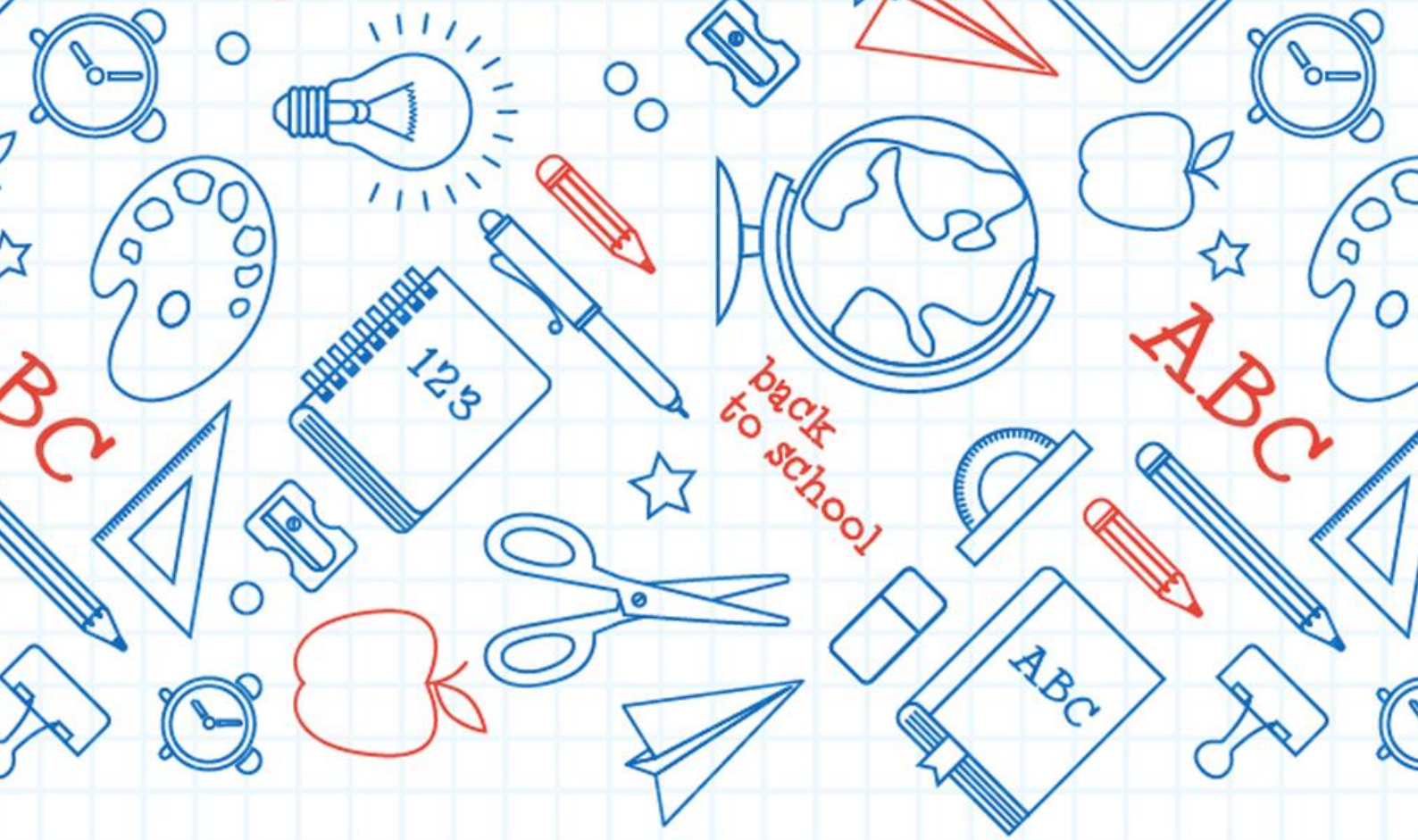

Algebra lineal

Universidad autónoma de Coahuila

TSP

Ingeniería en sistemas computacionales

Jose Adrian Ontiveros Moran

17332507

Docente LAURA MONICA MONSERRAT GARCIA ESPARZA

1= Encuentre el Cofactor y el menor

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

El menor

$M_{12} = \begin{bmatrix} 3 \end{bmatrix} = (3)$ //

El cofactor

$A_{12} = (-1)^{1+2} M_{12} = (-1)^3 (3) = -3$ //

2= $\begin{bmatrix} 3 & 5 \\ -2 & 0 \end{bmatrix}$

Menor

$M_{22} = \begin{bmatrix} 3 \end{bmatrix} = 3$ //

Cofactor

$A_{22} = (-1)^4 (3) = 3$ //

3= $\begin{bmatrix} 2 & -1 & 4 \\ 3 & 2 & 7 \\ 0 & 1 & -1 \end{bmatrix}$

Menor

$M_{12} = \begin{bmatrix} 2 & 7 \\ 1 & -1 \end{bmatrix} (2)(-1) - (1)(7) = -9$ //

