Section 8.3: The Inverse of a Square Matrix

Directions: Please show all your work since partial credit is given. Answers without the necessary work will receive no credit. And remember to have fun!

1. Show that $A=\begin{bmatrix} -2 & 2 & 3 \\ 1 & -1 & 0 \\ 0 & 1 & 4 \end{bmatrix}$ and $B=\frac{1}{3}\begin{bmatrix} -4 & -5 & 3 \\ -4 & -8 & 3 \\ 1 & 2 & 0 \end{bmatrix}$ are inverses of each other.

2. Find the inverse of the matrix (if it exists).

a) $\begin{bmatrix} 11 & 1 \\ -1 & 0 \end{bmatrix}$

b) $\begin{bmatrix} -7 & 1 \\ 6 & 0 \\ 4 & -12 \end{bmatrix}$

3. The following questions are in regards to the system of linear equations

$$x-2y=0$$
$$2x-3y=3$$

a) Find the coefficient matrix, A, of the system of equations.

b) Find A^{-1}.

c) Finally, use A^{-1} to solve the system.

Section 8.4: The Determinant of a Square Matrix

1. Find the determinant of the following matrices. Make sure to use the appropriate notation (for example $|A|$).

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

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

c) $B = \begin{bmatrix} 1 & 0 & 0 \\ -4 & -1 & 0 \\ 5 & 1 & 5 \end{bmatrix}$

d) $D = \begin{bmatrix} 1 & 1 & 2 \\ 3 & 1 & 0 \\ -2 & 0 & 3 \end{bmatrix}$