Given the linear systems of equations.

$$
\begin{aligned}
x_1 + 2x_2 + 4x_3 &= 1 \\
-2x_1 - 3x_2 - 5x_3 &= 0 \\
2x_1 + x_2 &= -2
\end{aligned}
$$

1. Write the linear system as $Ax = b$.

2. Compute A^{-1}.

3. Use A^{-1} to solve $Ax = b$