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Name: _____.

MA 26500-215 Quiz 11

July 29, 2016

1. (6 points) Find the least squares solution $\bar{\mathbf{x}}$ of the system $A\bar{\mathbf{x}} = \bar{\mathbf{b}}$ where

$$A = \begin{bmatrix} 0 & 1 \\ 0 & 0 \\ -1 & 0 \end{bmatrix}, \qquad \bar{\mathbf{b}} = \begin{bmatrix} 2 \\ 1 \\ 3 \end{bmatrix}.$$

2. (4 points) Suppose that A and B are conjugate matrices. Show that if λ is an eigenvalue of A then it is an eigenvalue of B.

3. (8 points) Suppose that P is an idempotent matrix, i.e., $P^2 = I$. Show that the only possible eigenvalues for P are $\lambda = 0$ and $\lambda = 1$.