

Exercise 1.

$$-3x_1 + 2x_2 + 2x_3 - 15x_4 = 7$$

$$x_1 - 3x_2 + x_3 + 7x_4 = -3$$

$$x_1 + x_4 = -1$$

$$2x_2 - 6x_4 = 2$$

RREF and system corresponding to RREF:

Parameter definitions for free variables and solution of the system in parametric form:

Solution set for system:

Exercise 2.

$$\begin{aligned}x_3 + x_4 - 6x_5 - 2x_6 &= -1 \\-3x_1 + 9x_2 - 2x_3 + x_4 - 3x_5 + 22x_6 &= 8 \\-2x_1 + 6x_2 + 2x_3 - 2x_4 + 2x_5 + 2x_6 &= 14\end{aligned}$$

RREF and system corresponding to RREF:

Parameter definitions for free variables and solution of the system in parametric form:

Solution set for system:

Exercise 3.

$$\begin{array}{rcl} -2x_1 + 10x_2 + 2x_3 + 4x_4 & + 10x_6 - 4x_7 + x_8 & = 7 \\ 2x_1 - 10x_2 - 2x_3 - 4x_4 + x_5 - 6x_6 + 2x_7 - 2x_8 & = & -10 \\ x_1 - 5x_2 - x_3 - 2x_4 & - 5x_6 + 2x_7 + 2x_8 & = 4 \end{array}$$

RREF and system corresponding to RREF:

Parameter definitions for free variables and solution of the system in parametric form:

Solution set for system:

Exercise 4.

$$\begin{array}{rcl} x_2 - x_3 - 2x_4 & = & 4 \\ -3x_1 + 2x_4 & = & -16 \\ x_1 - 3x_2 - 2x_3 + x_4 & = & 12 \\ 2x_2 + x_3 - 2x_4 & = & -2 \end{array}$$

RREF and system corresponding to RREF:

Parameter definitions for free variables and solution of the system in parametric form:

Solution set for system:

Exercise 5.

$$\begin{aligned} -x_1 + 5x_2 + 2x_3 + x_4 + x_5 &= -1 \\ -2x_1 + 10x_2 - x_3 + 2x_4 + x_5 &= -13 \\ -2x_1 + 10x_2 + x_3 + 2x_4 + 2x_5 &= -11 \\ x_1 - 5x_2 - 2x_3 - x_4 - 3x_5 &= 5 \\ -2x_1 + 10x_2 - x_3 + 2x_4 &= -6 \end{aligned}$$

RREF and system corresponding to RREF:

Parameter definitions for free variables and solution of the system in parametric form:

Solution set for system: