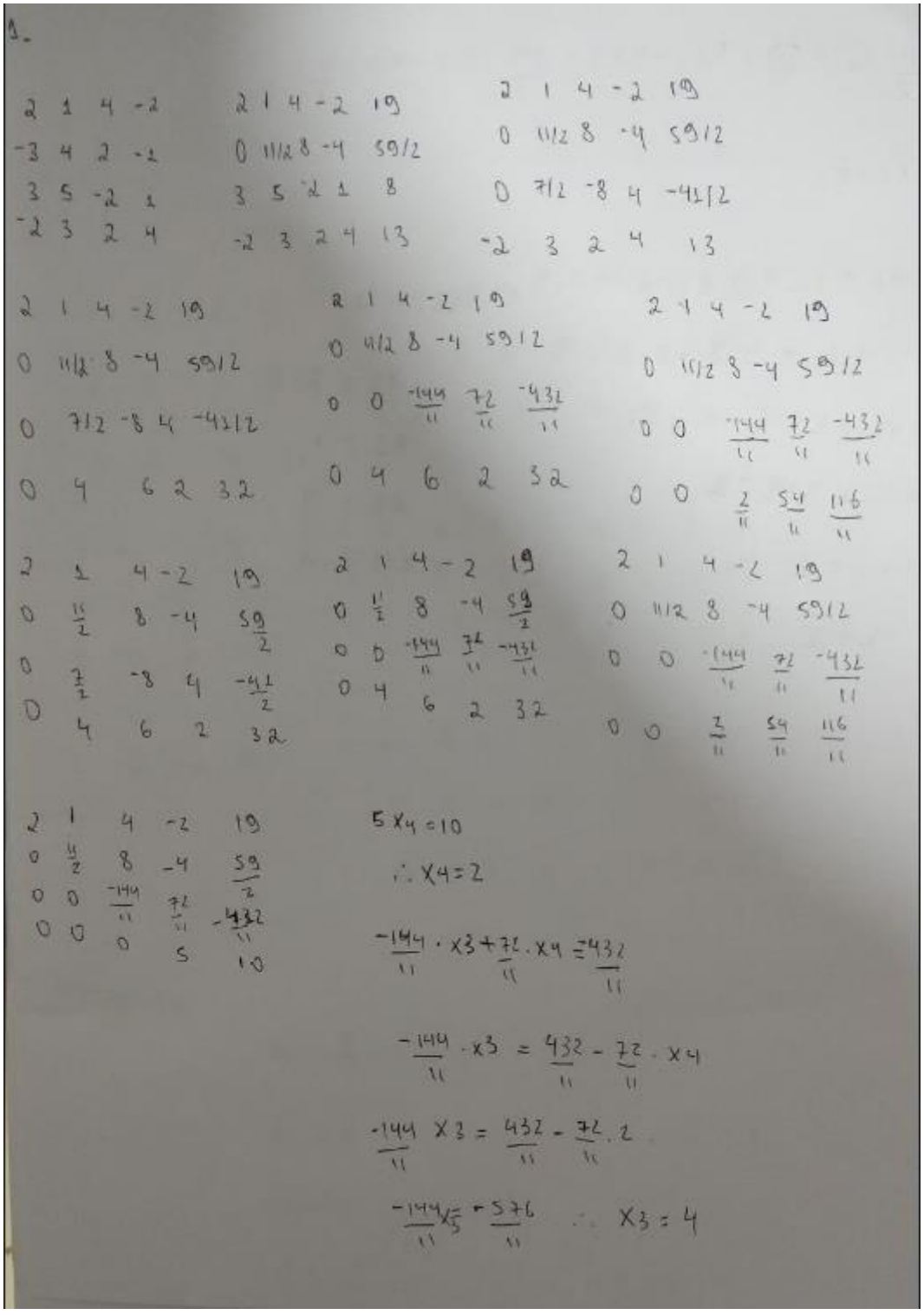
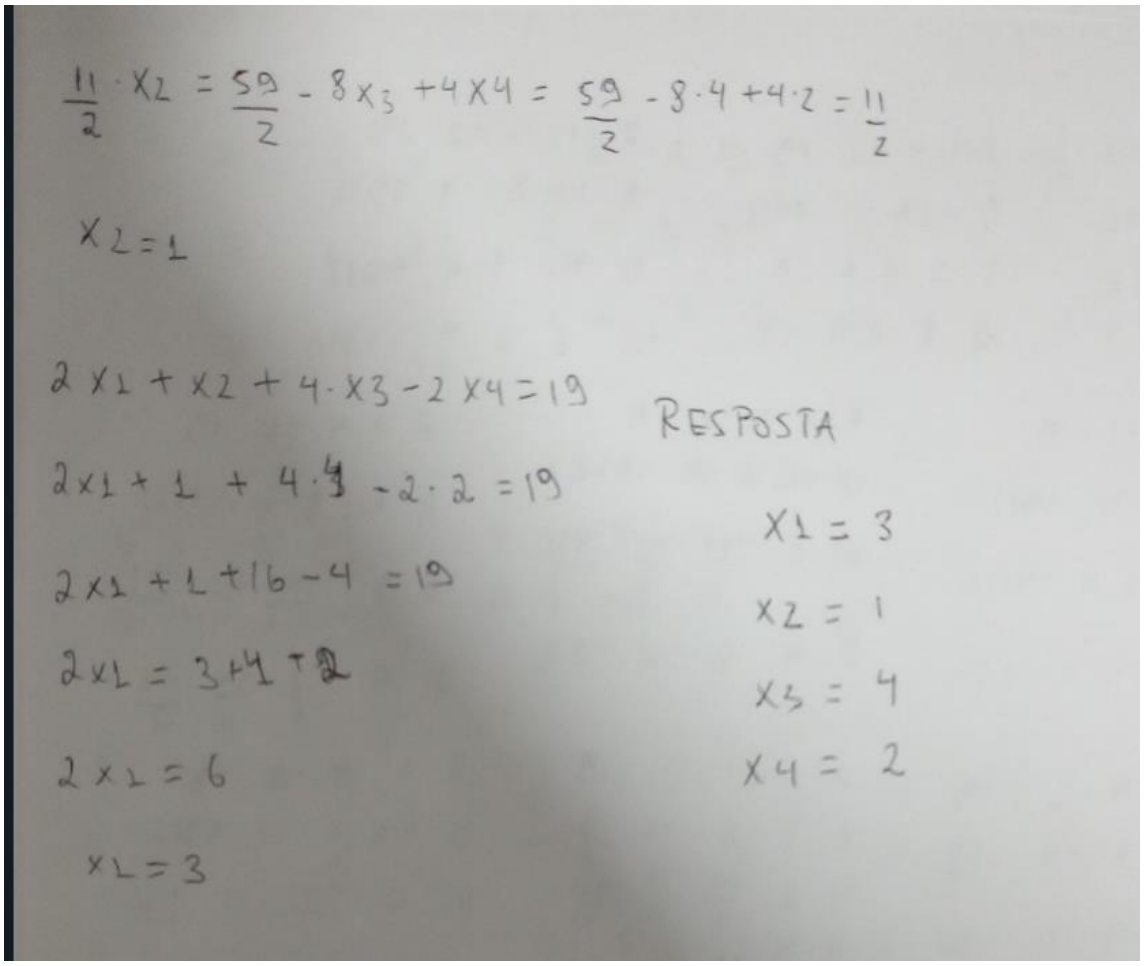
Lista 3

