

Gauss Elimination Method

| | | | |
|---|---|----|----|
| 1 | 1 | 1 | 9 |
| 2 | 5 | 7 | 52 |
| 2 | 1 | -1 | 0 |

$$\text{Ratio} = A[2][1] / A[1][1] = 2/1 = 2$$

| | | | |
|---------|---------|---------|-----------|
| 1 | 1 | 1 | 9 |
| 2-1x2=0 | 5-1x2=3 | 7-1x2=5 | 52-9x2=34 |
| 2 | 1 | -1 | 0 |

| | | | |
|---|---|----|----|
| 1 | 1 | 1 | 9 |
| 0 | 3 | 5 | 34 |
| 2 | 1 | -1 | 0 |

$$\text{Ratio} = A[3][1] / A[1][1] = 2/1 = 2$$

| | | | |
|---------|----------|-----------|-----------|
| 1 | 1 | 1 | 9 |
| 0 | 3 | 5 | 34 |
| 2-1x2=0 | 1-1x2=-1 | -1-1x2=-3 | 0-9x2=-18 |

| | | | |
|---|----|----|-----|
| 1 | 1 | 1 | 9 |
| 0 | 3 | 5 | 34 |
| 0 | -1 | -3 | -18 |

$$\text{Ratio} = A[3][2] / A[2][2] = -1/3 = -0.33$$

| | | | |
|---------------|----------------|--------------------|----------------------|
| 1 | 1 | 1 | 9 |
| 0 | 3 | 5 | 34 |
| 0-0x(-0.33)=0 | -1-3x(-0.33)=0 | -3-5x(-0.33)=-1.33 | -18-34x(-0.33)=-6.67 |

| | | | |
|---|---|-------|-------|
| 1 | 1 | 1 | 9 |
| 0 | 3 | 5 | 34 |
| 0 | 0 | -1.33 | -6.67 |

$$[1] Z = -6.67(A[3][4]) / -1.33(A[3][3]) \Rightarrow Z=5$$

$$[2] 3xY + 5xZ = 34 \Rightarrow 3xY + 5x5 = 34 \Rightarrow 3xY = 34 - 25 \Rightarrow 3xY = 9 \Rightarrow Y = 9/3 \Rightarrow Y=3$$

$$[3] X + Y + Z = 9 \Rightarrow X + 3 + 5 = 9 \Rightarrow X + 8 = 9 \Rightarrow X=1$$