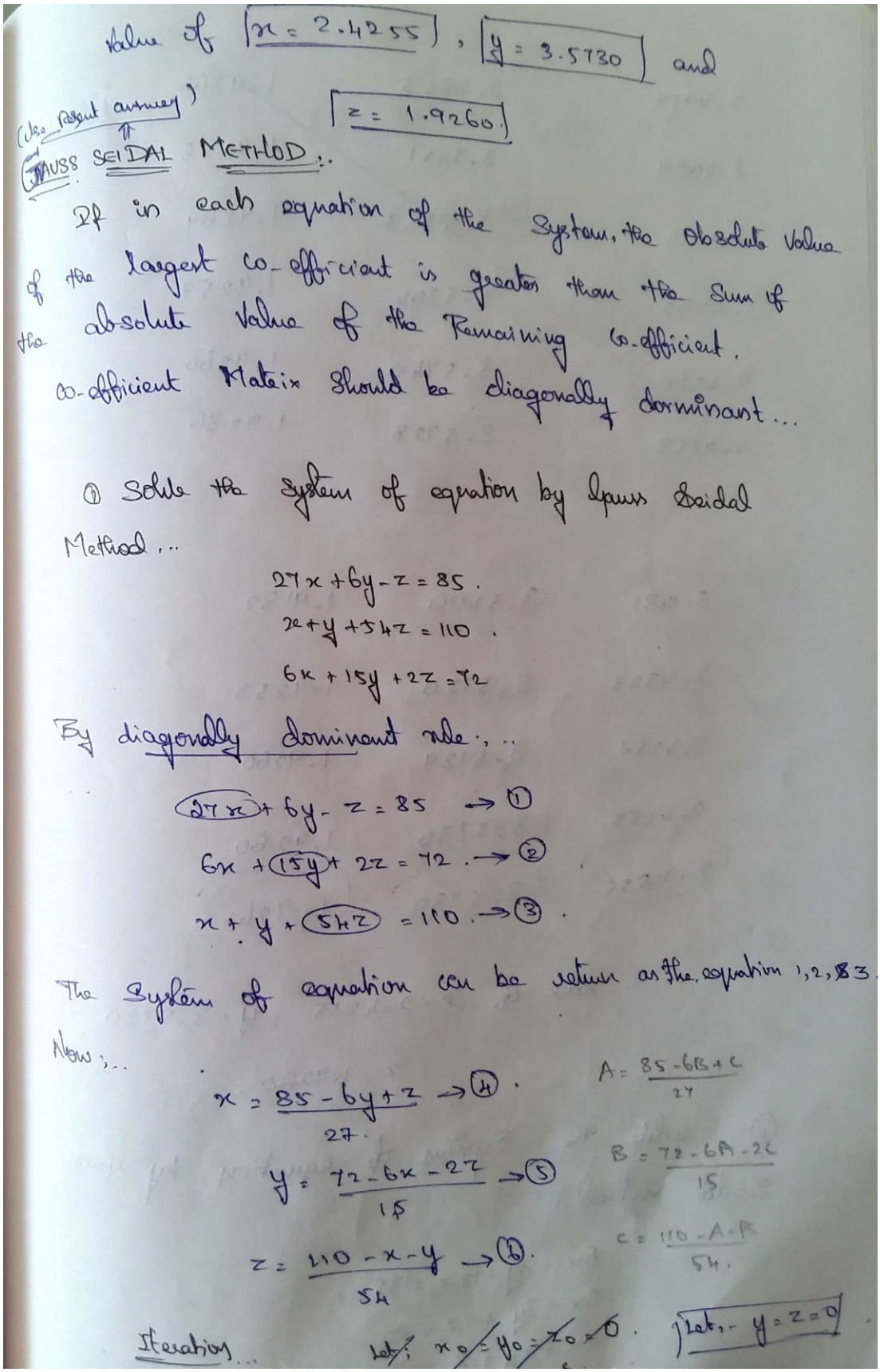

value of $x = 2.4255$, $y = 3.5730$ and $z = 1.9260$.
(the exact answer)

GAUSS SEIDAL METHOD :-

If in each equation of the system, the absolute value of the largest co-efficient is greater than the sum of the absolute value of the remaining co-efficient. Co-efficient Matrix should be diagonally dominant...

