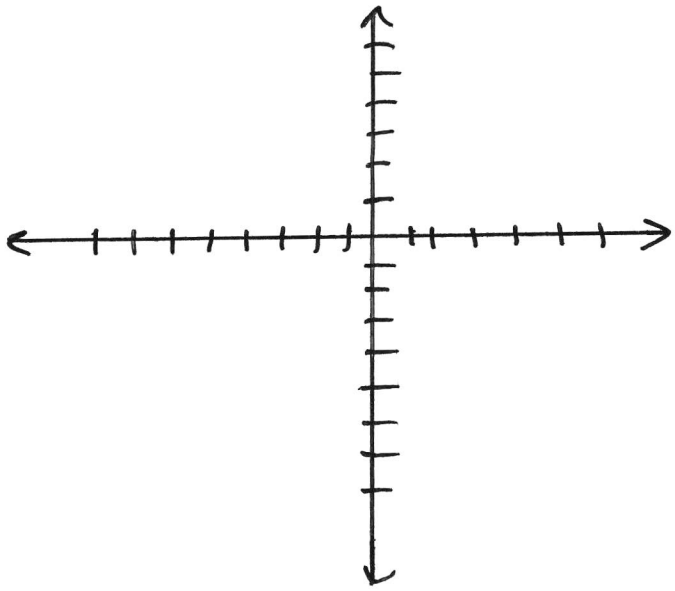
Ch 14 NOTES: Solving w/Substitution

① $y = 2x - 7$

$2x + y = 1$



② $y = x$

$y = 3x - 4$

③ $y = x - 1$

$y = 3x + 1$

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Name_____

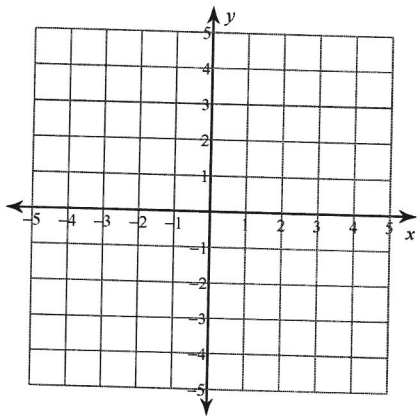
Solving Systems of Equations by Graphing

Date_____ Period____

Solve each system by graphing.

