}$$

3 questions unanswered

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