180145509

Questão 1




$\frac{11}{2} \cdot x_2 = \frac{59}{2} - 8x_3 + 4x_4 = \frac{59}{2} - 8 \cdot 4 + 4 \cdot 2 = \frac{11}{2}$
$x_2 = 1$
$2x_1 + x_2 + 4 \cdot x_3 - 2x_4 = 19$
$2x_1 + 1 + 4 \cdot 4 - 2 \cdot 2 = 19$
$2x_1 + 1 + 16 - 4 = 19$
$2x_1 = 3 + 4 + 2$
$2x_1 = 6$
$x_1 = 3$
RESPOSTA
$x_1 = 3$
$x_2 = 1$
$x_3 = 4$
$x_4 = 2$

Questão 2

2-

$$\begin{matrix} 1 & 2 & -2 & 9 \\ 2 & 3 & 1 & 23 \\ 3 & 2 & -4 & 11 \end{matrix}$$

$$\begin{matrix} 1 & 2 & -2 & 9 \\ 0 & -1 & 5 & 5 \\ 3 & 2 & -4 & 11 \end{matrix}$$

$$\begin{matrix} 1 & 2 & -2 & 9 \\ 0 & -1 & 5 & 5 \\ 0 & -4 & 2 & -16 \end{matrix}$$

$$\begin{matrix} 1 & 2 & -2 & 9 \\ 0 & 1 & -5 & -5 \\ 0 & -4 & 2 & -16 \end{matrix}$$

$$\begin{matrix} 1 & 2 & -2 & 9 \\ 0 & 1 & -5 & -5 \\ 0 & 0 & -18 & -36 \end{matrix}$$

