

Math 224
Quiz 3
Thursday, October 11, 2007

1. Find the determinant of

$$A = \begin{bmatrix} 3 & 2 & 4 \\ 0 & 1 & 2 \\ 1 & 4 & 1 \end{bmatrix}.$$

2. Suppose that A is a 3×3 matrix with determinant 2. Find $\det(3A)$.
3. Suppose that A is a 3×3 matrix with row vectors \mathbf{a} , \mathbf{b} , and \mathbf{c} , and that $\det(A) = 3$. Find the determinant of the matrix with row vectors $\mathbf{a} + \mathbf{a}$, $\mathbf{a} + \mathbf{b}$, $\mathbf{a} + \mathbf{c}$.

4. Suppose that A is a square matrix with $\det(A) = 5$. Find $\det(A^T A)$.

5. Is the matrix

$$A = \begin{bmatrix} 3 & 0 & 3 \\ 4 & 1 & -2 \\ -5 & 1 & 4 \end{bmatrix}$$

invertible?