Bellwork Alg 2A 4th Hour Wednesday, January 11, 2017

1. Find each matrix product without using the graphing calculator

a) $\begin{bmatrix} 3 & 4 \\ -1 & 2 \end{bmatrix} \cdot \begin{bmatrix} 6 & 2 \\ -5 & 8 \end{bmatrix}$

b) $\begin{bmatrix} 9 & 0 \\ -4 & 1 \end{bmatrix} \cdot \begin{bmatrix} 7 & 2 & -3 \\ 8 & -4 & 2 \end{bmatrix}$

2. Find the inverse of matrix A without using the graphing calculator.

Given $A\begin{bmatrix} a & b \\ c & d \end{bmatrix}$ $\det A = ad - bc$ $A^{-1} = \frac{1}{\det A}\begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$

$A\begin{bmatrix} 7 & 5 \\ 8 & 6 \end{bmatrix}$ A^{-1} is

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1. Find each matrix product without using the graphing calculator

a) $\begin{bmatrix} 3 & 4 \\ -1 & 2 \end{bmatrix} \cdot \begin{bmatrix} 6 & 2 \\ -5 & 8 \end{bmatrix} = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$

$2 \times 2 \quad 2 \times 2 \quad 2 \times 2$

a = Row 1 x Col 1 = $18 + -20 = -2$

b = Row 1 x Col 2 = $6 + 32 = 38$

c = Row 2 x Col 1 = $-6 + -10 = -16$

d = Row 2 x Col 2 = $-2 + 16 = 14$

$\begin{bmatrix} -2 & 38 \\ -16 & 14 \end{bmatrix}$

b) $\begin{bmatrix} 9 & 0 \\ -4 & 1 \end{bmatrix} \cdot \begin{bmatrix} 7 & 2 & -3 \\ 8 & -4 & 2 \end{bmatrix} = \begin{bmatrix} a & b & c \\ d & e & f \end{bmatrix}$

$2 \times 2 \quad 2 \times 3 \quad 2 \times 3$

a = Row 1 x Col 1 = $63 + 0 = 63$

b = Row 1 x Col 2 = $18 + 0 = 18$

c = Row 1 x Col 3 = $-27 + 0 = -27$

d = Row 2 x Col 1 = $-28 + 8 = -20$

e = Row 2 x Col 2 = $-8 + -4 = -12$

f = Row 2 x Col 3 = $12 + 2 = 14$

$\begin{bmatrix} 63 & 18 & -27 \\ -20 & -12 & 14 \end{bmatrix}$

2. Find the inverse of matrix A without using the graphing calculator.

Given $A\begin{bmatrix} a & b \\ c & d \end{bmatrix}$ $\det A = ad - bc$

$42 - 40$

$= 2$

$A^{-1} = \frac{1}{\det A}\begin{bmatrix} d & -b \\ -c & a \end{bmatrix} = \frac{1}{2}\begin{bmatrix} 6 & -5 \\ -8 & 7 \end{bmatrix}$

$A\begin{bmatrix} 7 & 5 \\ 8 & 6 \end{bmatrix}$

A^{-1} is $\begin{bmatrix} 3 & -2.5 \\ -4 & 3.5 \end{bmatrix}$