

Linear Algebra I: Homework 3

Due Friday, September 8, 2017

1. Find the inverse A^{-1} of the matrix A :

$$A = \begin{pmatrix} 1 & 2 & 3 \\ 2 & 5 & 3 \\ 1 & 0 & 8 \end{pmatrix}$$

2. Let $\mathbf{0}$ be the 2×2 matrix with all zero entries.
 - a. Is there a matrix $A \neq \mathbf{0}$ for which $AA = \mathbf{0}$? Justify your answer.
 - b. Is there a matrix $B \neq \mathbf{0}$ and $B \neq I$ for which $BB = B$? Justify your answer.
3. Find the inverse R_θ^{-1} of the matrix R_θ :

$$R_\theta = \begin{pmatrix} \cos \theta & \sin \theta \\ -\sin \theta & \cos \theta \end{pmatrix}$$