

5.2.13 #5 in My Lab

Solve the system of equations.

$$\begin{aligned} x + y + z &= -11 \quad (1) \\ 2x + 4y + 2z &= -28 \quad (2) \\ -x + 6y - 3z &= -2 \quad (3) \end{aligned}$$

Sol'n

$$(x, y, z) = (-3, -4, -3)$$

Sol'n Set:

$$(x, y, z) \in \{(-3, -4, -3)\}$$

Dependent?

$$E1 \quad x + y + z = -11$$

$$E2 \quad 2x + 4y + 2z = -28$$

$$E3 \quad -x + 6y - 3z = -2$$

$$E1 \quad x + y + z = -11$$

$$E2 \quad 2y = -6$$

$$E2 \quad y = -3$$

$$E3 \quad 7y - 2z = -13$$

$$y = -3$$

$$E3 \quad 7(-3) - 2z = -13$$

$$-21 - 2z = -13$$

$$-2z = 8$$

$$z = -4$$

$$-2E1 \quad -2x - 2y - 2z = 22$$

$$E2 \quad 2x + 4y + 2z = -28$$

$$-2E1 + E2 \quad 2y = -6$$

$$E1 \quad x + y + z = -11$$

$$E3 \quad -x + 6y - 3z = -2$$

$$7y - 2z = -13$$

$$E1 \quad x + (-3) + (-4) = -11$$

$$x - 7 = -11$$

$$x = -4$$