Name ______________________________ Date ______________ Class______________

LESSON 8-1

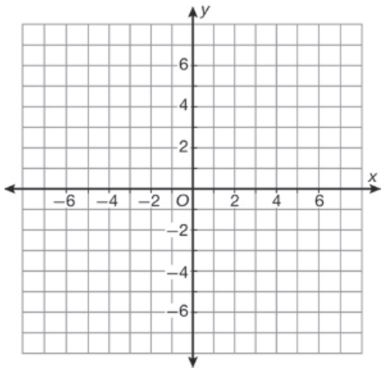
Solving Systems of Linear Equations by Graphing

Practice and Problem Solving: A/B

Solve each linear system by graphing. Check your answer.

1. $y = -1$

   $y = 2x - 7$



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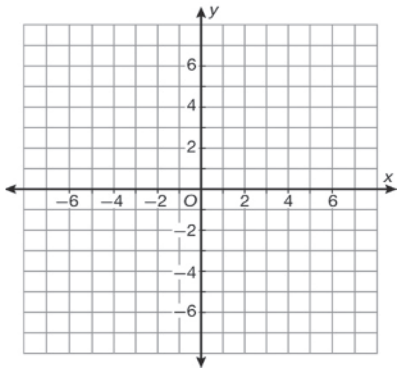
2. $x - y = 6$

   $2x = 12 + 2y$



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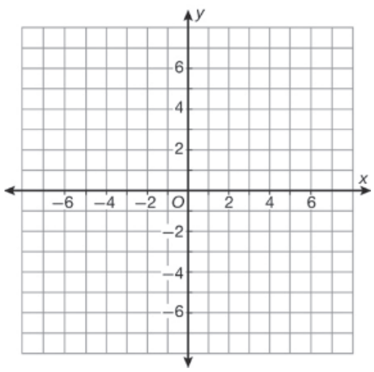
3. $\frac{1}{2}x - y = 4$

   $2y = x + 6$



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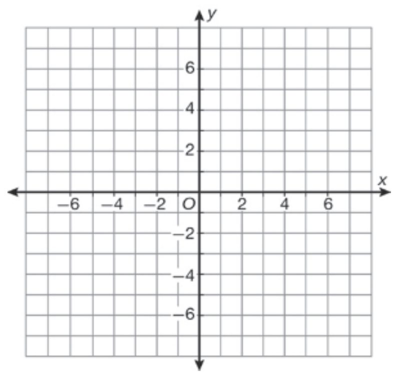
4. $y = 4x - 3$

   $2y - 3x = 4$



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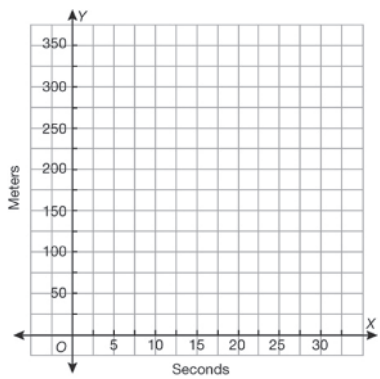
5. Two skaters are racing toward the finish line of a race. The first skater has a 40 meter lead and is traveling at a rate of 12 meters per second. The second skater is traveling at a rate of 14 meters per second. How long will it take for the second skater to pass the first skater?

____



Name ________________________ Date ______________ Class______________

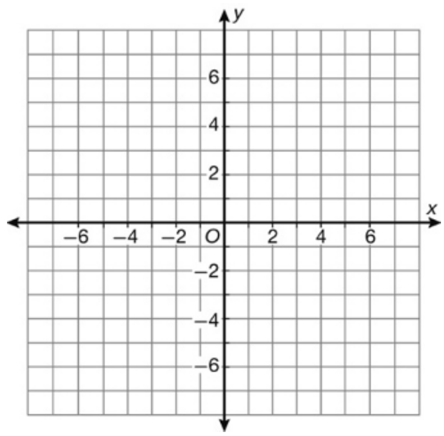
LESSON 8-1

Solving Systems of Linear Equations by Graphing

Practice and Problem Solving: C

Use the information below to complete Exercises 1–4.

Kelly needs to order lunch for orders 6 people at a business meeting. Her menu choices are chicken salad for a cost of $5 per person and egg salad for a cost of $4 per person. She only has $28 to spend. More people want chicken salad.



1. Write and graph one equation in a system for this situation. ________________________

2. Write a second equation in the system. Graph it on the same grid.

   ____

3. What do *x* and *y* represent?

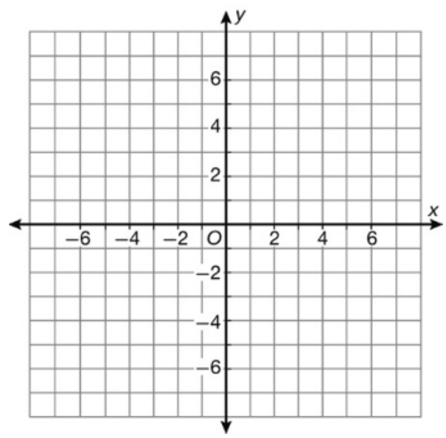
   ____

   ____

4. How many of each type of lunch can she order?

   ____

   ____



Graph the lines for the two sets of linear data. Find the intersection of the lines.

