

Algebra I

Notes 6.2, Part 1 Solving Systems of Slope-Intercept Equations Using Substitution

Objectives: Given a system of equations in slope-intercept form, solve using algebraic substitution. Check a solution to a system of equations.

The graphing method to solve a system of equations is a “guess and check” method. To find an exact solution, use substitution.

If a point is a solution to a system of linear equations,
-the point is where the lines INTERSECT;
-the point lies on BOTH lines; and
-the point must make BOTH equations true.

TO SOLVE A SYSTEM OF EQUATIONS IN SLOPE-INTERCEPT FORM:

1. Verify that both equations are in the form $y = mx + b$.
2. Let the right-hand sides of the equations equal each other and solve for x .
3. Solve for the y -coordinate using one of the equations.
4. Write your solution as an ordered pair (x, y) .
5. Verify your result.

Example 1

$$\begin{cases} y = x + 1 \\ y = -2x + 4 \end{cases}$$

Example 2

$$\begin{cases} y = x - 3 \\ y = 2x - 8 \end{cases}$$

Example 3

$$\begin{cases} y = x - 1 \\ y = -2x + 5 \end{cases}$$

Classroom Practice

$$1. \begin{cases} y = x + 7 \\ y = 2x + 9 \end{cases}$$

$$2. \begin{cases} y = 2x + 1 \\ y = x + 3 \end{cases}$$

$$3. \begin{cases} y = -x + 8 \\ y = x - 2 \end{cases}$$

$$4. \begin{cases} y = 4x + 3 \\ y = x \end{cases}$$

$$5. \begin{cases} y = -3x + 5 \\ y = 2x - 10 \end{cases}$$

$$6. \begin{cases} y = x - 1 \\ y = -x + 3 \end{cases}$$