

NOTES & HOMEWORK

Name _____
Date _____ Period _____

Solving Systems by Graphing & Substitution

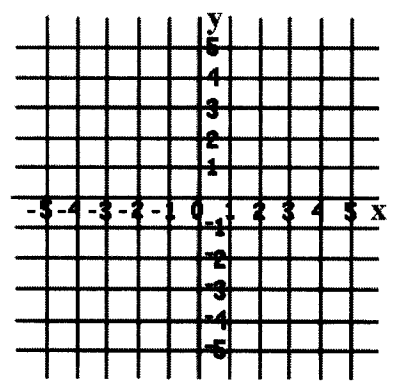
REVIEW

Solve each system by graphing. Write *no solution* or *infinitely many solutions* where appropriate. Check your answer by plugging in the coordinate of intersection back into the equations.

1.) $y = \frac{1}{2}x - 1$
 $y = -\frac{1}{2}x - 1$

Graph:

Check:

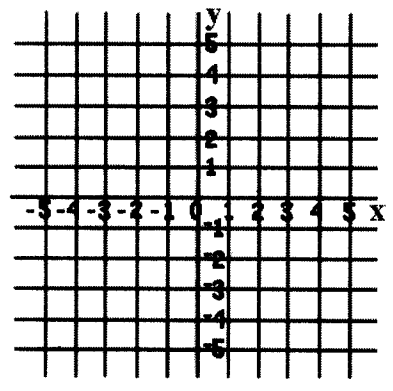


Answer: _____

2.) $y = 3x$
 $y = 5x$

Graph:

Check:

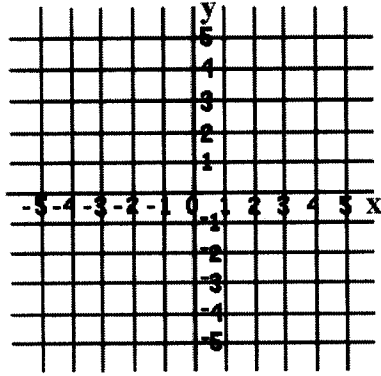


Answer: _____

3.) $x + y = -1$
 $x + y = 1$

Graph:

Check:

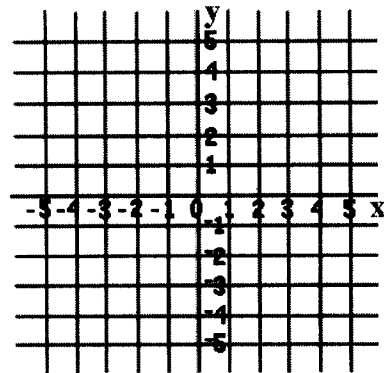


Answer: _____

4.) $y = -2x + 1$
 $y = 2x - 3$

Graph:

Check:

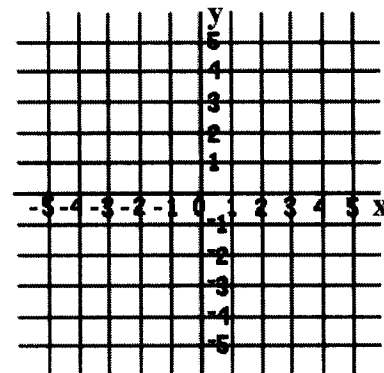


Answer: _____

5.) $x - y = -3$
 $3x + y = -1$

Graph:

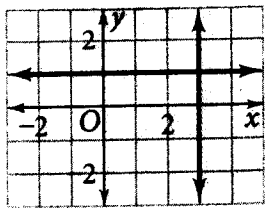
Check:



Answer: _____

For each graph, write the system of linear equations and its solution.

Example:

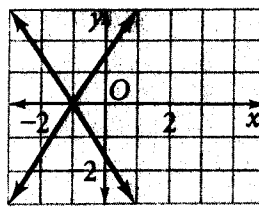


$$y = 1 + 0x$$

$$x = 3$$

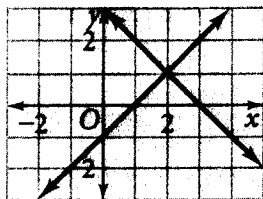
Ans: (3, 1)

6.)



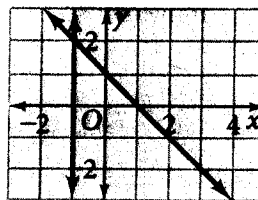
Ans: _____

7.)



Ans: _____

8.)



Ans: _____

Something New! Solving Systems Using Substitution:

You've been using graphing to solve systems. Another way to solve a system is to use substitution. Substitution allows you to create a one-variable equation.

Example 1:

Solve the system $y = x + 6.1$ using substitution.

$$y = -2x - 1.4$$

$$y = -2x - 1.4$$

Start with one equation.

$$x + 6.1 = -2x - 1.4$$

Substitute $x + 6.1$ for y in that equation.

$$+2x \quad +2x$$

$$3x + 6.1 = -1.4$$

Now solve for x .

$$\underline{-6.1 \quad -6.1}$$

$$3x = -7.5$$

$$\underline{/3 \quad /3}$$

$$x = -2.5$$

Substitute -2.5 for x in either equation and solve for y .

$$y = (-2.5) + 6.1$$

$$y = 3.6$$

Since $x = -2.5$ and $y = 3.6$, the solution is $(-2.5, 3.6)$

Check:

$$3.6 = -2(-2.5) - 1.4$$

$$3.6 = 5 - 1.4$$

$$3.6 = 3.6$$

Solve each system using substitution. Check your solution.

9.) $y = 2x + 1$
 $y = x + 3$

Check:

10.) $y = 2x$
 $7x - y = 15$

Check:

11.) $x + y = 6$
 $x = -3y$

Check: