

5.2 #6 #17 is text

Solve the system of equations.

$$\begin{aligned} 8x - y + z &= -9 & (1) \\ 2x + 2y - 3z &= -24 & (2) \\ x - 3y + 2z &= 13 & (3) \end{aligned}$$

$$\begin{aligned} x - 3y + 2z &= 13 \\ 23y - 15z &= -113 \\ 8y - 7z &= -50 \end{aligned}$$

$$\begin{aligned} x - 3y + 2z &= 13 & -8E1 & -8x + 24y - 16z = -104 \\ 3x - y + z &= -9 & E2 & 3x - y + z = -9 \\ \hline 2x + 2y - 3z &= -24 & -8E1 + E2 & 23y - 15z = -113 \\ -2E1 & -2x + 6y - 4z = -26 \\ \hline E3 & 2x + 2y - 3z = -24 \\ \hline 8y - 7z &= -50 \end{aligned}$$

$$\begin{aligned} -8E2 & -184y + 120z = 904 \\ 23E3 & 184y - 161z = -1150 \\ \hline & -41z = -246 \end{aligned}$$

$$\begin{array}{r} 1 \ 23 \\ \underline{50} \\ 1150 \end{array}$$

$$z = \frac{-246}{-41} = 6$$

$$x - 3y + 2z = 13$$

$$23y - 15z = -113$$

$$z = 6$$

$$23y - 15(6) = -113$$

$$23y - 90 = -113$$

$$23y = -23$$

$$y = -1$$

$$\begin{array}{r} 113 \\ \underline{90} \\ 203 \end{array}$$

$$\begin{array}{r} 315 \\ \underline{6} \\ 90 \end{array}$$

$$x - 3(-1) + 2(6) = 13$$

$$x + 3 + 12 = 13$$

$$x + 15 = 13$$

$$x = -2$$