

LinAlg Quiz: Pseudoinverse and Determinant

Felix Breuer

December 2023

1 Quiz

Let $A, B \in \mathbb{R}^{n \times n}$ and $W \in \mathbb{R}^{m \times n}$:

1. How is $\det(A)$ related to $\det(7A)$?
2. The determinant is only defined for square matrices
3. If two rows or columns of A are identical, $\det(A) = 0$
4. Applying elimination matrices on A doesn't change $\det(A)$
5. $\det(A) = -\det(A^T)$
6. $\det(AB) = \det(B)\det(A)$
7. $\det(A^2) = \det(A)\det(A)$
8. $\det(A^{-1}) = \frac{1}{\det(A)}$
9. $WW^+ = I$ or $W^+W = I$
10. If W has full column rank, W^TW has full row rank and is surjective
11. If W has full row rank, $m \geq n$ and W is surjective