




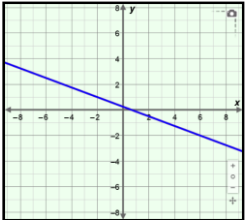
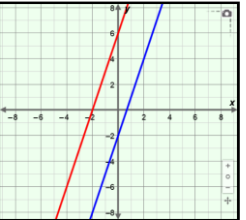
## Vocabulary: Solving Linear Systems (Matrices and Special Solutions)



### Vocabulary

- Consistent system – a system of equations with at least one solution.
- Dependent system – a system of equations with an infinite number of solutions.
- Determinant – the difference of the products of the diagonal elements of a square matrix.
  - The determinant of  $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$  is  $\begin{vmatrix} a & b \\ c & d \end{vmatrix} = ad - bc$ .
- Inconsistent system – a system of equations with no solution.
- Independent system – a system of equations with exactly one solution.
- Matrix – a rectangular array of numbers and/or variables.
  - The matrix shown to the right has 2 rows and 3 columns, so it is a  $2 \times 3$  matrix.
  - Each number or variable in a matrix is called an *element*.
- Solution – a value or values that makes an equation or system of equations true.
  - For example,  $(2, 7)$  is a solution of the equation  $y = 3x + 1$  because it makes the equation true:  $7 = 3(2) + 1$ .
- System of linear equations – a set of two or more linear equations with the same variables.
  - A summary of the types of systems is given below:

$$\begin{bmatrix} -5 & 16 & 7 \\ -8 & -4 & 10 \end{bmatrix}$$

	Intersecting lines	Same line	Parallel lines
<b>Graph</b>			
<b>Number of solutions</b>	exactly one	infinitely many	none
<b>Type of system</b>	consistent and independent	consistent and dependent	inconsistent

