Methode de gauss :

x + 3y + 2z = 1

2x + y - z = 3

3x + 2y - 2z = 5

x 1 3 2 1

y 2 1 -1 3 🡨 L2-2L1

z 3 2 -2 5 🡨 L3-3L1

x 1 3 2 1

y 0 -5 -5 1

z 0 -7 -8 2 L3 🡨 L3-(7/5\*L2)

x 1 3 2 1

y 0 -5 -5 1

z 0 0 -1 3/5

Le système transformé est :

x + 3y + 2z = 1

-5y – 5z = 1

-z = 3/5

Z => -3/5 y => -5y+5\*3/5 =1 => -5y+3=1 => 2/5 x => x+(6/5) - (6/5) = 1 => 1

4x + 8y + 12z = 4  
3x + 8y + 13z = 5

2x + 9y + 18z = 11

4 8 12 4

3 8 13 5 L2 🡨 L2-3/4\*L1

2 9 18 11 L3 🡨 L3-1/2\*L1

4 8 12 4

0 2 4 2

0 5 12 9 L3 🡨L3-5/2\*L2

4 8 12 4

0 2 4 2

0 0 2 4

4x + 8y + 12z = 4

2y + 4z = 2

2z = 4

Z => 2z = 4 => z = 4/2 = 2  
Y => 2y + 4z = 2 => 2y + 8 = 2 => 2y = -6 => y = -6/2 => y = -3  
X => 1

x - y + 2z = 5  
3x + 2y + z = 10

2x - 3y - 2z = -10

1 -1 2 5

3 2 1 10 L2 🡨 L2-3L1

2 -3 -2 -10 L3 🡨 L3 – 2L1

1 1 2 5

0 5 -5 -5

0 -1 -6 -20 L3 🡨 L3 – (-1/5)\*L2

1 1 2 5

0 -1 -5 -5

0 0 -7 -21

X – y + 2z = 5

5y – 5z = -5

-7z = -21

Z = 3

Y = 2

X = 1

x + y + 0z = 1  
x + 2y - 2z = 0

2x + 3y - z = 1

1 1 0 1

1 2 -2 0 L2 🡨 L2-L1

2 3 -1 1 L3 🡨 L2 – 2L1

1 1 0 1

0 1 -2 1

0 1 -1 -1 L3 🡨 L3-L2

1 1 0 1

0 1 -2 -1

0 0 1 0

X + y = 1

Y - 2z = 1

Z = 0

Z=0

Y = -1

X = 1+1 = 2

x + y + 2z = 9  
x + y - z = 0

2x - y + z = -3

1 1 2 9

1 1 -1 0 L2 🡨 L2-L1

2 -1 1 -3 L3 🡨 L3-2L1

1 1 0 1

0 0 -3 -9

0 -3 -3 -15

1 1 0 1

0 -3 -3 -15

0 0 -3 -9

X + y = 1 x + -4 = 1

-3y – 3z = -15 -3y – 27 = -15 => -3y = 12 => -4

-3z = -9 => 3

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

X+y = 2 => x+1 = 2 => x = 1

Y+z =2 => y+1 = 2 => y = 1

2z = 2 => z = 1