ENGR222 Assignment 6

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Blackboard Qs

1. Least Squares:
2. Find Distances:
3. Approximate Line:

PDF Questions

2. Suppose S is the subspace in $\mathbb{R}^4$ is spanned by $\begin{pmatrix}1\\1\\1\\1\end{pmatrix}, \begin{pmatrix}1\\1\\0\\0\end{pmatrix}, \begin{pmatrix}0\\0\\1\\1\end{pmatrix}$.

   Find the point P closest to $\begin{pmatrix}1\\3\\8\\2\end{pmatrix}$ (i.e. orthogonal projection).

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5. Let $T : \mathbb{R}^2 \to \mathbb{R}^3$ is the linear transformation whose matrix is $A = \begin{pmatrix}7 & 1\\0 & 0\\5 & 5\end{pmatrix}$.

   The image of the circle of radius 1 with centre at $(0, 0)$ under T is an eclipse with the centre at $(0, 0, 0)$.

   Find the points on this ellipse farthest from $(0, 0, 0)$ and the points closest to $(0, 0, 0)$.

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