

QUIZ #14, 10/11/07

MATH 54, FALL 2007

Show your work and justify your answers! Feel free to use both sides.

Name:

1. (4 pts) Find the matrix for orthogonal projection to the subspace of \mathbb{R}^2 spanned by $\begin{bmatrix} 4 \\ -3 \end{bmatrix}$.
2. True or False? Briefly justify your answers.
 - (a) (3 pts) If A is a skew-symmetric matrix (i.e. $A^T = -A$), then $(Av) \cdot w = v \cdot (Aw)$ for any pair of vectors v and w .
 - (b) (3 pts) $A_\theta = \begin{bmatrix} \cos \theta & -\sin \theta \\ \sin \theta & \cos \theta \end{bmatrix}$ is orthogonal (for any specific value of θ).