Section 6.2 – Cofactor Expansions of Determinants

Homework (pages 453-454) problems 1-24

Recall:

- The determinant of a 2x2 matrix is given by
  \[ \det(A) = \det \begin{bmatrix} a & b \\ c & d \end{bmatrix} = ad - bc \]

- Let \( M_{rs} \) denote the minor of the \((r,s)\)th entry (the matrix obtained by deleting the \(r\)th row and \(s\)th column. Then the determinant of \(A\) is given by
  \[ \det(A) = a_{11}A_{11} + a_{12}A_{12} + \ldots + a_{nn}A_{nn} \]
  where \( A_{ij} = (-1)^{i+j} \det(M_{ij}) \)

- The determinant of any lower triangular matrix is the product of the diagonal entries (Theorem 1).