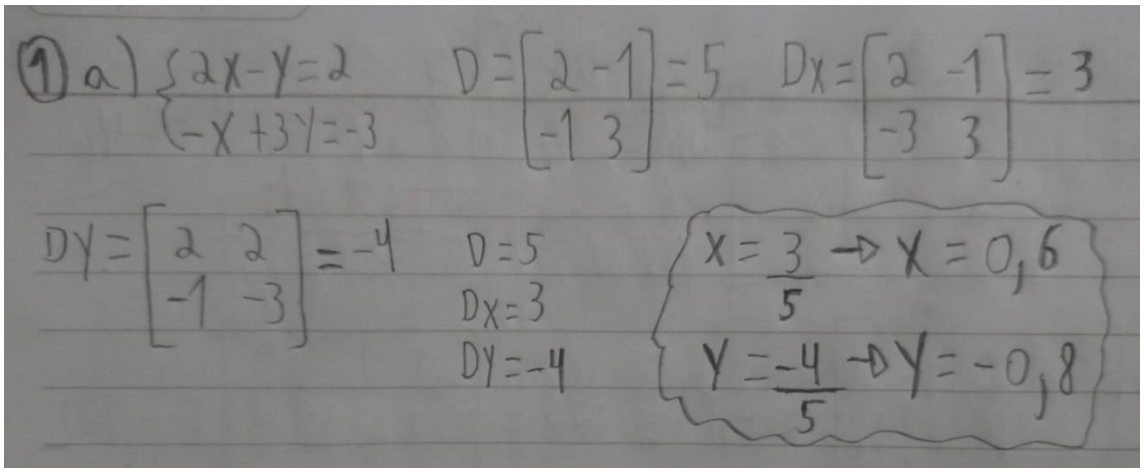
Sistemas Lineares - Regra de Cramer e Escalonamento:

Regra de Cramer:

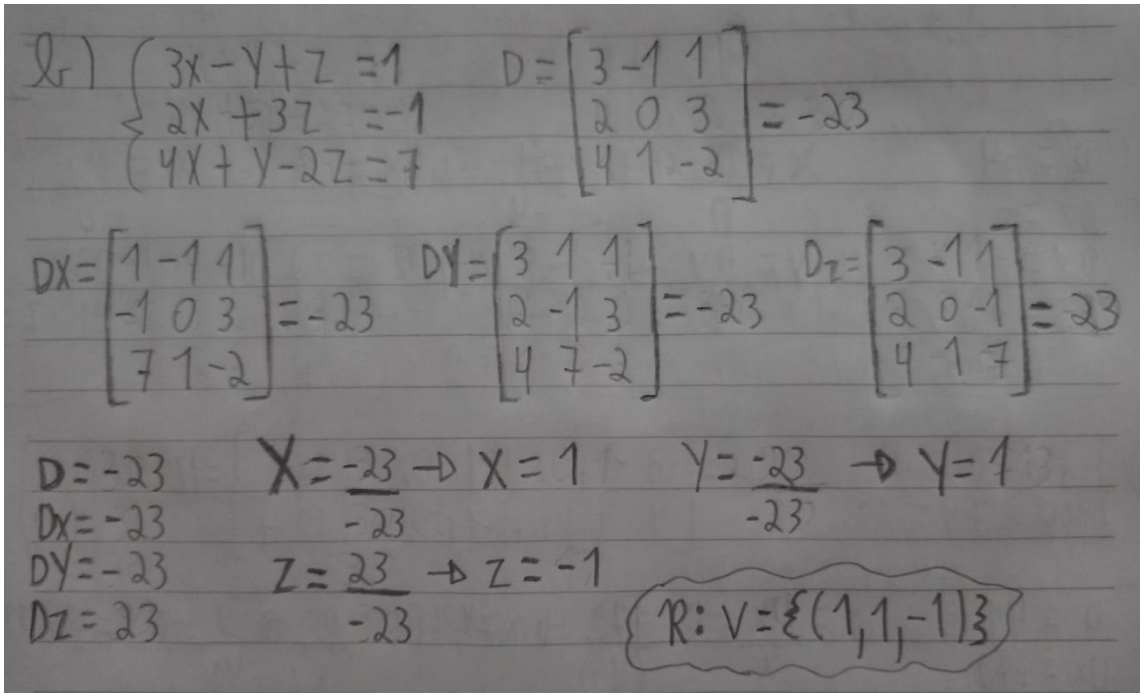
1.

a)



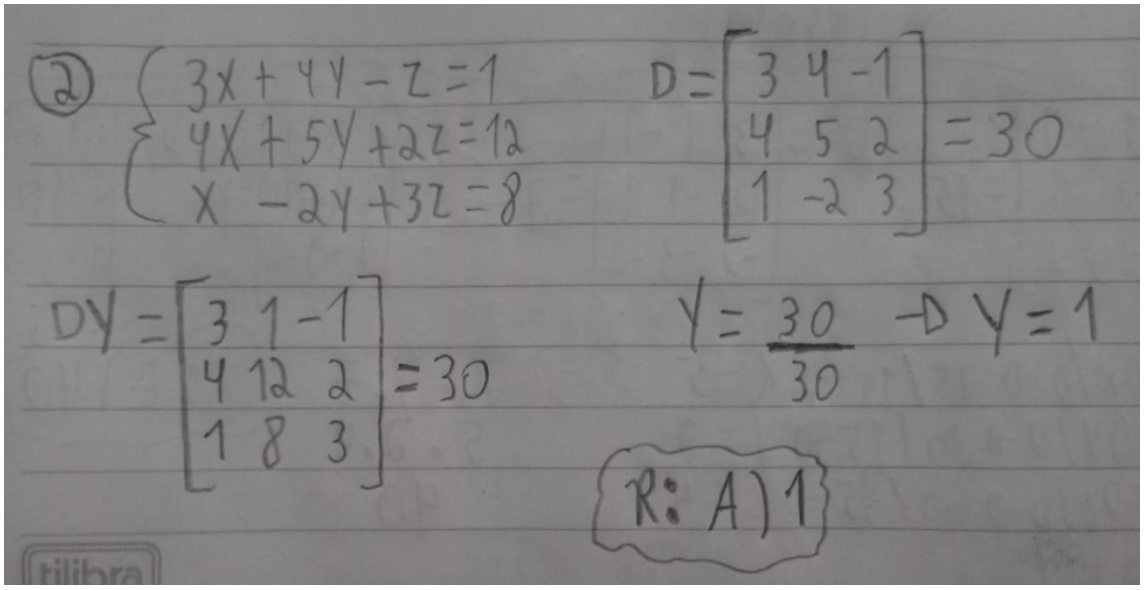
R: V = {(3/5,-4/5)} ou V = {(0,6;-0,8)}.

b)



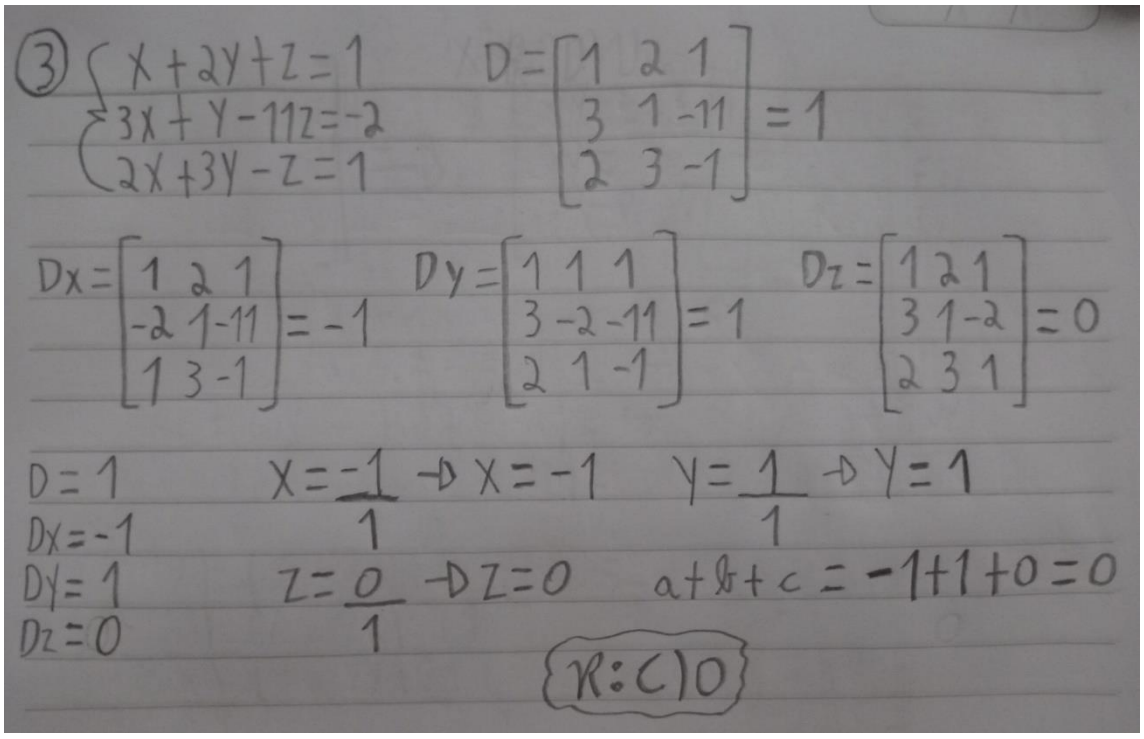
R: V = {(1,1,-1)}.

