

Zesty: Solve for Z, and Y, and X. In that order, to make it easy.

$$\begin{aligned} X + Y + Z &= 18 \\ 2Y + Z &= 17 \\ Z &= 5 \end{aligned}$$

Convert the **systems of equations** on the left to **augmented matrices** on the right:

$$\begin{aligned} x + 2y &= 4 \\ y + 5z &= 7 \\ 8x + 17y - z &= 9 \end{aligned}$$

$$\begin{aligned} 1x + 2y + 0z &= 4 \\ 0x + 1y + 5z &= 7 \\ 8x + 17y + -1z &= 9 \end{aligned}$$

$$\left[\begin{array}{ccc|c} X & Y & Z & RHS \\ \hline 1 & 2 & 0 & 4 \\ 0 & 1 & 5 & 7 \\ 8 & 17 & -1 & 9 \end{array} \right]$$

$$\begin{aligned} 2x + 3z &= 4 \\ 6z + 5y &= 7 \\ 8x + 9y &= 1 \end{aligned}$$

$$\begin{aligned} 4x + 3z &= 2 \\ 8z - y &= 7 \\ 5x - 9y &= 6 \end{aligned}$$

$$\begin{aligned} y &= 3 - 2x \\ z &= 7 + 4y \\ x &= 6 + 5z \end{aligned}$$

REF Example: Finish him! (1) Circle the pivots, (2) draw a long arrow, (3) write down the row op you are going to do, (4) write the final matrix at the end of the arrow.

$$\left[\begin{array}{ccc|c} 1 & 2 & 0 & 4 \\ 0 & 1 & 5 & 7 \\ 0 & 1 & -1 & -23 \end{array} \right]$$

Situation: Low-level supervisor with three kinds of workers: packers, sewers, and cutters. You have three types of products: short-sleeve, sleeveless, long-sleeve. It takes the following amount of minutes to make them, and you have the given amount of hours of labor available:

| | Short | Less | Long | Avail |
|-------------|--------------|-------------|-------------|--------|
| Pack | 4 | 3 | 4 | 24hrs |
| Sew | 24 | 22 | 28 | 160hrs |
| Cut | 12 | 9 | 15 | 80hrs |

What should you tell them to do?

| |
|-------------------------|
| Marching orders: |
|-------------------------|

(Show your work below, feel free to work with your neighbor.)