Solving Systems of Equations by Substitution

Steps	Example: $y = x + 3$ $-3x + 3y = 4$
1) Substitution is used when you have a variable by itself: identify that variable	
2) Look at the other equation and identify where you can substitute the equation from step one	
3) Substitute and solve	
4) Substitute for the variable you solved for in step 3 and solve for the remaining variable	
5) Write your solution as an ordered pair	

Steps	Example: $2x - 3y = -24$ $x + 6y = 18$
1) Substitution is used when you have a variable with a coefficient of 1: identify that variable	
2) Solve for the variable that has a coefficient of one	
3) Identify the variable that you can substitute your newly solved equation	
4) Substitute and Solve	
5) Substitute for the variable you solved for in step 3 and solve for the second variable	
6) Write your solution as an ordered pair	

Solving Systems of Equations by Substitution Practice

Solve each system by substitution.

1) $y = 6x - 11$
      $-2x - 3y = -7$

2) $2x - 3y = -1$
      $y = x - 1$

3) $y = -3x + 5$
      $5x - 4y = -3$

4) $-3x - 3y = 3$
      $y = -5x - 17$

5) $y = -2$
      $4x - 3y = 18$

6) $y = 5x - 7$
      $-3x - 2y = -12$

7) $-4x + y = 6$
      $-5x - y = 21$

8) $-7x - 2y = -13$
      $x - 2y = 11$

Why Does the President Put Vegetables in His Blender?

Directions: Solve each system of equations below by the substitution method. Find the solution in the nearest answer column and notice the two letters next to it. Print these letters in the two boxes at the bottom of the page that contain the number of that exercise.

Answers 1-6	
(4,2)	LD
(6,−1)	NG
(1,2)	TR
(4,8)	HE
(1,−3)	HO
(6,−3)	NT
(5,3)	FO
(9,2)	PI
(7,3)	TH
(5,2)	IS

1) $y = 2x$
$x + y = 12$

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

3) $y = 2x - 5$
$4x - y = 7$

4) $2x - 3y = 12$
$x = 4y + 1$

5) $y = -x + 5$
$x - 4y = 10$

6) $x - y = 2$
$4x - 3y = 11$

7) $-2x + 3y = 14$
$x + 2y = 7$

8) $6x - y = -4$
$2x + 2y = 15$

9) $x + y = 1$
$2x - y = -2$

10) $5x - 3y = -11$
$x - 2y = 2$

11) $x - y = 3$
$6x + 4y = 13$

12) $2x - y = 16$
$-x + 2y = -8$

Answers 7-12	
$\left(\frac{1}{2}, -3\right)$	IN
$\left(8, -\frac{1}{2}\right)$	VE
$\left(-\frac{1}{3}, \frac{4}{3}\right)$	RL
(8,0)	AS
(−3,4)	TE
$\left(\frac{1}{2}, 7\right)$	HI
$\left(\frac{5}{2}, \frac{4}{3}\right)$	LO
(−1,4)	RW
$\left(\frac{5}{2}, -\frac{1}{2}\right)$	PE
(−4,−3)	ED

1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12