Problem of the week #3

Due February 7th

Define p_{ij} to be one of the six minors of a matrix M:

$$M = \begin{bmatrix} x_1 & x_2 & x_3 & x_4 \\ y_1 & y_2 & y_3 & y_4 \end{bmatrix}, \quad p_{ij} = \det \begin{bmatrix} x_i & x_j \\ y_i & y_j \end{bmatrix}.$$

Problem. Find a (nontrivial) polynomial equation valid for all M:

$$Q(p_{12}, p_{13}, p_{14}, p_{23}, p_{34}, p_{24}) = 0.$$

Hint. The expression Q involves each p_{ij} exactly once.

- Partial credit may be given for partial answers.

- Each POW will be due the following week at 1pm.

- Questions? Email: `bthorner@unomaha.edu`

- Submit solutions to (above email), DSC 210, or DSC 203.

- POWs, solutions, backgrounds, leaderboard available at

`https://www.unomaha.edu/college-of-arts-and-sciences`
`/mathematics/student-opportunities/pow_solutions.php`