

MTH 261

LINEAR ALGEBRA

SUMMER 2017

Determinant Computation

Find partners, and follow the instructions. You will not turn this in, but you must be working diligently to get attendance credit.

1. Find the determinant of $\begin{bmatrix} 8 & -9 \\ 2 & -4 \end{bmatrix}$ using the special 2×2 determinant formula.

2. Use the special 3×3 determinant rule to find $\begin{vmatrix} 2 & 1 & -5 \\ 2 & 2 & -4 \\ 1 & 3 & 1 \end{vmatrix}$.

3. Use the (hyper)-volume definition of the determinant function to find the determinant of $\begin{bmatrix} 2 & 4 & 6 & 8 \\ 1 & 2 & -3 & 4 \\ 0 & 1 & 0 & 1 \\ 0 & 2 & 0 & 2 \end{bmatrix}$

4. Use row reduction to find $\begin{vmatrix} 1 & -2 & 1 & 0 \\ 0 & 2 & 4 & 8 \\ 0 & 2 & 4 & -3 \\ 1 & -2 & -2 & -9 \end{vmatrix}$.

5. Find the determinant of $\begin{bmatrix} 2 & 1 & 1 & 1 \\ 2 & -1 & 0 & 1 \\ 1 & 0 & 0 & 4 \\ 0 & 1 & -2 & 3 \end{bmatrix}$ by expanding across a rows or columns.

6. Find the determinant of $\begin{bmatrix} 2 & -3 & 0 & 0 \\ 1 & 0 & 4 & 5 \\ 0 & -2 & -2 & 0 \\ -1 & 0 & 0 & 4 \end{bmatrix}$ using the permutations-based definition of the determinant.