Name: _____   Date: _____

Chapter 5 Review

5.1 Solve Linear Systems by Graphing

1. Solve each linear system by graphing.
   a) $y = 3x - 1$
      $y = 2x + 1$
   b) $y = \frac{1}{2}x + 1$
      $y = -x + 7$
   c) $4x + y = 1$
      $-2x - y = 3$
   d) $x + y = -5$
      $y = -2$

2. Use a graphing calculator to solve each linear system. Round answers to two decimal places where necessary.
   a) $y = x - 1$
      $y = -2x + 5$
   b) $y = -4x + 2$
      $y = 8x + 5$
   c) $y = 2x - 3$
      $y = \frac{1}{2}x + 2$
   d) $y = \frac{1}{2}x - 4$
      $y = -\frac{3}{4}x + 1$

3. Julie works in a hair salon. She is paid $40 per day plus $5 for every haircut that she gives. Jasmine also works in the hair salon. She makes a flat fee of $85 per day.
   a) Write an equation to represent the amount Julie earns in one day.
   b) Write an equation to represent the amount Jasmine earns in one day.
   c) Graph the equations from parts a) and b). What is the point of intersection?
   d) How many haircuts must Julie give in a day in order to make as much as Jasmine?

5.2 Solve Linear Systems by Substitution

4. Solve each linear system by substitution.
   a) $2x - y = 4$
      $y = 3x - 2$
   b) $-5x + y = 7$
      $x + y = 1$
   c) $4x - 3y = -1$
      $2x - y = -1$
   d) $3x + y = 10$
      $-x - y = 6$

5. Laser Palace rents paintball equipment for $10 plus $5/h. Tag Patrol rents paintball equipment for $12 plus $4/h. Let y be the total cost per person and x the number of hours played.
   a) Write an equation to represent the total cost for a person to play laser tag at Laser Palace.
   b) Write an equation to represent the total cost for a person to play laser tag at Tag Patrol.
   c) How many hours must be played for the costs to be the same at both establishments?
   d) Which place would you go to play laser tag with your friends if you were to play for 3 h? Why?

6. The coach wants to purchase new jerseys for the basketball team. Ink Plus charges $100 labour plus $12 per jersey. Team Logo charges $85 labour plus $15 per jersey. For how many jerseys are the costs the same?

5.3 Solve Linear Systems by Elimination

7. Solve each linear system by elimination.
   a) $7x - 2y = 3$
      $x + 2y = -11$
   b) $-2x + 3y = 4$
      $x + 3y = -2$

c) $3x - 5y = 1$
$x + y = -1$
d) $3x - 3y = -6$
$x + 2y = -1$

8. Rachel mixes chili powder and curry powder to make 40 g of a spice mix. Chili powder costs 11.5¢/g and curry powder costs 14¢/g. The spice mix costs 12.25¢/g. How much of each spice does Rachel need to use?

9. Tickets to the zoo cost $16 for adults and $10 for children. In the summer, approximately 3000 people visit the zoo per day, and total sales are $37 200 per day.
a) Write a system of linear equations to represent the information.
b) How many adult tickets are sold on a summer's day? How many children tickets?

5.4 Solve Problems Involving Linear Systems

10. Solve the linear system $4x - y = 3$ and $x - y = 6$. Which method did you use? Why?

11. Gundeep invests a total of $5000 in two funds. One fund pays interest at 4% per year and the second fund pays interest at 6% per year. At the end of the year, Gundeep has earned $270 in interest. How much did Gundeep invest in each fund?

12. Pavel has a collection of 124 baseball cards and hockey cards. He is only 5 cards short of having twice as many hockey cards as baseball cards.
a) Write an equation to represent the information in the first sentence.
b) Write an equation to represent the information in the second sentence.
c) How many of each type of card does Pavel have in his collection?

13. Mei-Lin downloads music from the internet to her MP3 player. At one website, the average download speed is 65 kB/s. At a second website, the average download speed is 50 kB/s. Mei-Lin downloaded 50000 kB of music in $14\frac{2}{3}$ min (or 880 s).

a) Let x represent the number of kilobytes of data Mei-Lin downloads at 65kB/s. Let y be the number of kilobytes of data Mei-Lin downloads at 50 kB/s. Write a system of linear equations to represent the information.
b) How many kilobytes of data does Mei-Lin download from each website?