2.


② 3x + 4y − z = 1
4x + 5y + 2z = 12
x − 2y + 3z = 8
D = [3 4 −1; 4 5 2; 1 −2 3] = 30
Dy = [3 1 −1; 4 12 2; 1 8 3] = 30
y = 30/30 → y = 1
R: A) 1

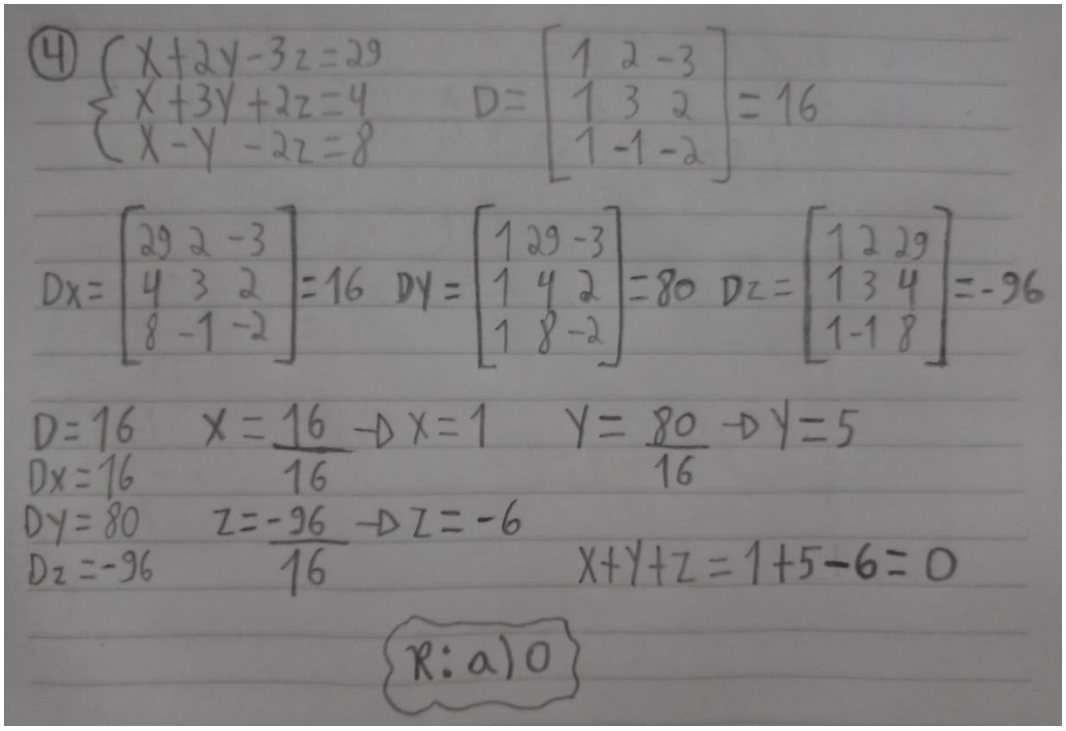
R: A) 1

3.


