

1.6 – More on Linear Systems and Invertible Matrices

Theorem 1.6.1: A system of linear equations has zero, one, or infinitely many solutions. There are no other possibilities.

Theorem 1.6.2: If A is an invertible $n \times n$ matrix, then for every $n \times 1$ matrix \mathbf{b} , the system of equations $A\mathbf{x} = \mathbf{b}$ has exactly one solution, namely $\mathbf{x} = A^{-1}\mathbf{b}$.

#4 Solve the system by inverting the coefficient matrix and using Theorem 1.6.2.

$$5x_1 + 3x_2 + 2x_3 = 4$$

$$3x_1 + 3x_2 + 2x_3 = 2$$

$$x_2 + x_3 = 5$$