$$\begin{matrix} 1 & 2 & -2 & 9 \\ 0 & 1 & -5 & -5 \\ 0 & 0 & 1 & 2 \end{matrix}$$

$$\begin{matrix} 1 & 2 & -2 & 9 \\ 0 & 1 & 0 & 5 \\ 0 & 0 & 1 & 2 \end{matrix}$$

$$\begin{matrix} 1 & 2 & 0 & 13 \\ 0 & 1 & 0 & 5 \\ 0 & 0 & 1 & 2 \end{matrix}$$

$$\begin{matrix} 1 & 0 & 0 & 3 \\ 0 & 1 & 0 & 5 \\ 0 & 0 & 1 & 2 \end{matrix}$$

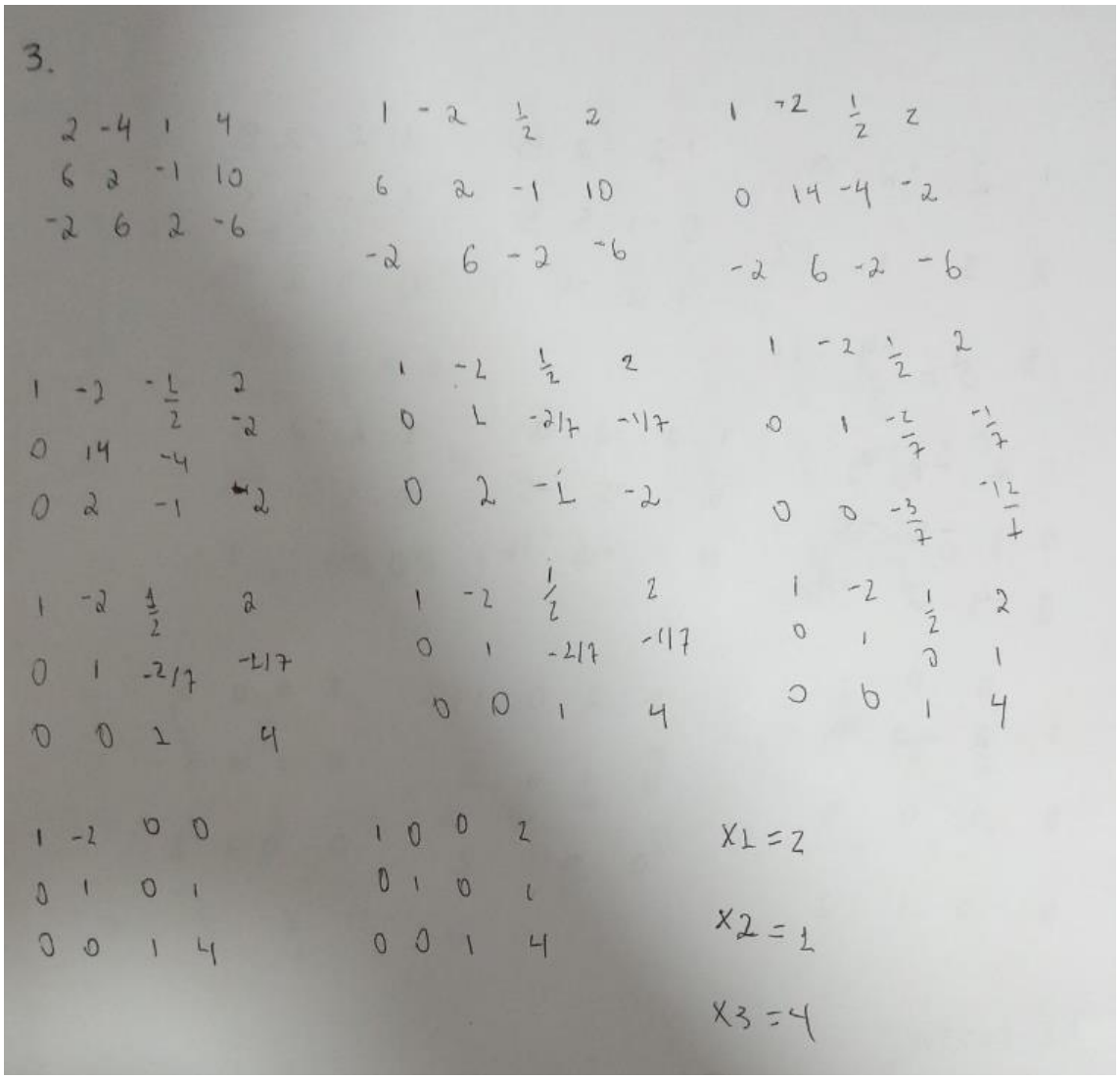
RESPOSTA

$X_1 = 3$

$X_2 = 5$

$X_3 = 2$

Questão 3



Questão 4

1-

$$x_1 = \frac{51 - 2x_2 - 3x_3}{8} \quad \therefore x_1 = 6.375 - 0.25x_2 - 0.375x_3$$