③ x + 2y + z = 1
3x + y − 11z = −2
2x + 3y − z = 1
D = [1 2 1; 3 1 −11; 2 3 −1] = 1
Dx = [1 2 1; −2 1 −11; 1 3 −1] = −1
Dy = [1 1 1; 3 −2 −11; 2 1 −1] = 1
Dz = [1 2 1; 3 1 −2; 2 3 1] = 0
D = 1
Dx = −1
Dy = 1
Dz = 0
x = −1/1 → x = −1
y = 1/1 → y = 1
z = 0/1 → z = 0
a + b + c = −1 + 1 + 0 = 0
R: C) 0

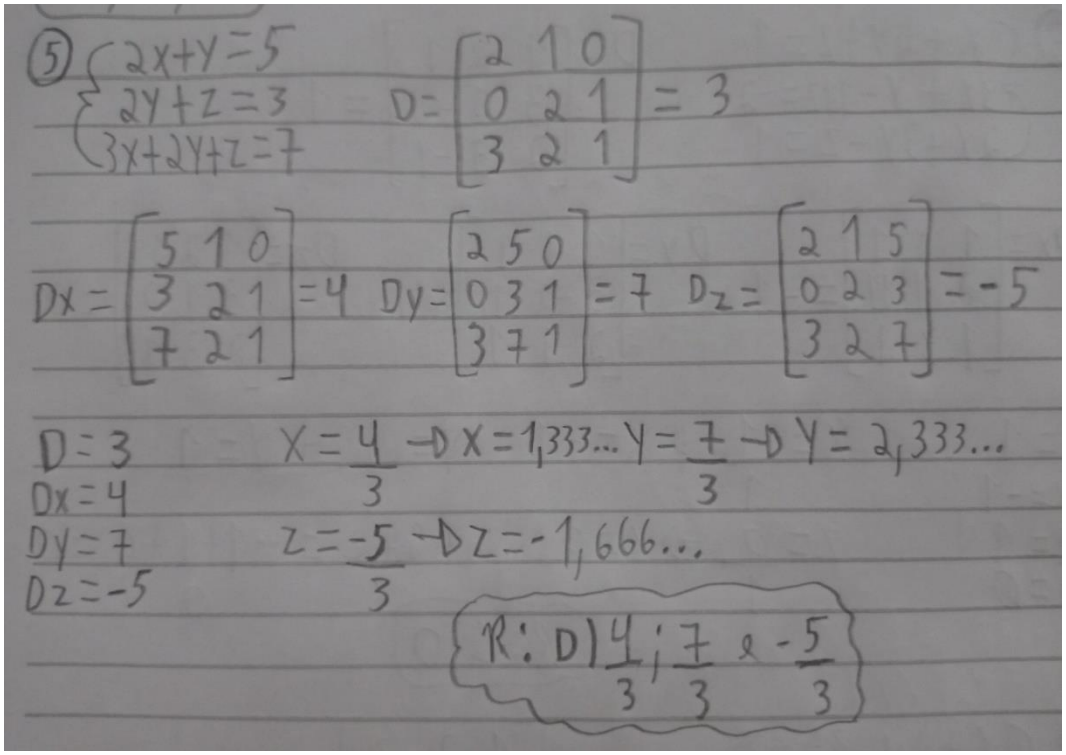
R: C) 0

4.



