

True or False

1. If A is an invertible matrix, then $\text{rref}(A) = I$.

2. The function

$$T \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} x \\ y \end{pmatrix}$$

is a linear transformation.

3. The matrix

$$\begin{pmatrix} k & -2 \\ 5 & k - 6 \end{pmatrix}$$

is invertible for all real numbers k .

4. The matrix

$$\begin{pmatrix} -0.6 & 0.8 \\ -0.8 & -0.6 \end{pmatrix}$$

represents a rotation.

5. There is a nonzero 2×2 matrix A such that $A^2 = 0$.

6. If A is a 2×2 matrix A such that $A^2 = A$, then A must be the identity matrix or the zero matrix.

7. If $AB = BA$, then $A^2B = BA^2$.