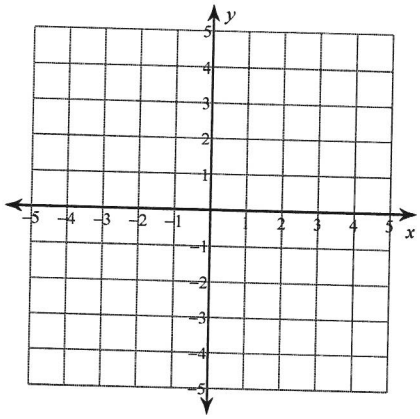
1) $y = -\frac{5}{3}x + 3$

$y = \frac{1}{3}x - 3$



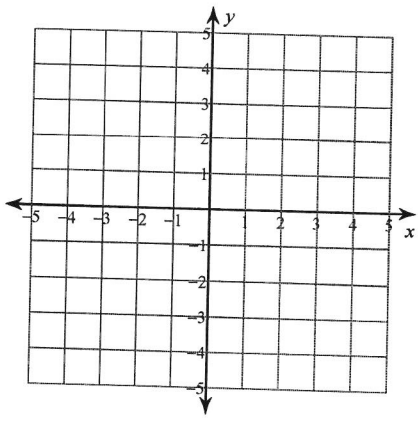
2) $y = 4x + 3$

$y = -x - 2$



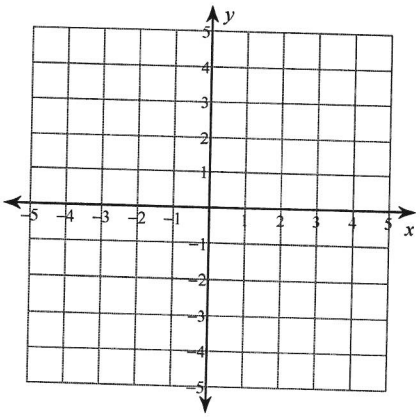
3) $y = -\frac{1}{2}x - 1$

$y = \frac{1}{4}x - 4$



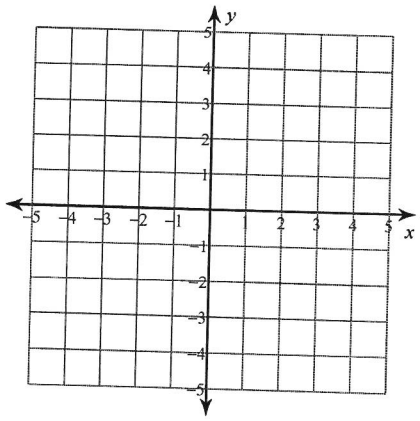
4) $y = -1$

$y = -\frac{5}{2}x + 4$



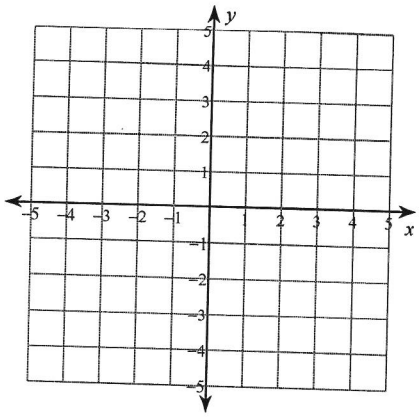
5) $y = 3x - 4$

$y = -\frac{1}{2}x + 3$



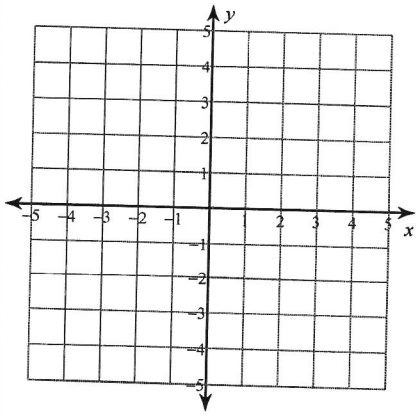
6) $y = -2x + 2$

$y = -2x - 2$



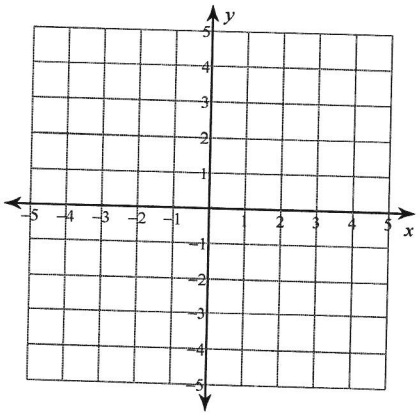
7) $y = -\frac{1}{2}x - 2$

$y = -\frac{3}{2}x + 2$



8) $y = \frac{1}{3}x - 3$

$y = -x + 1$



Ch. 14 NOTES

$$2x + 3y = 29$$
$$5x - y = 30$$

FIRST Step?

 Name_____

Solving Systems of Equations by Substitution

Date_____ Period____

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

9) $-5x + y = -2$
$-3x + 6y = -12$

10) $-5x + y = -3$
$3x - 8y = 24$

LESSON PRACTICE

Follow the directions for each set of equations. The first set is done for you.

For #1-3 $X = Y + 6,\ X + 3Y = -2$

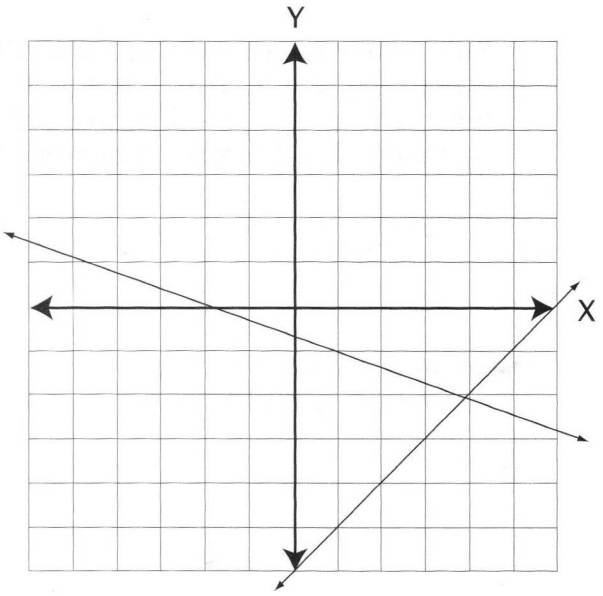
1. Draw each line and estimate the solution.