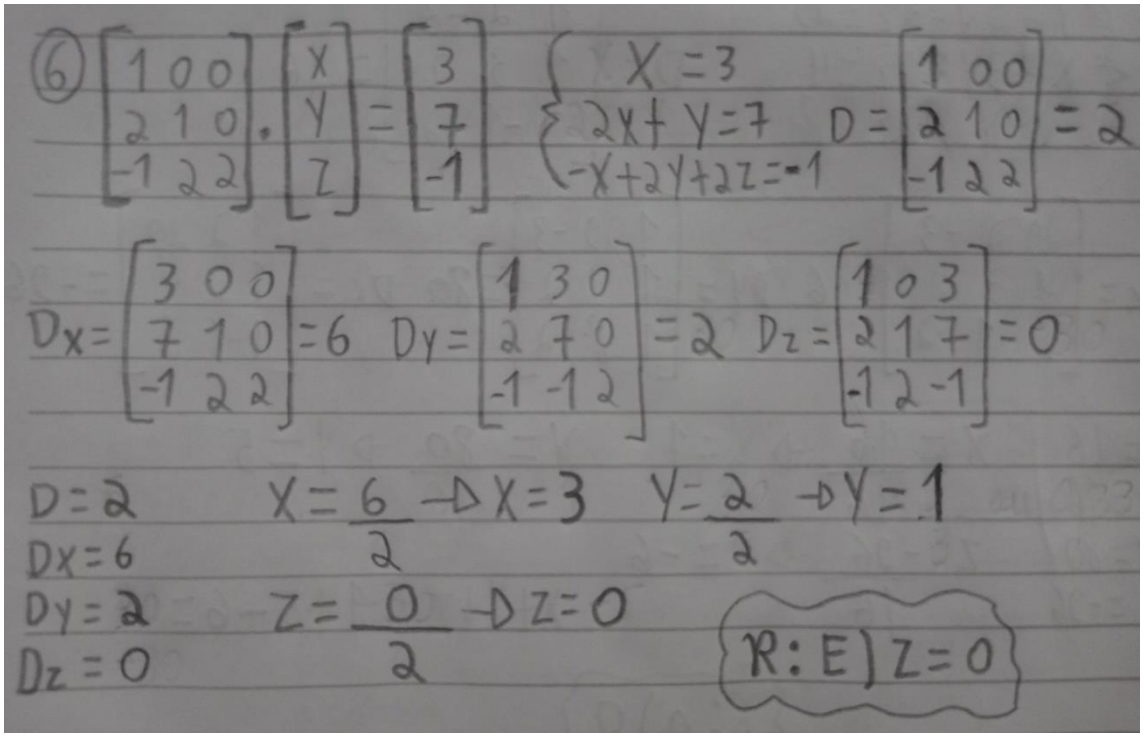
R: A) 0

5.



R: D) 4/3; 7/3 e -5/3

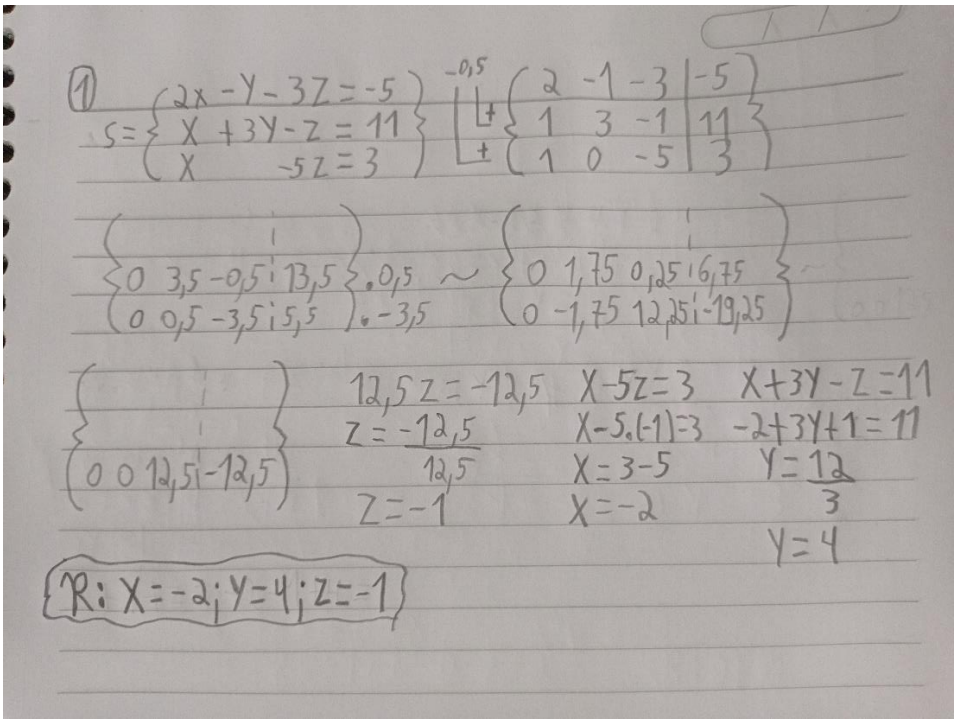
6.



