

MEMORIAL UNIVERSITY OF NEWFOUNDLAND

DEPARTMENT OF MATHEMATICS AND STATISTICS

SECTION 2.2

Math 2050 Worksheet

WINTER 2026

For practice only. Not to be submitted.

1. Determine whether each of the following pairs of matrices are inverses.

(a) $A = \begin{bmatrix} -6 & 8 & 9 \\ 1 & -1 & -1 \\ -3 & 4 & 5 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 4 & -1 \\ 2 & 3 & -3 \\ -1 & 0 & 2 \end{bmatrix}$

(b) $A = \begin{bmatrix} 2 & 0 & 5 \\ 1 & -3 & 0 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & -\frac{5}{2} \\ 1 & -\frac{7}{6} \\ -1 & 1 \end{bmatrix}$

2. Find the inverse of each of the following matrices, or explain why the matrix is not invertible.

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

(b) $B = \begin{bmatrix} 0 & -3 \\ -2 & 6 \end{bmatrix}$

(c) $C = \begin{bmatrix} -1 & 3 \\ -3 & 9 \end{bmatrix}$

3. Suppose A , B , C and X are matrices, A and X are invertible, and $A + BX^{-1} = CX^{-1}$. Find an expression for X in terms of A , B and C .
4. Prove that $(XYZ)^T = Z^T Y^T X^T$ for matrices X , Y , Z .