$\begin{pmatrix} -1 & 2 \\ 1 & 2 \end{pmatrix}$

$|A| = -2-2 = -4 \neq 0 \Rightarrow \exists A^{-1}$

$\text{Adj } A = \begin{pmatrix} 2 & -1 \\ -2 & -1 \end{pmatrix}$

$A^{-1} = \frac{1}{-4}\begin{pmatrix} 2 & -2 \\ -1 & -1 \end{pmatrix} = \begin{pmatrix} -1/2 & 1/2 \\ 1/4 & 1/4 \end{pmatrix}$

$B = \begin{pmatrix} 1 & 2 & -3 \\ 0 & 0 & 2 \\ 1 & 2 & -1 \end{pmatrix}$

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

$\Rightarrow \nexists B^{-1}$

nov 13-13:10

$C = \begin{pmatrix} 1 & 2 & 0 \\ 3 & -1 & 0 \\ 1 & 0 & 2 \end{pmatrix}$

$|C| = 2\begin{vmatrix} 1 & 2 \\ 3 & -1 \end{vmatrix} = 2(-1-6) = -14 \neq 0$

$\exists C^{-1}$

$\text{Adj } C = \begin{pmatrix} -2 & -6 & 1 \\ -4 & 2 & 2 \\ 0 & 0 & -7 \end{pmatrix}$

$C^{-1} = \frac{1}{-14}\begin{pmatrix} -2 & -4 & 0 \\ -6 & 2 & 0 \\ 1 & 2 & -7 \end{pmatrix} = \begin{pmatrix} 1/7 & 2/7 & 0 \\ 3/7 & -1/7 & 0 \\ -1/14 & -1/7 & 1/2 \end{pmatrix}$

nov 13-13:14

(10) d) $\begin{vmatrix} -1 & 3 & 2 & -1 \\ 2 & -2 & 1 & 3 \\ 0 & -5 & 10 & 4 \\ 7 & -8 & 9 & -2 \end{vmatrix} =$

$F_2 = F_2 + 2F_1$

$F_4 = F_4 + 7F_1$

$= +(-1)\begin{vmatrix} 4 & 5 & 1 \\ -5 & 10 & 4 \\ 13 & 23 & -9 \end{vmatrix}$

$-1[(360 + 260 - 115) - (130 + 368 + 225)]$

$-1(-938) = 938$

nov 13-13:18

a) $\begin{vmatrix} x & 1 & 0 & 0 \\ 0 & x & 1 & 0 \\ 0 & 0 & x & 1 \\ 1 & 0 & 0 & x \end{vmatrix} = -\begin{vmatrix} 1 & 0 & 0 & x \\ 0 & x & 1 & 0 \\ 0 & 0 & x & 1 \\ x & 1 & 0 & 0 \end{vmatrix}$

$F_1 \leftrightarrow F_4$

$F_4 = F_4 - xF_1$

$-\begin{vmatrix} 1 & 0 & 0 & x \\ 0 & x & 1 & 0 \\ 0 & 0 & x & 1 \\ 0 & 1 & 0 & -x^2 \end{vmatrix} = -1\begin{vmatrix} x & 1 & 0 \\ 0 & x & 1 \\ 1 & 0 & -x^2 \end{vmatrix}$

$-1[(-x^3 + 1 + 0) - (0 + 0 + 0)]$

$-1[1 - x^3] = x^3 - 1$

$x^3 - 1 = 0 \quad x = \pm\sqrt[3]{1} = \pm 1$

$\begin{vmatrix} x & 1 & 0 & 0 \\ 0 & x & 1 & 0 \\ 0 & 0 & x & 1 \\ 1 & 0 & 0 & x \end{vmatrix} = \begin{vmatrix} x+1 & 1 & 0 & 0 \\ x+1 & x & 1 & 0 \\ x+1 & 0 & x & 1 \\ x+1 & 0 & 0 & x \end{vmatrix}$

$C_1 = C_1 + C_2 + C_3 + C_4$

$(x+1)\begin{vmatrix} 1 & 1 & 0 & 0 \\ 1 & x & 1 & 0 \\ 1 & 0 & x & 1 \\ 1 & 0 & 0 & x \end{vmatrix} = (x+1)\cdot\begin{vmatrix} 1 & 1 & 0 \\ 0 & x-1 & 1 \\ 0 & -1 & x \end{vmatrix}$

