

Math 171
Matrices and Determinants

Solve:

1. $\begin{vmatrix} 4 & 1 \\ 3 & 2 \end{vmatrix} + \begin{vmatrix} 5 & 1 \\ 3 & 3 \end{vmatrix}$

2. $\begin{vmatrix} 1 & 2 & 3 \\ 3 & 2 & 1 \\ 0 & 0 & 1 \end{vmatrix} \times \begin{vmatrix} 2 & 0 & 1 \\ 1 & 1 & 0 \\ 3 & 2 & 1 \end{vmatrix}$

Determine if the matrices are multiplicative inverses:

3. $\begin{vmatrix} 4 & 5 \\ 2 & 3 \end{vmatrix}, \begin{vmatrix} 3/2 & -5/2 \\ -1 & 2 \end{vmatrix}$

4. $\begin{vmatrix} -2 & 1 & -1 \\ -5 & 2 & -1 \\ 3 & -1 & 3 \end{vmatrix}, \begin{vmatrix} 1 & 0 & 1 \\ 2 & 1 & 3 \\ -1 & 1 & 1 \end{vmatrix}$

Solve with matrices:

5. $x - 6y + z = 3$
 $y + 5z = 10$
 $x + y - z = -4$

Calculate the determinate:

6. $\begin{vmatrix} 2 & 5 \\ 4 & -1 \end{vmatrix}$

7. $\begin{vmatrix} 1 & -6 & 2 \\ 2 & 1 & -5 \\ 0 & 3 & -1 \end{vmatrix}$

Solve using Cramer's Rule:

8. $x + y = 1$
 $x - y = -1$

9. $2x + y - z = 3$
 $x + z = -4$
 $y - z = 1$