Cofactor

$A_{12} = (-1)^3 \begin{bmatrix} 2 & 7 \\ 1 & -1 \end{bmatrix} = -1[(2)(-1) - (1)(7)] = 9$ //

4= $\begin{bmatrix} -1 & 1 & 0 \\ 0 & 1 & -2 \\ 3 & 2 & 4 \end{bmatrix}$

Menor

$M_{23} = \begin{bmatrix} -1 & 1 \\ 3 & 2 \end{bmatrix} = (-1)(2) - (3)(1) = -5$ //

Cofactor

$A_{23} = (-1)^5 \begin{bmatrix} -1 & 1 \\ 3 & 2 \end{bmatrix} = (-1)[(-1)(2) - (3)(1)] = 5$ //

2= Calcule el valor del determinante

5= $[-2] = |A| = \underline{2}$ ✓

6= $\begin{bmatrix} -1 & 0 \\ 1 & 6 \end{bmatrix}$ $|A| = (-1)(6) - (1)(0) = \underline{-6}$ ✓

7= $\begin{bmatrix} 3 & 1 \\ 0 & 2 \end{bmatrix}$ $|A| = (3)(2) - (1)(0) = \underline{6}$ ✓

8= $\begin{bmatrix} 3 & -2 \\ 1 & 4 \end{bmatrix} = |A| = (3)(4) - (1)(-2) = \underline{14}$ ✓

9= $\begin{bmatrix} c & d \\ -d & c \end{bmatrix}$ $|A| = (c)(c) - (-d)(d) = \underline{c^2 - (-d^2)} = \underline{c^2 + d^2}$ ✓

10= $\begin{bmatrix} a & b \\ 2a & 2b \end{bmatrix}$ $|A| = (a)(2b) - (2a)(b) = 2ab - 2ab = \underline{\emptyset}$ ✓

11= $\begin{bmatrix} -1 & 0 & 2 \\ 0 & 1 & 3 \\ 3 & 4 & 0 \end{bmatrix}$ $\begin{bmatrix} -1 & 0 & 2 & -1 & 0 \\ 0 & 1 & 3 & 0 & 1 \\ 3 & 4 & 0 & 3 & 4 \end{bmatrix}$

$A = [(-1)(1)(0) + (0)(3)(3) + (2)(0)(4)] - [(3)(1)(2) + (4)(3)(-1) + (0)(0)(0)]$

$A = 0 - (-6)$ (6 − 12)

$A = 6$ ✓

12 = $\begin{bmatrix} 3 & 5 & 0 \\ 0 & 1 & 0 \\ 3 & 4 & 5 \end{bmatrix}$

3 5 0 | 3 5
0 1 0 | 0 1
3 4 5 | 3 4

$[(3)(1)(5)+(5)(0)(3)+(0)(0)(4)]$
$-[(3)(1)(0)+(4)(0)(3)+(5)(0)(5)]$

$A = 15 - 0$
$A = 15$ //

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

3 2 1 | 3 2
1 -1 0 | 1 -1
2 3 0 | 2 3

$[(3)(-1)(0)+(2)(0)(2)+(1)(1)(3)]$
$-[(2)(-1)(1)+(3)(0)(3)+(0)(1)(2)]$

$A = 3 - (-2)$
$A = 5$ //

14 = $\begin{bmatrix} 2 & 5 & 1 \\ 3 & 4 & 0 \\ 2 & -1 & 1 \end{bmatrix}$

2 5 1 | 2 5
3 4 0 | 3 4
2 -1 1 | 2 -1

$[(2)(4)(1)+(5)(0)(2)+(1)(3)(-1)]$
$-[(2)(4)(1)+(-1)(0)(2)+(1)(3)(5)]$

$A = 5 - 23$
$A = -18$

15 = $\begin{bmatrix} 1 & 0 & 3 & 2 \\ -1 & 0 & 1 & 4 \\ 2 & 1 & 3 & 4 \\ 1 & -1 & 5 & 6 \end{bmatrix}$

