

1. Solve the following problem by writing a system of equations (be sure to identify your variables) and solving the system of equations using matrix row-reduction.

A theater wants to take in \$2000 for a certain matinee. Children's tickets cost \$5.00 each and adult tickets cost \$10.00 each. The theater has a maximum of 350 seats. What number of children's tickets and adult tickets can the theater sell?

The systems of equations, given below, have already been written as an augmented matrix. Solve these systems. Show all of your work including a description what you did on each step.

2.
$$\left[\begin{array}{cc|c} 3 & 2 & -6 \\ 1 & 2 & 2 \end{array} \right]$$

3.
$$\left[\begin{array}{cc|c} -3 & 1 & -12 \\ 2 & 3 & -14 \end{array} \right]$$

*Success is not final. Failure is not fatal.
It is the courage to continue that counts.*



$$4. \quad \begin{bmatrix} 7 & 2 & 24 \\ 8 & 2 & 30 \end{bmatrix}$$

$$5. \quad \begin{bmatrix} 5 & 1 & 9 \\ 10 & -7 & -18 \end{bmatrix}$$

Solve the following systems of equations with a method of your choice.

$$6. \quad \begin{cases} x - y = 11 \\ 2x + y = 19 \end{cases}$$

$$7. \quad \begin{cases} -4x + 9y = 9 \\ x = 3y - 6 \end{cases}$$