How To Solve Linear Equations With Three Unknowns

Example: Solve the equation

X + Y - Z = 6

X - Y + Z = 2

X + 2Y - Z = 2

Solution

X + Y - Z = 6.........(i)

X - Y + Z = 2.........(ii)

X + 2Y - Z = 2.......(iii)

Subtract equation (ii) from (I) and subtract equation (iii) from (I)

We have,

X + Y - Z = 6........(I)

X - Y + Z = 2........(ii)

2Y - 2Z = 6

Y - Z = 2..............(iv)

X + Y - Z = 6........(I)

X + 2Y - Z = 2......(iii)

- Y = 4

Y = - 4

Substitute Y = - 4 in equation (iv)

- 4 - Z = 2

- Z = 2 + 4

- Z = 6

Z = - 6

Substitute Y= - 4 , Z = - 6 in equation (I)

X + Y - Z = 6

X - 4 - ( - 6 ) = 6

X - 4 + 6 = 6

X + 2 = 6

X = 6 - 2

X = 4

Therefore, X = 4, Y = - 4 , Z = - 6