① Solve the system of equation by Gauss Seidal Method...

$$27x + 6y - z = 85.$$
$$2x + y + 54z = 110.$$
$$6x + 15y + 2z = 72$$

By diagonally dominant rule:-

$$27x + 6y - z = 85 \rightarrow (1)$$
$$6x + 15y + 2z = 72 \rightarrow (2)$$
$$x + y + 54z = 110 \rightarrow (3)$$

The system of equation can be return as the equation 1, 2, & 3.

Now:-

$$x = \frac{85 - 6y + z}{27} \rightarrow (4) \qquad A = \frac{85 - 6B + C}{27}$$

$$y = \frac{72 - 6x - 2z}{15} \rightarrow (5) \qquad B = \frac{72 - 6A - 2C}{15}$$

$$z = \frac{110 - x - y}{54} \rightarrow (6) \qquad C = \frac{110 - A - B}{54}$$

Iteration... Let, $x_0 = y_0 = z_0 = 0$. Let, $y = z = 0$

3.1481	3.5400	1.9132
2.4323	3.5720	1.9258.
2.4257.	3.5729	1.9260
2.4255	3.5730	1.9260
2.4255	3.5730	1.9260

∴ Value of $x = 2.4255$, $y = 3.5730$

$z = 1.9260$.

② . Solve the System of equation by Gauss Seidal method :.

$$6x + 3y + 12z = 35$$
$$8x - 3y + 2z = 20$$
$$4x + 11y - z = 33.$$

$$8x - 3y + 2z = 20 \rightarrow ①$$
$$4x + 11y - z = 33 \rightarrow ②$$
$$6x + 3y + 12z = 35 \rightarrow ③.$$

∴ This implies the equation is diagonally dominant.

From (1):- $x = \frac{20 + 3y - 2z}{8} \rightarrow (4)$.

Hy'... $y = \frac{33 - 4x + z}{11} \rightarrow (5)$.

$z = \frac{35 - 6x - 3y}{12} \rightarrow (6)$.

Iteration ...

Let... $y = z = 0$.

$x = \frac{1}{8}(20 + 3y - 2z)$ $\quad y = \frac{1}{11}(33 - 4x + z)$ $\quad z = (35 - 6x - 3y)/12$

1.	2.5000	2.0909	1.1439
2.	2.9981	2.0138	0.9142
3.	3.0266	1.9929	0.9051
4.	3.0211	1.9837	0.9102
5.	3.0163	1.9859	0.9120
6.	3.0167	1.9859	0.9118
7.	3.0168	1.9859	0.9118
8...	3.0168	1.9859	0.9118

Value of $x = 3.0168$, $y = 1.9859$ and.

$z = 0.9118$.

(3). Solve the system of equation by Gauss Seidal Method.

$28x + 4y - z = 32$

$x + 3y + 10z = 24$

$2x + 17y + 4z = 35$.

The given equation can be written as:

$28x + 4y - z = 32 \rightarrow (1)$

$2x + 17y + 4z = 35 \rightarrow (2)$

$x + 3y + 10z = 24 \rightarrow (3)$

∴ It

$$x = \frac{32 - 4y + z}{28} \rightarrow (4)$$

$$y = \frac{35 - 2x - 4z}{17} \rightarrow (5)$$

$$z = \frac{24 - 3y - x}{10} \rightarrow (6)$$

Iteration 1: Let $[y = z = 0]$.

$x = \frac{32 - 4y + z}{28}$	$y = \frac{35 - 2x - 4z}{17}$	$z = \frac{24 - 3y - x}{10}$
1.1429	1.9244	1.7084
0.9290	1.5476	1.8428
0.9876	1.5090	1.8485
0.9933	1.5070	1.8486
0.9936	1.5070	1.8485
0.9936	1.5070	1.8485

$\therefore$ $x = 0.9936$, $y = 1.5070$, $z = 1.8485$