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1 Section 3.2

1.1 3.2.1

The following linear system is in echelon form. Solve the linear system by back substitution.

$$\begin{cases} x_1 + x_2 + 2x_3 = 2 \\ x_2 + 3x_3 = 4 \\ x_3 = 3 \end{cases}$$

$$\begin{aligned} x_2 + 3(3) &= 4 \\ x_2 &= -5 \\ x_1 + (-5) + 2(3) &= 2 \\ x_1 &= 1 \end{aligned}$$

$$\boxed{x_1 = 1, x_2 = -5, x_3 = 3}$$

The following linear system is in echelon form. Solve the linear system by back substitution.

$$\begin{cases} x_1 - 9x_2 + x_3 = 18 \\ x_2 + x_3 = 2 \end{cases}$$

$$\begin{aligned} x_1 - 10x_2 &= 16 \\ x_2 &= 2 - x_3 \end{aligned}$$