Linear Algebra
Quiz 10

Name:_____

You have 10 minutes to complete this quiz. If you have a question raise your hand and remain seated. In order to receive full credit your answer must be **complete**, **legible** and **correct**. Show your work, and give adequate explanations.

1. What is the length of the complex vector $\mathbf{v} = \begin{bmatrix} 1 \\ i \\ -1 \\ -i \end{bmatrix}$?

$\|\mathbf{v}\|^2 = \mathbf{v}^H\mathbf{v} = 1^2 - i^2 + (-1)^2 - i^2 = 4$, so $\|\mathbf{v}\| = 2$.

2. In the method of least squares, working over the real numbers, what are the "normal equations" associated to the system $A\mathbf{x} = \mathbf{b}$?

$A^TA\mathbf{x} = A^T\mathbf{b}$.