R: E) Z = 0

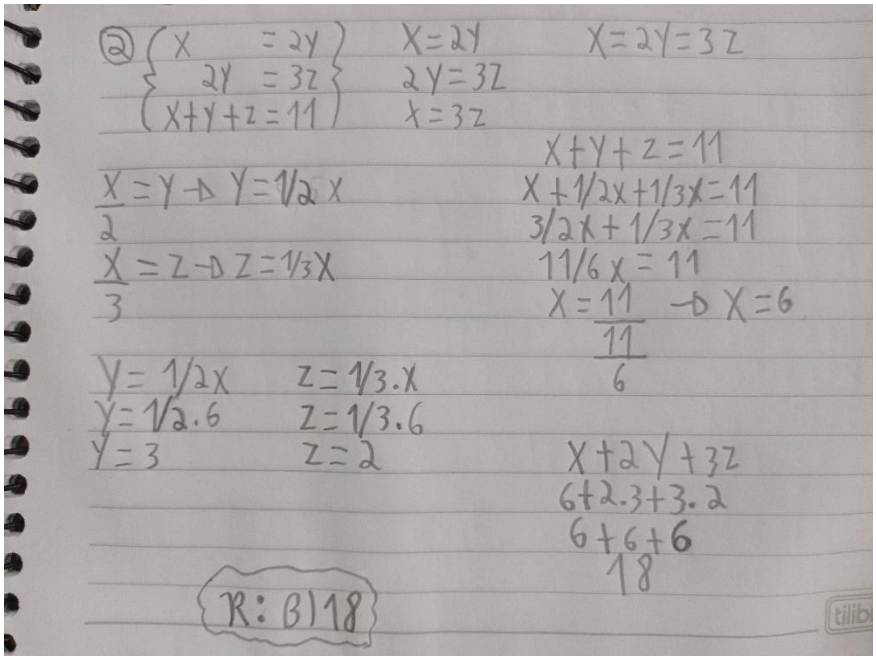
Escalonamento:

1.



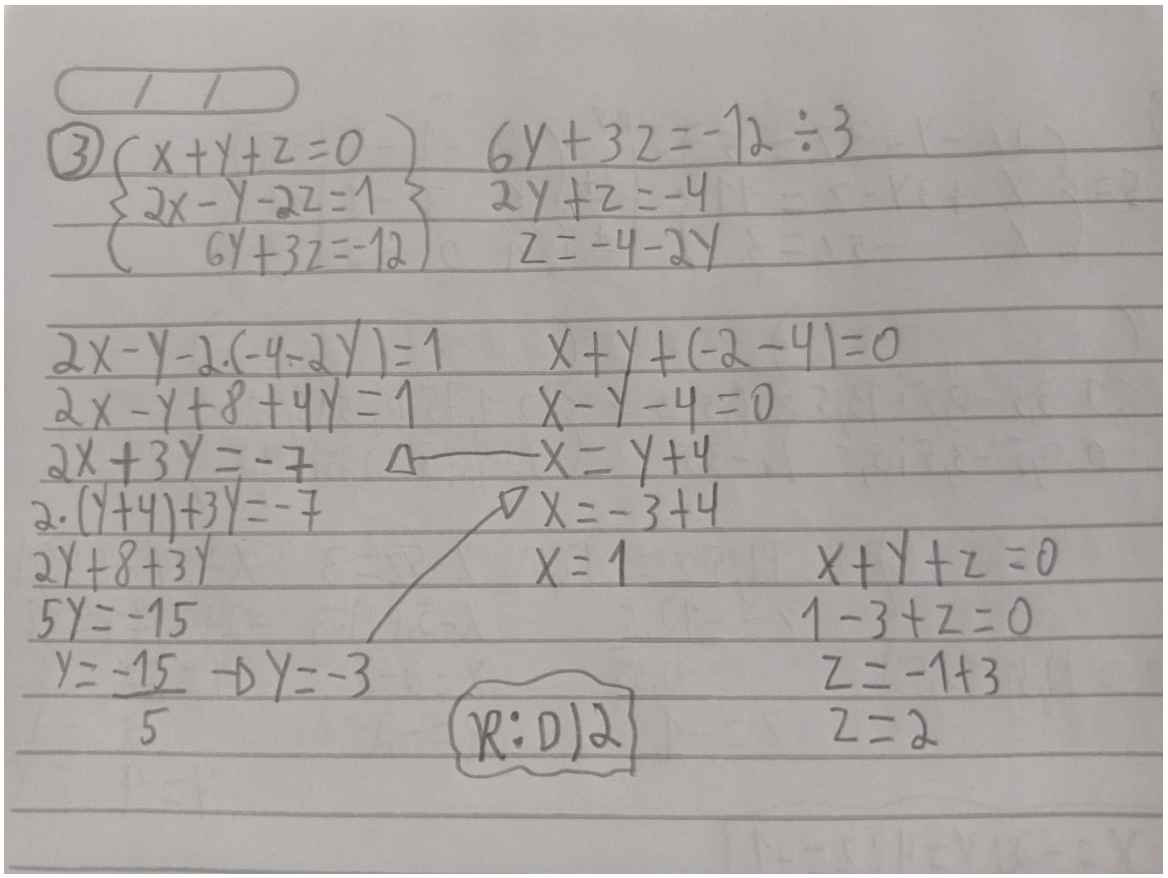
R: X = -2; Y = 4; Z = -1.