5.

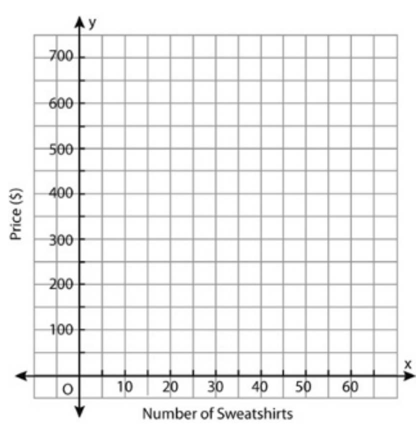
x	*y*
–2	0
0	1
2	2
4	3

x	*y*
–2	–1.5
0	–3.5
2	–5.5
4	–7.5

____

6. A softball team bought a box of sweatshirts for $240. Each sweatshirt cost $12 to print and will sell for $18. Graph a system of equations to find the number of sweatshirts the softball team needs to sell in order to break even.

   ____



Name ____ Date ___________________ Class___________________

LESSON 8-1

Solving Systems of Linear Equations by Graphing

Reteach

When solving a system of linear equations by graphing, first write each equation in slope-intercept form. Do this by solving each equation for *y*.

Solve the following system of equations by graphing.

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

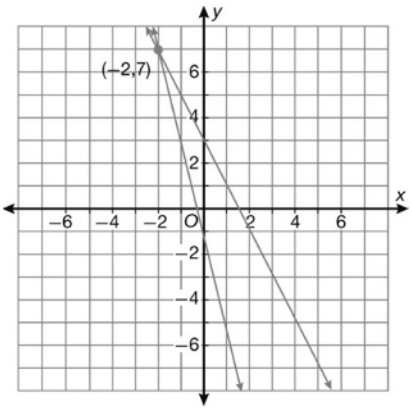
The first equation is already solved for *y*.

Write the second equation in slope-intercept form. Solve for *y*.

$y + 4x - 4x = -1 - 4x$

$y = -4x - 1$

Graph both equations on the coordinate plane.



The lines intersect at (–2, 7). This is the solution to the system of linear equations.

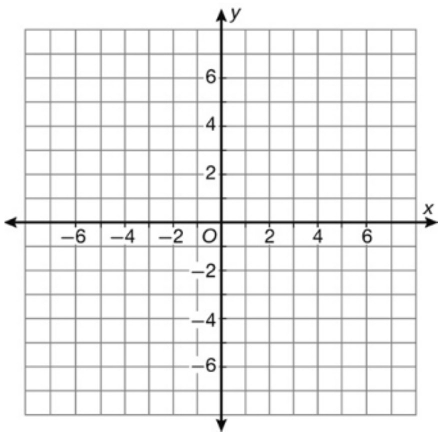
To check the answer, substitute –2 for *x* and 7 for *y* in the original equations.

$y = -2x + 3;\ 7 = -2(-2) + 3;\ 7 = 4 + 3;\ 7 = 7$

$y + 4x = -1;\ 7 + 4(-2) = -1;\ 7 - 8 = -1;\ -1 = -1$

Solve each linear system by graphing. Check your answer.

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



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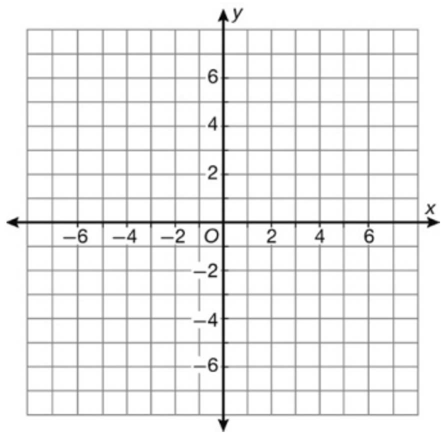
2. $y + 3x = 1$
   $y - 6 = 2x$



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Name ______________________________ Date ______________ Class______________

LESSON 8-1

Solving Systems of Linear Equations by Graphing

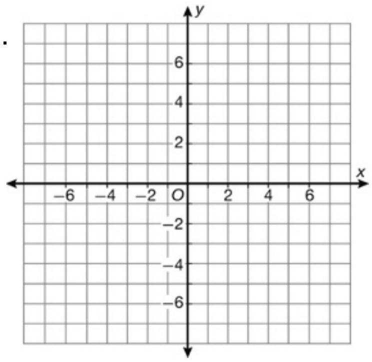
Reading Strategies: Identify Relationships

A **system of linear equations** has two or more equations that are graphed on the same **coordinate grid**. The solution for the system is the ordered pair of the point where all of the equations intersect.