$F_2 = F_2 - F_1$

$F_3 = F_3 - F_1$

$F_4 = F_3 - F_1$

$(x+1)\,1\cdot\begin{vmatrix} x-1 & 1 & 0 \\ -1 & x & 1 \\ -1 & 0 & x \end{vmatrix}$

nov 13-13:22

b) $\begin{vmatrix} a & b & c \\ a & x & c \\ a & b & x \end{vmatrix} = 0$

Ec. de 2° grado $\begin{cases} x=b & F_1=F_2 \\ x=c & F_1=F_3 \end{cases}$

nov 13-13:29

20 a)

$\begin{vmatrix} x & x+1 & x+2 \\ x & x+3 & x+4 \\ x & x+5 & x+6 \end{vmatrix}$

M1

$x \begin{vmatrix} 1 & x+1 & x+2 \\ 1 & x+3 & x+4 \\ 1 & x+5 & x+6 \end{vmatrix} = 0$ $\quad C_3 = C_1 + C_2$

M2

$\begin{vmatrix} x & x+1 & x+2 \\ 0 & 2 & 2 \\ 0 & 2 & 2 \end{vmatrix} = 0$ $\quad F_2 = F_2 - F_1$ $\quad F_3 = F_3 - F_2$

nov 13-13:30

19 a) $\begin{vmatrix} a+1 & a & a & a \\ a & a+1 & a & a \\ a & a & a+1 & a \\ a & a & a & a+1 \end{vmatrix}$

$C_1 = C_1 + C_2 + C_3 + C_4$

$\begin{vmatrix} 4a+1 & a & a & a \\ 4a+1 & a+1 & a & a \\ 4a+1 & a & a+1 & a \\ 4a+1 & a & a & a+1 \end{vmatrix} = (4a+1) \begin{vmatrix} 1 & a & a & a \\ 1 & a+1 & a & a \\ 1 & a & a+1 & a \\ 1 & a & a & a+1 \end{vmatrix}$

$= \begin{vmatrix} 1 & a & a & a \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{vmatrix} = (4a+1) \cdot 1 = 4a+1$

nov 13-13:35

$\begin{vmatrix} a+1 & a & a & a \\ a & a+1 & a & a \\ a & a & a+1 & a \\ a & a & a & a+1 \end{vmatrix}$ $\quad C_2 \leftrightarrow C_1$

$= - \begin{vmatrix} a & a+1 & a & a \\ a+1 & a & a & a \\ a & a & a+1 & a \\ a & a & a & a+1 \end{vmatrix} =$ $\quad F_2 = F_2 - F_1$ $\quad F_3 = F_3 - F_1$ $\quad F_4 = F_4 - F_1$

$= - \begin{vmatrix} a & a+1 & a & a \\ 1 & -1 & 0 & 0 \\ 0 & -1 & 1 & 0 \\ 0 & -1 & 0 & 1 \end{vmatrix} =$ $\quad C_1 = C_1 + C_2$

$- \begin{vmatrix} 2a+1 & a+1 & a & a \\ 0 & -1 & 0 & 0 \\ -1 & -1 & 1 & 0 \\ -1 & -1 & 0 & 1 \end{vmatrix}$

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

1. $[(2a+1+0+0) - (-a+0-a)]$

$\cdot [2a+1+2a] = 4a+1$

nov 13-13:43

Pag 120

(12) $\begin{pmatrix} x & 1 & 0 \\ 0 & 1 & 3 \\ x & 1 & 1 \end{pmatrix}$

a) ¿x? A tiene inversa.

$|A| \neq 0$

$|A| = (x+3x+0) - (0+3x+0) = x$

$x \neq 0$

Cómo x para que $\nexists A^{-1}$ $x = 0$

b) Hallar A^{-1}. $x = 2$

nov 13-13:48

Deberes

Pag 96: 15 d; 19 A2, 20 b

Pag 121: (23) (30) a)

nov 13-13:53