Quiz # 2
Time: 10 minutes

Show all work. Check your answers.
Solve the following system of equations:

$$① \begin{cases} x + 2y + z = 2 \\ 2x - 2y + z = 5 \\ 3x - 4y - 2z = 1 \end{cases}$$
②
③

We proceed by Left-to-Right Elimination:

Step 1: Replace line ② by ② $- 2 \times$① : $-6y - z = 1$

Replace line ③ by ③ $- 3 \times$① : $-10y - 5z = -5$

(or better: $-2y + z = 1$)

The system becomes ① $\begin{cases} x + 2y + z = 2 \\ -6y - z = 1 \\ 2y + z = 1 \end{cases}$
②
③

Step 2: Replace line ③ by ③ $+ \frac{1}{3} \times$② : $\frac{2}{3} z = \frac{4}{3}$ $\longrightarrow$ $\boxed{z = 2}$

then backsubstitute $-6y - z = 1 \longrightarrow \boxed{y = -\frac{1}{2}}$

$x + 2y + z = 2 \longrightarrow \boxed{x = 1}$

Then check these values by plugging them into the original 3 equations

✓