

1.7 Pop quiz on Lecture 7 material

1. Let $A = \begin{pmatrix} 2 & 6 & 9 \\ 0 & 3 & 8 \\ 0 & 0 & -1 \end{pmatrix}$. Find (with proof) $\det(A)$.
2. Let $A = \begin{pmatrix} 1 & 2 & 1 \\ -1 & 1 & 1 \\ 0 & 1 & 3 \end{pmatrix}$. Find (with proof) $\det(A)$.
3. Let $n \in \mathbb{Z}_{>0}$ and let $A \in M_{n \times n}(\mathbb{Q})$ and assume that A^{-1} exists. Prove that

$$\det(A)^{-1} = \frac{1}{\det(A)}.$$

4. Let $A = \begin{pmatrix} 1 & 2 & 1 \\ -1 & 1 & 1 \\ 0 & 1 & 3 \end{pmatrix}$. Find (with proof) the (2, 3) cofactor of A .
5. Let $A = \begin{pmatrix} 1 & 2 & 1 \\ -1 & 1 & 1 \\ 0 & 1 & 3 \end{pmatrix}$. Use cofactor expansion to find $\det(A)$.
6. Let $A = \begin{pmatrix} 1 & -2 & 0 & 1 \\ 3 & 2 & 2 & 0 \\ 1 & 0 & 1 & 0 \\ 0 & -4 & 2 & 4 \end{pmatrix}$. Use cofactor expansion to find $\det(A)$.