

Name _____ Daily Quiz

Finding any Determinant and using technology to find inverse matrices and solve matrix equations

Helpful link <https://www.desmos.com/matrix>

Find the determinant and the inverse matrix of each of the following matrices using technology

Given Matrix	Determinant of Given matrix	Inverse of given matrix
$\begin{bmatrix} 1 & 0 & -8 \\ 3 & 3 & 8 \\ 5 & 4 & 6 \end{bmatrix}$		

Solve the related matrix equation using inverses RECALL $A^{-1}AQ = A^{-1}B$ implies $IQ = A^{-1}B$ which implies $Q = A^{-1}B$

$$\begin{bmatrix} 1 & 0 & -8 \\ 3 & 3 & 8 \\ 5 & 4 & 6 \end{bmatrix} \begin{bmatrix} x \\ y \\ x \end{bmatrix} = \begin{bmatrix} 85 \\ -62 \\ -31 \end{bmatrix}$$

Verify the solution to the matrix equation $\begin{bmatrix} 1 & 0 & -8 \\ 3 & 3 & 8 \\ 5 & 4 & 6 \end{bmatrix} \begin{bmatrix} x \\ y \\ x \end{bmatrix} = \begin{bmatrix} 85 \\ -62 \\ -31 \end{bmatrix}$ through matrix multiplication

Find the determinant and the inverse matrix of each of the following matrices using technology

Given Matrix	Determinant of Given matrix	Inverse of given matrix
$\begin{bmatrix} 1 & 0 & -1 & 0 \\ 2 & 4 & 5 & -2 \\ 5 & 2 & -3 & 4 \\ -8 & 3 & 2 & 41 \end{bmatrix}$		

Solve the related matrix equation using inverses RECALL $A^{-1}AQ = A^{-1}B$ implies $IQ = A^{-1}B$ which implies $Q = A^{-1}B$

$$\begin{bmatrix} 1 & 0 & -1 & 0 \\ 2 & 4 & 5 & -2 \\ 5 & 2 & -3 & 4 \\ -8 & 3 & 2 & 41 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \\ y \end{bmatrix} = \begin{bmatrix} -6 \\ -21 \\ -18 \\ 195 \end{bmatrix}$$

Verify the solution to the matrix equation $\begin{bmatrix} 1 & 0 & -1 & 0 \\ 2 & 4 & 5 & -2 \\ 5 & 2 & -3 & 4 \\ -8 & 3 & 2 & 41 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \\ y \end{bmatrix} = \begin{bmatrix} -6 \\ -21 \\ -18 \\ 195 \end{bmatrix}$ through matrix multiplication