$$x_2 = \frac{23 - 2x_1 - x_3}{5} \quad \therefore x_2 = 4.6 - 0.4x_1 - 0.2x_3$$

$$x_3 = \frac{20 + 3x_1 - x_2}{6} \quad \therefore x_3 = 3.3333 + 0.5x_1 - 0.1667x_2$$

$$X^0 = \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix}$$

$x_1^{(1)} = 6.375$

$x_2^{(1)} = 4.6 - 0.4(6.375) = 2.05$

$x_3^{(1)} = 3.3333 + 0.5(6.375) - 0.1667(2.05)$

$x_3^{(1)} = 6.1790$

$x_1^{(2)} = 6.375 - 0.25(2.05) - 0.375(6.1790) = 6.375 - 0.5125 - 2.3171$

$x_3^{(2)} = 3.5454$

$x_2^{(2)} = 4.6 - 0.4(3.5454) - 0.2(6.1790) = 1.9460$

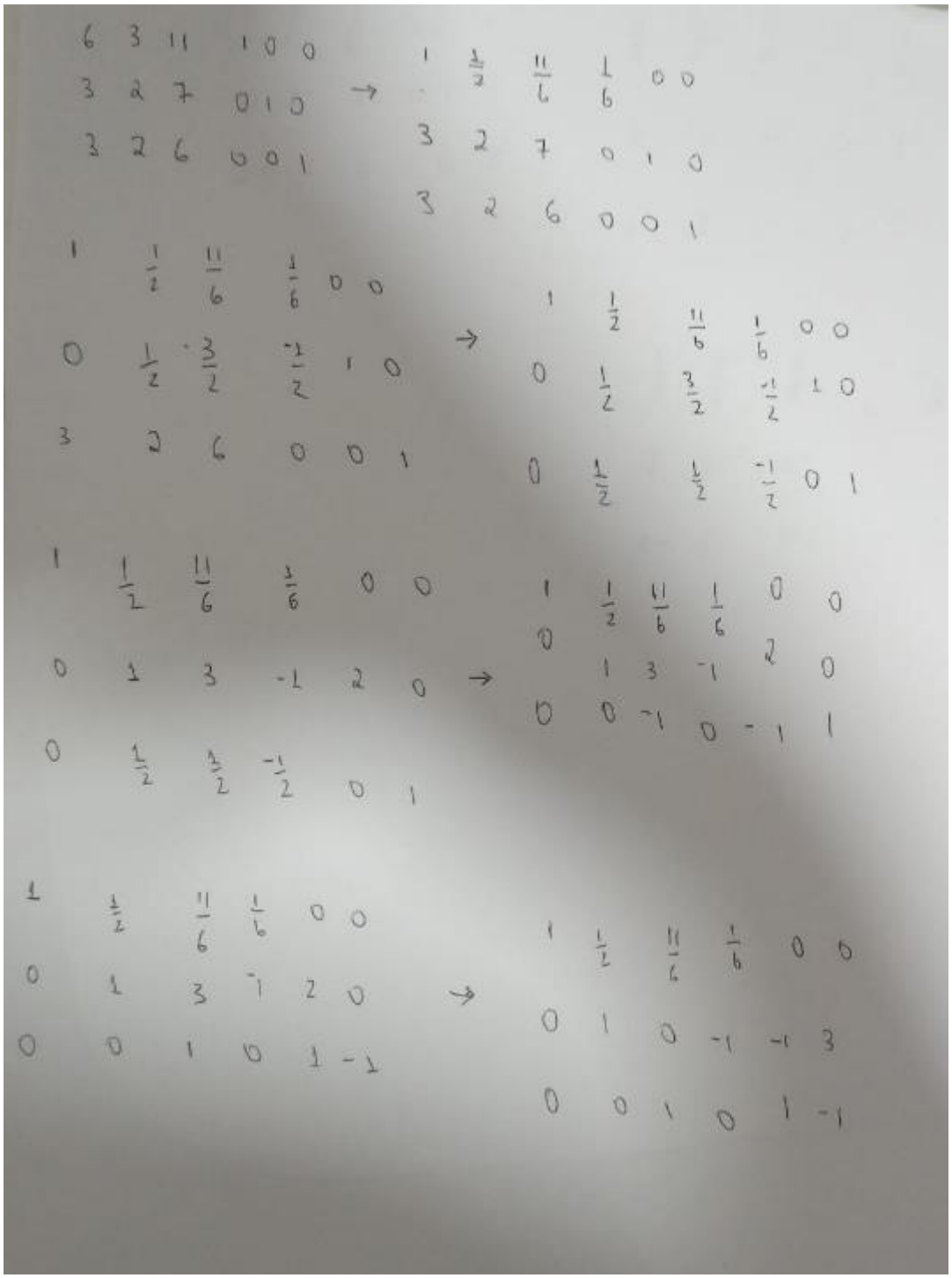
$x_3^{(2)} = 3.3333 + 0.5(3.5454) - 0.1667(1.9460) = 4.7816$

