INSTITUTO TECNOLÓGICO DE SONORA

JESUS ALFREDO LEONARDO ELIAS

ASIGNACIÓN 06 - MÉTODOS DE ELIMINACIÓN DE GAUSS

METODOS NUMERICOS COMPUTACIONALES

MANUEL ALEJANDRO QUINTANA GARCIA

1. $3x_1 + 4x_2 + 3x_3 = 10$
$x_1 + 5x_2 - x_3 = 7$
$6x_1 + 3x_2 + 7x_3 = 15$

3	4	3	10
1	5	-1	7
6	3	7	15

6	3	7	15	$R_2 \to -\frac{1}{6}(R_1)$
1	5	-1	7	$R_3 \to -\frac{3}{6}(R_1)$
3	4	3	10	

6	3	7	15	$-\frac{1}{6}(6) = -1 + 1 = 0$
0	4.5	-2.1667	4.5	$-\frac{1}{6}(3) - 0.5 + 5 = 4.5$
0	2.5	-0.5	2.5	$-\frac{1}{6}(7) = -1.1667 + -1 = -2.1667$
				$-\frac{1}{6}(15) = -2.5 + 7 = 4.5$

$-0.5(6) = -3 + 3 = 0$
$-0.5(3) = -1.5 + 4 = 2.5$
$-0.5(7) = -3.5 + 3 = -0.5$
$-0.5(15) = -7.5 + 10 = 2.5$

6	3	7	15
0	4.5	-2.1667	4.5
0	0	.7037	0

$R_3 \rightarrow \frac{-2.5}{4.5}(R_2)$

$\frac{-2.5}{4.5}(4.5) = -2.5 + 2.5 = 0$

$\frac{-2.5}{4.5}(-2.1667) = 1.2037 + (-0.5) = 0.7037$

$\frac{-2.5}{4.5}(4.5) = -2.5 + 2.5 = 0$

$x_3 = \frac{0}{.7037}$ $\boxed{x_3 = 0}$

$4.5x_2 - 2.1667x_3 = 4.5$
$4.5x_2 - 2.1667(0) = 4.5$
$4.5x_2 = 4.5$
$x_2 = \frac{4.5}{4.5}$ $\boxed{x_2 = 1}$

$6x_1 + 3x_2 + 7x_3 = 15$
$6x_1 + 3(1) + 7(0) = 15$
$6x_1 + 3 = 15$
$6x_1 = 15 - 3$
$6x_1 = 12$
$x_1 = \frac{12}{6}$ $\boxed{x_1 = 2}$

$3x_1 + 4x_2 + 3x_3 = 10$
$3(2) + 4(1) + 3(0) = 10$
$6 + 4 = 10$
$10 = 10$

$6x_1 + 3x_2 + 7x_3 = 15$
$6(2) + 3(1) + 7(0) = 15$
$12 + 3 = 15$
$15 = 15$