

Math 3013 Linear Algebra, Spring 2011
Quiz 5

Apr. 14, 2011

Given matrix

$$A = \begin{bmatrix} 1 & -2 \\ -2 & 1 \end{bmatrix}$$

1. Find an orthogonal matrix Q and a diagonal matrix D such that $A = QDQ^T$.
2. Write down the quadratic form defined by $f(\mathbf{x}) = \mathbf{x}^T A \mathbf{x}$. Is this quadratic form positive definite, negative definite, or indefinite?