

**6.4 – SOLVING SYSTEMS USING ALL METHODS**

Define variables and write a system of equations to represent each situation. Solve each system of equations using the appropriate method. Write your solution as an ordered pair  $(x, y)$ . Refer to the 6.3 example “Writing a Linear System of Equations to Represent a Problem Context” in the Chapter 6 Summary.

- Eric sells model cars from a booth at a local flea market. He purchases each model car from a distributor for \$12 and the flea market charges him a booth fee of \$50. Eric sells each model car for \$20. How many model cars must Eric sell to make a profit?

Let  $x =$  \_\_\_\_\_ &  $y =$  \_\_\_\_\_

Equation 1: \_\_\_\_\_ & Equation 2: \_\_\_\_\_

Solve the system of equations.

Interpret the solution of the linear system in terms of the problem situation.

- The high school marching band is selling fruit baskets for a fundraiser. They sell a large basket containing 10 apples and 15 oranges for \$20. They sell a small basket containing 5 apples and 6 oranges for \$8.50. How much is the marching band charging for each apple and each orange?

Let  $x =$  \_\_\_\_\_ &  $y =$  \_\_\_\_\_

Equation 1: \_\_\_\_\_ & Equation 2: \_\_\_\_\_

Solve the system of equations.

Interpret the solution of the linear system in terms of the problem situation.

Solve each system of equations using the linear combinations method. Write your solution as an ordered pair  $(x, y)$ . Refer to the 6.2 example “Solving a System of Equations Using the Linear Combinations Method” in the Chapter 6 Summary.

$$3. \begin{cases} x - 3y = -3 \\ -2x + 7y = 10 \end{cases}$$

$$4. \begin{cases} -2x - 6y = 0 \\ 3x + 11y = 4 \end{cases}$$

Solve each system of equations by substitution. Write your solution as an ordered pair  $(x, y)$ . Refer to the 6.1 example "Solving Systems of Linear Equations Using the Substitution Method" in the Chapter 6 Summary.

5.  $3x + y = -2$   
 $y = 8 + 2x$

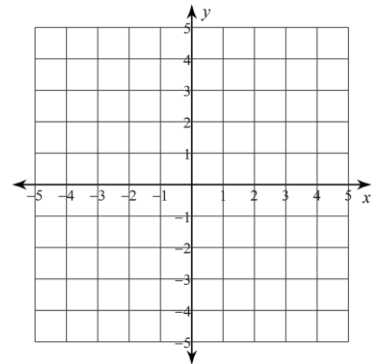
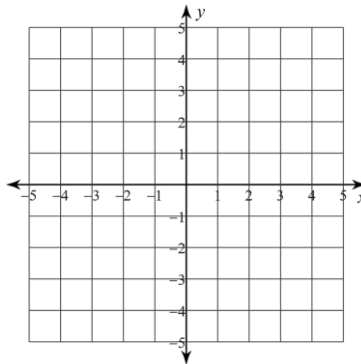
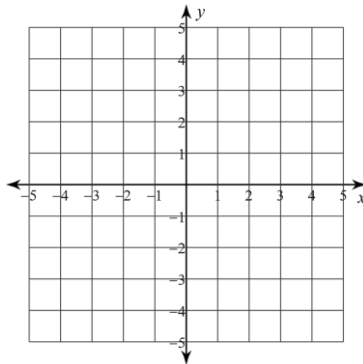
6.  $y = -2x + 9$   
 $3x - 4y = 8$

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.

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

8.  $x + 4y = -16$   
 $7x - 4y = -16$

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



Define variables and write a system of equations to represent each situation. Refer to the 6.3 example "Writing a Linear System of Equations to Represent a Problem Context" the Chapter 6 Summary.

10. Stella is trying to choose between two rental car companies. Speedy Trip Rental Cars charges a base fee of \$24 plus an additional fee of \$0.05 per mile. Wheels Deals Rental Cars charges a base fee of \$30 plus an additional fee of \$0.03 per mile.

Let  $x =$  \_\_\_\_\_ &  $y =$  \_\_\_\_\_

Equation 1: \_\_\_\_\_ & Equation 2: \_\_\_\_\_

Which method would you use to solve the system of equations: graphing, substitution, or linear combinations? Explain your reasoning.

11. Marcus is selling t-shirts at a fair. He brings 200 shirts to sell. He has long-sleeve and short-sleeved t-shirts for sale. On the first day he sells  $\frac{1}{2}$  of his long-sleeved t-shirts and  $\frac{1}{3}$  of his short-sleeved t-shirts for a total of 80 t-shirts sold.

Let  $x =$  \_\_\_\_\_ &  $y =$  \_\_\_\_\_

Equation 1: \_\_\_\_\_ & Equation 2: \_\_\_\_\_

Which method would you use to solve the system of equations: graphing, substitution, or linear combinations? Explain your reasoning.