Precalculus

8-03 Multivariable Linear Systems

Row-Echelon Form

- The first _____term in each equation has a coefficient of _____.
- All terms _____the leading 1 are _____producing an inverted _____shape.
- Any equations that are all _____are at the _____.

$$\begin{cases} 1x + y + 3z = 3 \\ \quad 1y + 5z = 10 \\ \qquad 1z = 7 \end{cases}$$

Elementary Row Operations

The following operations are allowed in systems of equations and produce equivalent systems.

- _____**two equations**
- _____**one equation by a nonzero constant**
- _____**a multiple of one equation to another equation and replace the latter equation**

Solve $\begin{cases} x + y \quad + z = 3 \\ 2x - y \quad + 3z = 16 \\ x - 2y \quad - z = 1 \end{cases}$

Solve $\begin{cases} x + 2y - 7z = -4 \\ 2x + 3y + z = 5 \\ 3x + 7y - 36z = -25 \end{cases}$

Solve $\begin{cases} x - y + 4z = 3 \\ 4x - z = 0 \end{cases}$