

5. $A = \begin{bmatrix} 2 & 1 & 1 & 2 \\ 2 & 2 & 1 & 1 \\ 4 & 0 & 0 & 0 \\ 4 & 3 & 2 & 3 \end{bmatrix}$; compute $\det(A)$

6. Complete the list below, by adding at least 5 appropriate statements

The following statements are equivalent for an $n \times n$ matrix A

(a) A is nonsingular

(b)

(c)

(d)

(e)

(f)

7. State the Triangle Inequality and give the geometric interpretation

8. Characterize the rows of each matrix as being singular or nonsingular. Justify your answer.

(a) $\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$

(b) $\begin{bmatrix} 1 & 2 & 3 \\ 4 & 0 & 4 \\ 5 & 1 & 6 \end{bmatrix}$

(c) $\begin{bmatrix} 3 & 8 & 4 \\ 0 & -2 & 3 \\ 0 & 0 & 5 \end{bmatrix}$

(d) $\begin{bmatrix} 8 & 2 & 1 & -1 \\ 4 & -3 & 4 & 2 \\ 0 & 0 & 0 & 0 \\ 4 & 2 & 1 & 2 \end{bmatrix}$

(e) $\begin{bmatrix} 3 & 0 & 3 \\ 0 & 2 & 0 \\ 2 & 0 & 5 \end{bmatrix}$