

Graph each of the following.

Nov 13-10:05 AM

Matrices  
Find the Determinant

$$\begin{vmatrix} 5 & -1 \\ 3 & 2 \end{vmatrix} = 10 + 3 = 13$$

$$\begin{vmatrix} -6 & 3 \\ -4 & -4 \end{vmatrix} = 24 + 12 = 36$$

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$$\begin{vmatrix} 0 & -6 & 6 \\ 5 & -6 & 3 \\ 5 & -4 & -4 \end{vmatrix} = 0 \begin{vmatrix} -6 & 3 \\ -4 & -4 \end{vmatrix} - (-6) \begin{vmatrix} 5 & 3 \\ 5 & -4 \end{vmatrix} + 6 \begin{vmatrix} 5 & -6 \\ 5 & -4 \end{vmatrix}$$

$$= 0 + 6(-20 - 15) + 6(-20 + 30)$$

$$= 6(-35) + 6(10)$$

$$= -210 + 60$$

$$= -150$$

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Inverse of 3x3 Matrix

$$A = \begin{bmatrix} 2 & 2 & -1 \\ 1 & 2 & -1 \\ 0 & 3 & -1 \end{bmatrix}$$

$$A = \begin{bmatrix} 2 & -1 & | & 1 & -1 & | & 1 & 2 \\ 3 & -1 & | & 0 & -1 & | & 0 & 3 \\ 2 & 2 & -1 & | & 2 & -1 & | & 2 & 2 \\ 3 & -1 & | & 0 & -1 & | & 0 & 3 \\ 1 & 2 & -1 & | & 2 & -1 & | & 2 & 2 \\ 2 & 2 & -1 & | & 2 & -1 & | & 2 & 2 \\ 2 & -1 & | & 1 & -1 & | & 1 & 2 \\ 0 & 3 & -1 & | & 0 & -1 & | & 0 & 3 \end{bmatrix}$$

$$\begin{bmatrix} 1 & -1 & 3 \\ 1 & -2 & 6 \\ 0 & -2 & 2 \end{bmatrix} \begin{bmatrix} + & - & + \\ - & + & - \\ + & - & + \end{bmatrix} = \begin{bmatrix} 1 & 1 & 3 \\ -1 & -2 & 6 \\ 0 & 1 & 2 \end{bmatrix} \text{ swapped}$$

$$Adj = \begin{bmatrix} 1 & -1 & 0 \\ 1 & -2 & 1 \\ 3 & -6 & 2 \end{bmatrix} \quad \frac{1}{\det [adj^T]} =$$

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Inverse of 3x3 Matrix

$$A = \begin{bmatrix} 2 & 2 & -1 \\ 1 & 2 & -1 \\ 0 & 3 & -1 \end{bmatrix}$$

$$2 \begin{vmatrix} 2 & -1 \\ 3 & -1 \end{vmatrix} - 2 \begin{vmatrix} 1 & -1 \\ 0 & -1 \end{vmatrix} + (-1) \begin{vmatrix} 1 & 2 \\ 0 & 3 \end{vmatrix}$$

$$2(-2 - 1) - 2(-1) - 1(3)$$

$$2(-3) + 2 - 3$$

$$-6 + 2 - 3$$

$$-7$$

$$\frac{1}{-7} = -\frac{1}{7}$$

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