

Exercise 7

In Exercises 7–10, the augmented matrix of a linear system has been reduced by row operations to the form shown. In each case, continue the appropriate row operations and describe the solution set of the original system.

$$\left[\begin{array}{cccc} 1 & 7 & 3 & -4 \\ 0 & 1 & -1 & 3 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 1 & -2 \end{array} \right]$$

Solution

Switch the third row with the fourth row.

$$\left[\begin{array}{ccc|c} 1 & 7 & 3 & -4 \\ 0 & 1 & -1 & 3 \\ 0 & 0 & 1 & -2 \\ 0 & 0 & 0 & 1 \end{array} \right]$$

The last row implies that $0 = 1$, which means the solution set is the empty set \emptyset . In other words, no choice of x_1 , x_2 , and x_3 can make $0x_1 + 0x_2 + 0x_3 = 1$ a true statement.