

Examples of Singular Systems

Example with no solutions:

$$\left[\begin{array}{ccc|c} 2 & 1 & 1 & 5 \\ 0 & -8 & -2 & -12 \\ 0 & 0 & 0 & 2 \end{array} \right]$$

\implies last equation is $0u + 0v + 0w = 2$, i.e. $0 = 2$ (never satisfied). Note that the last row of the augmented matrix here has a pivot but the coefficient matrix does not!