2.


② { X = 2Y ; 2Y = 3Z ; X+Y+Z = 11 }
X = 2Y = 3Z
X = 3Z
X+Y+Z = 11
X/2 = Y → Y = 1/2 X
X/3 = Z → Z = 1/3 X
X + 1/2X + 1/3X = 11
3/2X + 1/3X = 11
11/6 X = 11
X = 11 / 11/6 → X = 6
Y = 1/2X
Y = 1/2 . 6
Y = 3
Z = 1/3 . X
Z = 1/3 . 6
Z = 2
X + 2Y + 3Z
6 + 2.3 + 3.2
6 + 6 + 6
18
R: B) 18

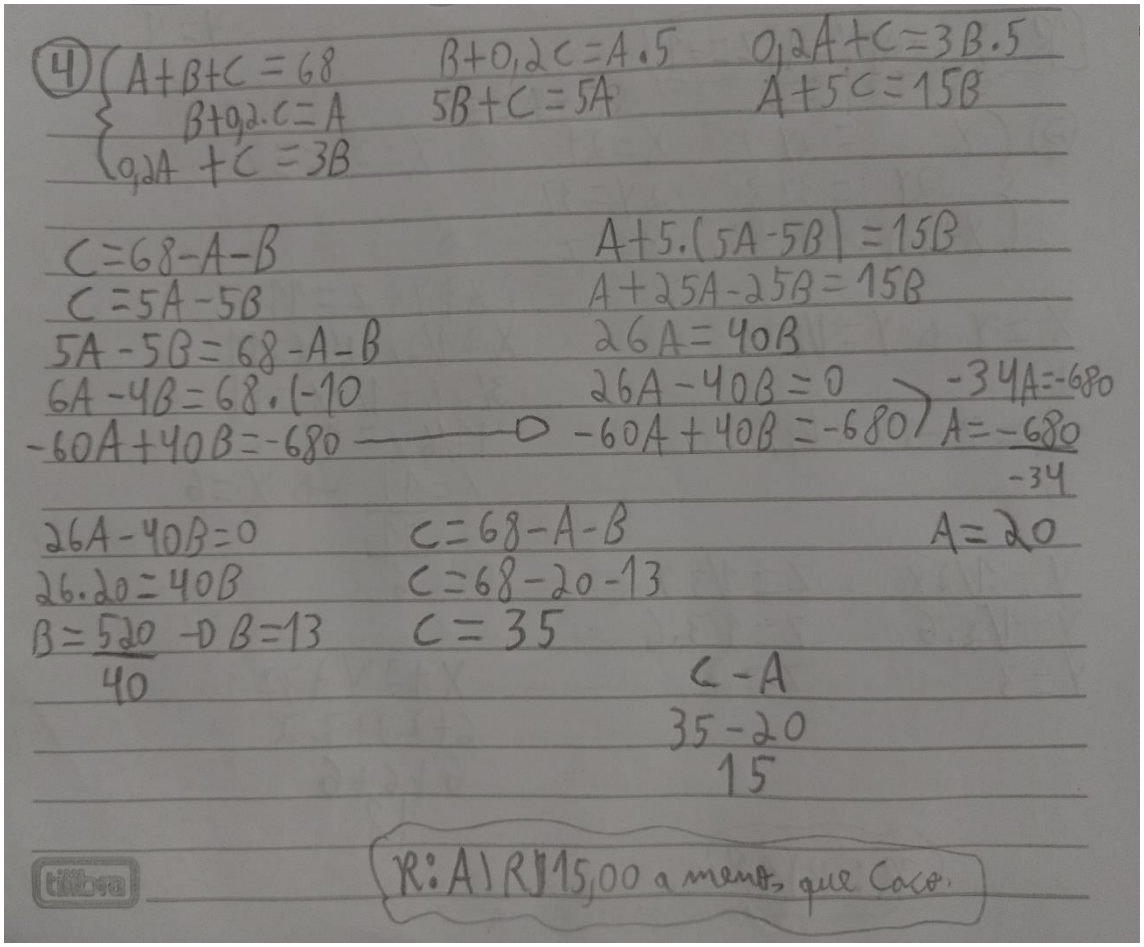
R: B) 18

3.