The solution to a system can come in three forms.

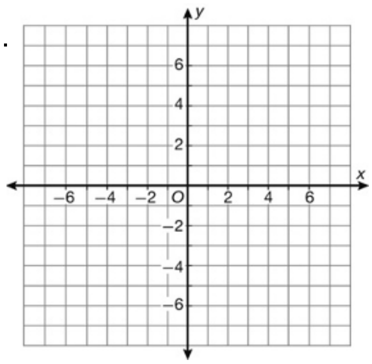
A system can have one solution. The system includes equations of different lines. The graph shows lines that intersect in one point.

1. Graph an example of a system of two equations that has one solution.

1.


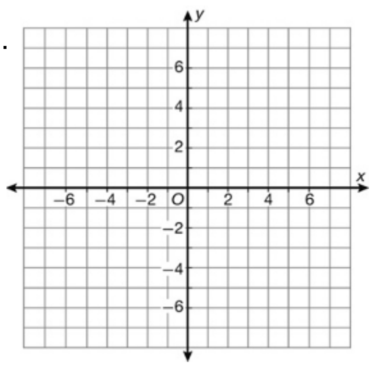
A system can have no solutions. The system includes equations of parallel lines. The graph shows parallel lines.

2. Graph an example of a system of two equations that has no solution.

2.


A system can have infinitely many solutions. The system includes equations of the same line written in different forms. The graph shows a single line.

3. Graph an example of a system of two equations that has infinitely many solutions.

3.


If you write all of the equations in a system in slope-intercept form, you can often tell how many solutions there are before you graph it. Look at the slopes.

If the slopes are different, there will be one solution.
If the slopes are the same, look at the *y*-intercept.
If the *y*-intercepts are different, there will be no solutions.
If the *y*-intercepts are the same, there will be infinitely many solutions.

Without graphing, predict the number of solutions for each system of equations.

4. $y = 2x + 5$
   $y = 2x - 1$
   ____

5. $y = \frac{3}{2}x$
   $y = 4x + 7$
   ____

6. $y = -x - 1$
   $y = -1 - x$
   ____

7. $y = 2x + 5$
   $y = -2x + 5$
   ____

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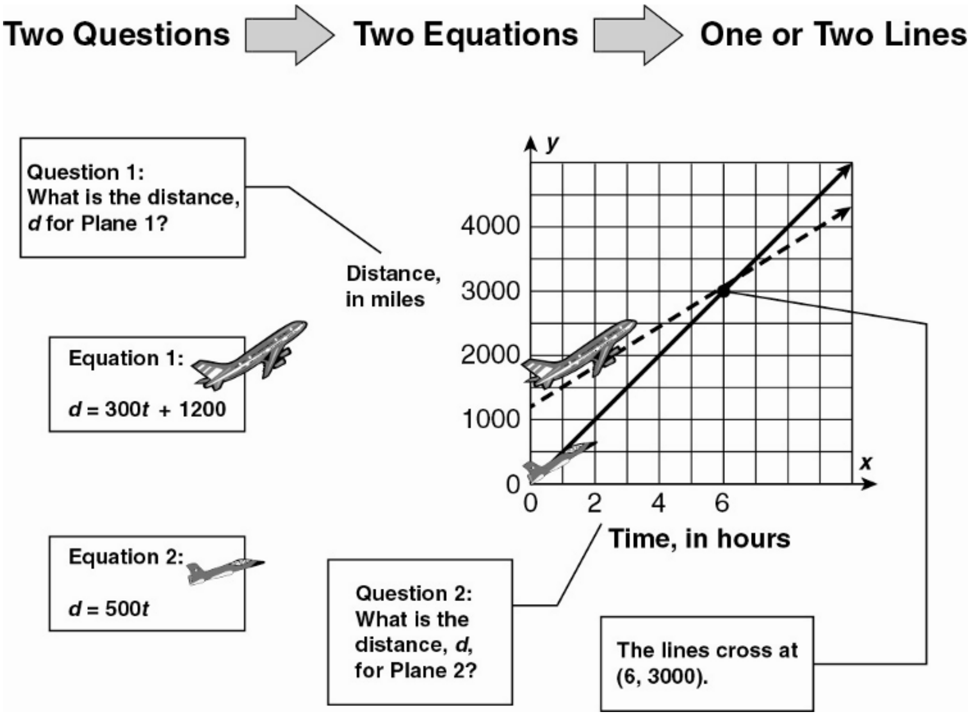
LESSON 8-1

Solving Systems of Linear Equations by Graphing

Success for English Learners

Problem 1



1. How do you know that the system of equations shown in Problem 1 has only one solution?

   ____

2. Explain how to check that the ordered pair in Problem 1 is the correct solution to the system of equations.

   ____

   ____

3. Explain how to graph the two linear equations in Problem 1.

   ____

   ____