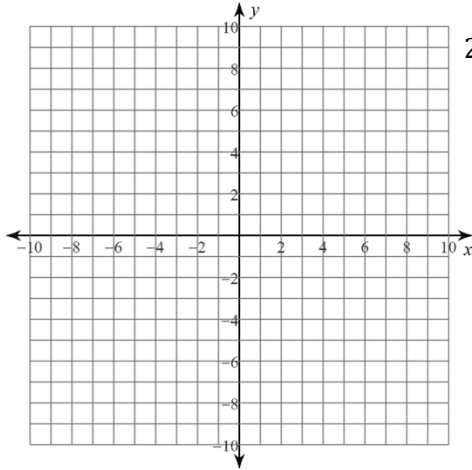


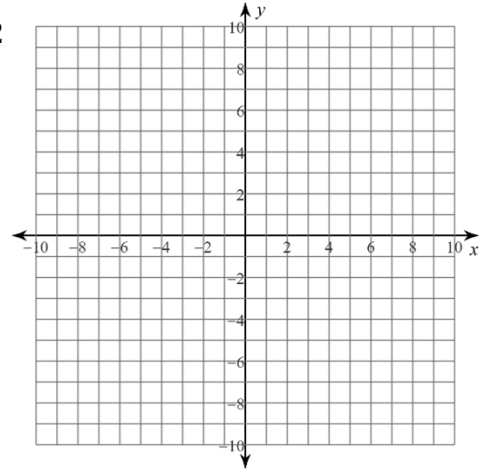
# 6.1.D2 - SOLVING LINEAR SYSTEMS

Solve the system of linear equations graphically. Write your solution as an ordered pair  $(x, y)$ . Refer to the 6.1 example "Predicting the Solution of a System Using Graphing" in the Chapter 6 Summary.

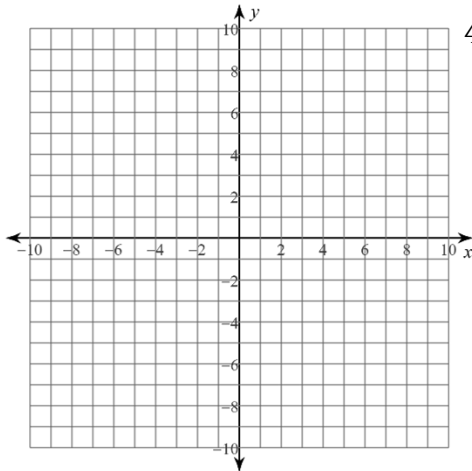
1.  $y = -\frac{1}{2}x - 6$   
 $y = -2x - 3$



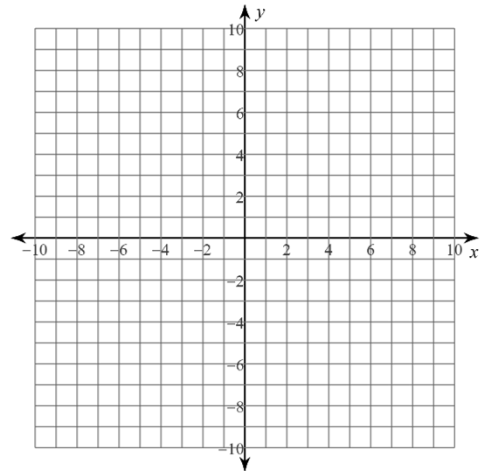
2.  $y = -\frac{1}{3}x - 2$   
 $y = x - 6$



3.  $x - y = 3$   
 $2x + 9y = 72$



4.  $x - 2y = 10$   
 $x + y = -2$



Solve each system of equations by substitution. Write your solution as an ordered pair  $(x, y)$ , if possible. If the system has no solution, write inconsistent. Refer to the 6.1 example "Solving Systems of Linear Equations Using the Substitution Method" in the Chapter 6 Summary.

5.  $y = 2x - 3$   
 $x = 4$

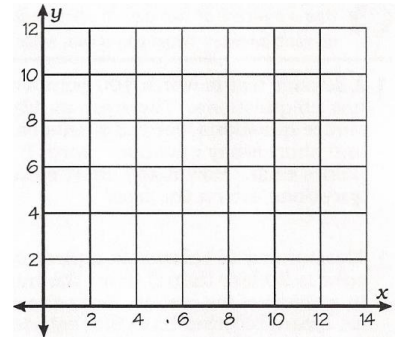
6.  $y = 3x - 2$   
 $y - 3x = 4$

7.  $2x + y = 9$   
 $y = 5x + 2$

8.  $4x + 8y = -4$   
 $x - 5y = 20$

The problem situation can be represented by a system of linear equations. Refer to the 6.1 example “Predicting the Solution of a System Using Graphing” in the Chapter 6 Summary.

The Rocket roller-coaster has 10 cars, some that hold 4 people and some that hold 8 people. There is room for 56 people altogether. Let  $x$  = the number of 4-passenger cars and  $y$  = the number of 8-passenger cars.



9. Write a system of linear equations (in standard form) to represent the problem situation.
10. Graph the system of equations.
11. Estimate the break-even point and explain what it represents with respect to the given problem situation.

The problem situation can be represented by a system of linear equations. Solve the system using substitution. Refer to the 6.1 example “Solving Systems of Linear Equations Using the Substitution Method” in the Chapter 6 Summary.

12. Ramona sets up a lemonade stand in front of her house. Each cup of lemonade costs Ramona \$0.30 to make, and she spends \$6 on the advertising signs she puts up around her neighborhood. She sells each cup of lemonade for \$1.50. Let  $x$  = the cups of lemonade.
  - a. Write an equation that represents her expenses:  $y =$  \_\_\_\_\_
  - b. Write an equation that represents her income:  $y =$  \_\_\_\_\_
  - c. Determine Ramona’s break-even point. Solve the system of equations.
  
13. Chen starts his own lawn mowing business. He initially spends \$180 on a new lawnmower. For each yard he mows, he receives \$20 and spends \$4 on gas. Let  $x$  = the number of lawns mowed.
  - a. Write an equation that represents his expenses:  $y =$  \_\_\_\_\_
  - b. Write an equation that represents his income:  $y =$  \_\_\_\_\_
  - c. Determine Chen’s break-even point. Solve the system of equations.
  
  - d. How many lawns must Chen mow to make a profit?