   Each line must be changed to slope-intercept form.

   First equation:
   $X - 6 = Y$ $\qquad Y = X - 6$

   Second equation:
   $3Y = -X - 2$ $\qquad Y = -1/3\ X - 2/3$

   Estimated solution is (4, -2)



2. Use the substitution method to find Y.

   Go back to the original equations and observe that we know X is the same as Y + 6. We can replace X in the second equation with (Y + 6):
   $(Y + 6) + 3Y = -2$

   Simplifying and solving as usual, we find that $Y = (-2)$

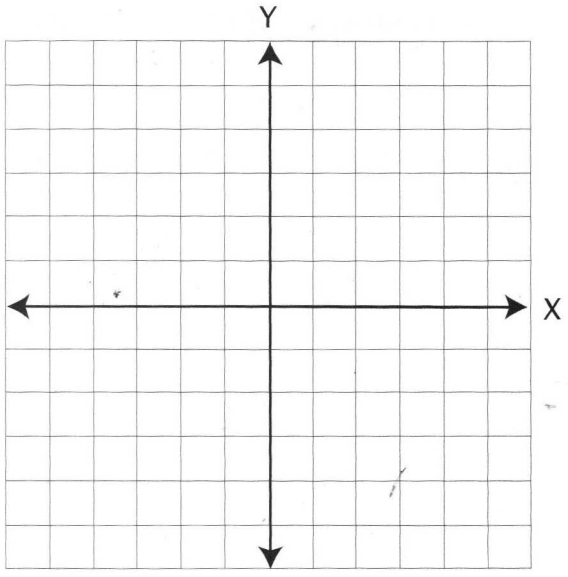
3. Using the solution to #2, substitute to find X.
   We can substitute in either equation, but the first one looks easier.
   $X = (-2) + 6$ $\qquad X = 4$

For #4-6 $2X + 3Y = 0,\ X - 2Y = 7$

4. Draw each line and estimate the solution.

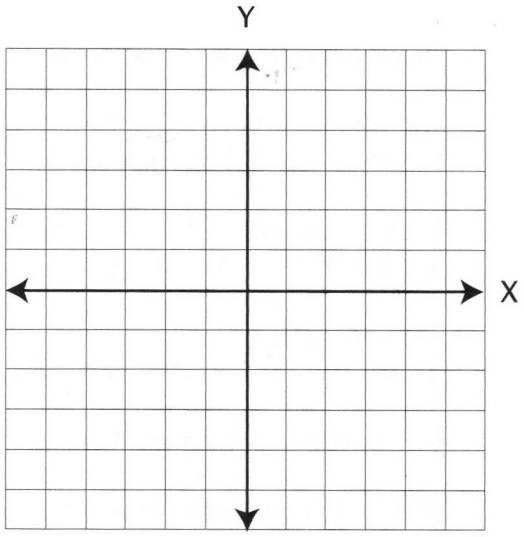
5. Use the substitution method to find Y.
   You must first solve one of the equations for X.

6. Using the solution to #5, substitute to find X.



For #7–9 $Y = 2X - 5$, $X + 2Y = 10$

7. Draw each line and estimate the solution.



8. Use the substitution method to find X.

   This time you are looking for another way to express Y. The first equation tells us that $Y = 2X - 5$, so we substitute that value for Y in the second equation:

   $X + 2(2X - 5) = 10$

9. Using the solution to #8, substitute to find Y.

For #10 $2X - 3Y = -4$, $Y = X + 3$

10. Use the substitution method to solve the equations.

    You may find X or Y first. Choose the one that will require less manipulation of the equations.