3.8 Matrix inverses homework

1. Solve the following system by finding an inverse matrix:

$$\begin{aligned} 2x + 3y - 3z &= 2 \\ y - 2z &= -1 \\ x + z &= 2 \end{aligned}$$

Use the same inverse to solve the following system:

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

2. Solve the following system by finding an inverse matrix:

$$\begin{aligned} x - 2y + 5z &= 20 \\ 2x - 3y + 9z &= 38 \\ 2x - 4y + 11z &= 45 \end{aligned}$$

Use the same inverse to solve the following system:

$$\begin{aligned} x - 2y + 5z &= 4 \\ 2x - 3y + 9z &= 8 \\ 2x - 4y + 11z &= 9 \end{aligned}$$

Solutions:

1. $(1, 1, 1)$, $(0, 1, 2)$
2. $(1, 3, 5)$, $(1, 1, 1)$