

MEMORIAL UNIVERSITY OF NEWFOUNDLAND

DEPARTMENT OF MATHEMATICS AND STATISTICS

SECTION 3.1

Math 2050 Worksheet

WINTER 2026

For practice only. Not to be submitted.

1. For each of the following matrices, (i) find the matrix of minors M ; (ii) find the matrix of cofactors C ; (iii) compute the product AC^T and use it to determine $\det A$; (iv) use these results to find A^{-1} , if it exists.

(a) $A = \begin{bmatrix} 2 & -5 & -1 \\ -3 & -1 & 0 \\ 2 & 4 & -3 \end{bmatrix}$

(b) $A = \begin{bmatrix} 4 & -8 \\ -3 & 6 \end{bmatrix}$

2. Find the determinant of each of the following matrices by expanding along an appropriate row (or column).

(a) $A = \begin{bmatrix} 4 & 0 & 1 \\ -2 & -2 & -5 \\ 9 & 1 & 3 \end{bmatrix}$

(b) $B = \begin{bmatrix} 1 & -3 & -3 & 4 \\ 0 & 5 & 1 & 0 \\ -1 & 0 & 1 & -1 \\ -4 & 4 & 2 & 1 \end{bmatrix}$

(c) $C = \begin{bmatrix} -2 & 7 & -1 & -5 \\ 1 & 1 & -2 & 0 \\ 0 & -3 & 4 & 0 \\ 3 & 3 & 2 & 0 \end{bmatrix}$