$\begin{vmatrix} 1 & 3 & 2 & 1 & 3 \\ -1 & 1 & 4 & -1 & 1 \\ 2 & 3 & 4 & 2 & 3 \end{vmatrix}$ = [(1)(1)(4) + (3)(4)(2) + (2)(-1)(3)] - [(2)(1)(2) + (3)(4)(1) + (4)(-1)(3)]

22 - 4

18 ✓ -1

$\begin{vmatrix} 1 & 3 & 2 & 1 & 3 \\ -1 & 1 & 4 & -1 & 1 \\ 1 & 5 & 6 & 1 & 5 \end{vmatrix}$ = [(1)(1)(6) + (3)(4)(1) + (2)(-1)(5) - (1)(1)(2) + (5)(4)(1) + (6)(-1)(3)]

8 - 4 = 4 ✓

$a_{21}A_{21} + a_{22}A_{22} + a_{33}A_{33} + a_{44}A_{44}$

|A| = (18)(1) + (4)(1)

|A| = 18 + 4 = 22 ✓

16 = $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 2 & 0 \\ 3 & 2 & 0 & 4 \\ 5 & 2 & 3 & 2 \end{bmatrix}$

$\begin{array}{cccc|cc} 1 & 0 & 0 & & 1 & 0 \\ 3 & 2 & 4 & & 3 & 2 \\ 5 & 2 & 2 & & 5 & 2 \end{array}$ = [(5)(4)(0) + (2)(4)(1) + (2)(3)(0) − (1)(2)(2) + (0)(4)(5) + (0)(3)(2)]

8 − 2

6 ✗

$\begin{array}{ccc|cc} 1 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 3 & 2 & 4 & 3 & 2 \end{array}$ = 0

3(0) + 6(2)

|A| = 12 ✗

17 = $\begin{bmatrix} 9 & 0 & 0 & 0 \\ 0 & 0 & 0 & d \\ 0 & c & 0 & 0 \\ 0 & 0 & b & 0 \end{bmatrix}$ = 0 ✗

18 = $\begin{bmatrix} 9 & 1 & 2 & 3 \\ 0 & b & 3 & 9 \\ 0 & 0 & c & 3 \\ 0 & 0 & 0 & d \end{bmatrix}$ = 0 ✗

3: Indique si es verdadero o falso.

19) $\begin{bmatrix} 3 & 2 & 1 \\ -1 & 2 & 1 \\ 0 & 7 & 8 \end{bmatrix} = -\begin{bmatrix} 3 & 2 & 1 \\ 0 & 7 & 8 \\ -1 & 2 & 4 \end{bmatrix}$ Verdadero

20) $\begin{bmatrix} 2 & 4 \\ -1 & 3 \end{bmatrix} = 2\begin{bmatrix} 1 & 2 \\ -1 & 3 \end{bmatrix}$ verdadero

21) $\begin{bmatrix} 3 & 4 & 0 & 6 \\ 7 & 8 & 0 & 2 \\ 3 & 4 & 0 & 1 \\ 0 & -1 & 0 & 2 \end{bmatrix} = 0$ verdadero

22) $\begin{bmatrix} 2 & 3 & 4 & 1 \\ -1 & 2 & -1 & 5 \\ 7 & 8 & 0 & 1 \\ 6 & 4 & 1 & 6 \end{bmatrix} = -\begin{bmatrix} 2 & 3 & -4 & 1 \\ -1 & 2 & 1 & 5 \\ 7 & 8 & 0 & 1 \\ 6 & 4 & -1 & 6 \end{bmatrix}$ Falso

23) $\begin{bmatrix} -1 & 3 & 2 \\ 4 & 1 & 5 \\ 2 & -4 & 3 \end{bmatrix} = \begin{bmatrix} -1 & 3 & 2 \\ 4 & 1 & 5 \\ 0 & 2 & 1 \end{bmatrix}$ verdadero

24) $\begin{bmatrix} -1 & 1 & 2 \\ 2 & -1 & 3 \\ 3 & -1 & 4 \end{bmatrix} = \begin{bmatrix} 0 & 1 & 2 \\ 1 & -1 & 3 \\ 2 & -1 & 4 \end{bmatrix}$ Falso

25 = $\begin{bmatrix} 3 & 1 & 3 \\ -2 & 0 & -2 \\ 6 & 4 & 6 \end{bmatrix} = 0$ verdadero ✓

26 = $\begin{bmatrix} 1 & 2 & 1 \\ 6 & 8 & 2 \\ 3 & 4 & 1 \end{bmatrix} = 0$ Falso ✓