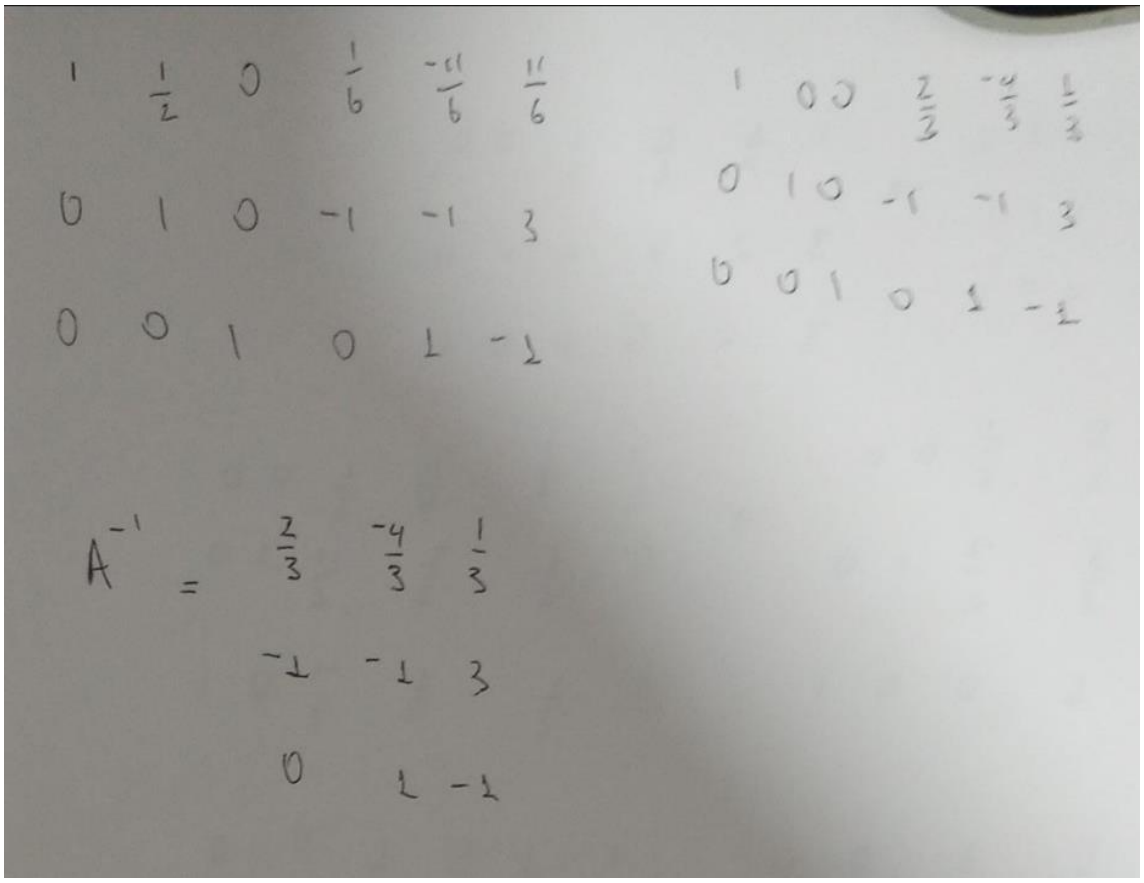
$x_1^{(3)} = 6.375 - 0.25(1.9460) - 0.375(4.7816) = 4.0954$

$x_2^{(3)} = 4.6 - 0.4(4.0954) - 0.2(4.7816) = 2.00552$

$x_3^{(3)} = 3.3335 + 0.5(4.0954) + 0.1667(2.00552) = 5.046679816$

Questão 5




1 1/2 0 1/6 -11/6 11/6
0 1 0 -1 -1 3
0 0 1 0 1 -1
A^-1 = 2/3 -4/3 1/3
-1 -1 3
0 1 -1
1 0 0 2/3 -4/3 1/3
0 1 0 -1 -1 3
0 0 1 0 1 -1