③ { X+Y+Z = 0 ; 2X-Y-2Z = 1 ; 6Y+3Z = -12 }
6Y + 3Z = -12 ÷ 3
2Y + Z = -4
Z = -4 - 2Y
2X - Y - 2.(-4-2Y) = 1
2X - Y + 8 + 4Y = 1
2X + 3Y = -7
2.(Y+4) + 3Y = -7
2Y + 8 + 3Y
5Y = -15
Y = -15/5 → Y = -3
X + Y + (-2-4) = 0
X - Y - 4 = 0
X = Y + 4
X = -3 + 4
X = 1
X + Y + Z = 0
1 - 3 + Z = 0
Z = -1 + 3
Z = 2
R: D) 2

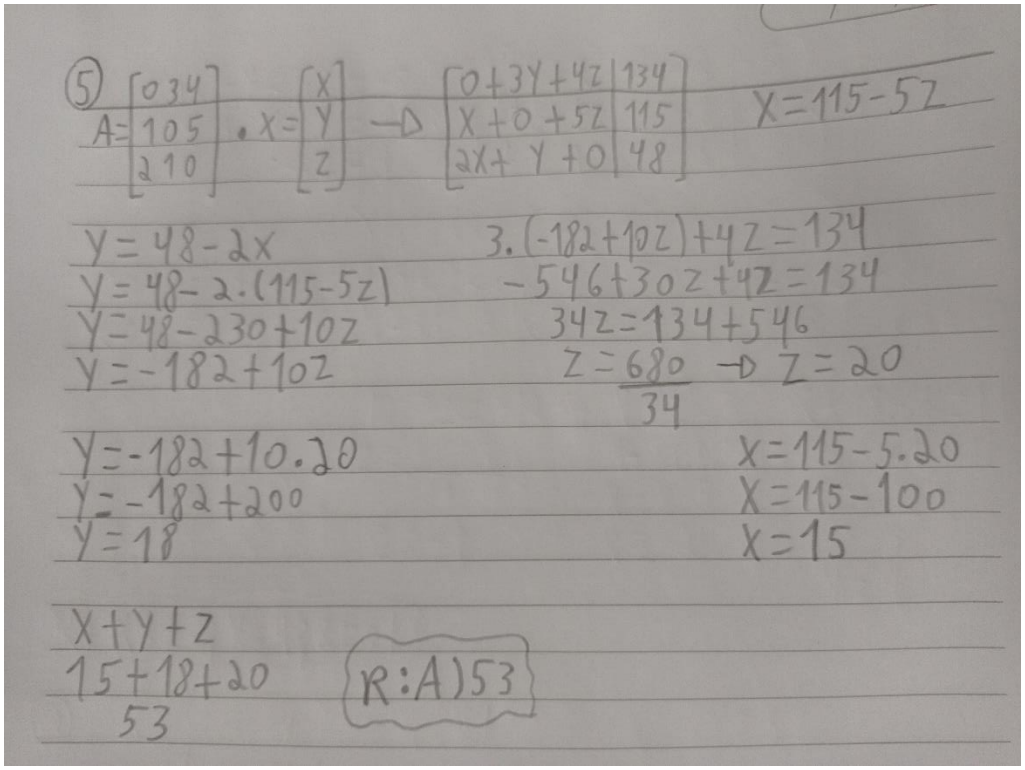
R: D) 2

4.



R: A) R$15,00 a menos que Caco.

5.


⑤
A= [0 3 4; 1 0 5; 2 1 0] . X= [X; Y; Z] → [0+3Y+4Z | 134; X+0+5Z | 115; 2X+Y+0 | 48]
X=115-5Z
Y=48-2X
Y=48-2.(115-5Z)
Y=48-230+10Z
Y=-182+10Z
3.(-182+10Z)+4Z=134
-546+30Z+4Z=134
34Z=134+546
Z=680/34 → Z=20
Y=-182+10.20
Y=-182+200
Y=18
X=115-5.20
X=115-100
X=15
X+Y+Z
15+18+20
53
R:A)53

R: A) 53