

3x3 Example 2

$$2x + 2y = -2z$$

$$3y - 2z = -5x - 4$$

$$\frac{1}{2} - z = 3x + 2y$$

$$2x + 2y + 2z = 0$$

$$5x + 3y - 2z = -4$$

$$-3x - 2y - z = -1$$

$$R_1 \left[\begin{array}{ccc|c} x & y & z & \\ \hline 2 & 2 & 2 & 0 \\ 5 & 3 & -2 & -4 \\ -3 & -2 & -1 & -1 \end{array} \right] \begin{array}{l} R_1 \div 2 \\ R_2 - 5R_1' \\ R_3 + 3R_1' \end{array}$$

$$R_1' \left[\begin{array}{ccc|c} 1 & 1 & 1 & 0 \\ 0 & -2 & -7 & -4 \\ 0 & 1 & 2 & -1 \end{array} \right] \begin{array}{l} R_1 - R_2' \\ R_2 \div -2 \\ R_3 - R_2' \end{array}$$

$$R_2' \left[\begin{array}{ccc|c} 1 & 0 & -5/2 & -2 \\ 0 & 1 & 7/2 & 2 \\ 0 & 0 & -3/2 & -3 \end{array} \right] \begin{array}{l} R_1 + 5/2 R_3' \\ R_2 - 7/2 R_3' \\ R_3 \times -2/3 \end{array}$$

$$R_3' \left[\begin{array}{ccc|c} 1 & 0 & 0 & 3 \\ 0 & 1 & 0 & -5 \\ 0 & 0 & 1 & 2 \end{array} \right]$$

Interpretation:

x	=	3
y	=	-5
z	=	2

$$2 - \frac{7}{2}x = -5$$

$$-2 + \frac{5}{2}z = 3$$