Name: _____   Date: _____

Chapter 5 Practice Test

Multiple Choice

For each question, select the best answer.

1. Graphically, the solution to a linear system is always the
   A x-intercept of one of the relations
   B y-intercept of one of the relations
   C origin (0,0)
   D point of intersection of the relations

2. To solve a linear system by substitution,
   A equations are added or subtracted to eliminate one variable
   B equations are multiplied to eliminate one variable
   C one equation is solved for one variable, then that value is substituted into the other equation
   D both equations must be graphed to find the point of intersection

3. A linear system can be solved algebraically using
   A elimination method or substitution method
   B graphing or elimination method
   C graphing or substitution method
   D graphing only

Short Response

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

5. Solve each linear system by substitution.
   a) $y = 2x - 4$
      $-2x + 3y = 0$
   b) $x + y = 2$
      $-3x + 2y = -1$

6. Solve each linear system by elimination.
   a) $3x + y = -2$
      $-6x - y = 5$
   b) $x + 3y = 0$
      $-2x + y = 7$

7. a) Explain which method you would use to solve the linear system
      $4x - y = 11$
      $3x + 5y = 14$
   b) What is the solution?

8. A rectangle has length 1.5 times the width, and perimeter 12 cm. What are the dimensions of the rectangle?

9. Marsha is making 90 kg of a new blend of coffee that will sell for $10/kg. The blend is made from two kinds of coffee: one that sells for $9/kg, and another that sells for $12/kg. How much of each type of coffee should Marsha use to make the new blend?

10. Billy invests a total of $4000 in two funds. One fund pays interest at 3.5% per year and the second fund pays interest at 5% per year. At the end of the year, Billy has earned $173 in interest. How much did Billy invest in each fund?

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Extended Response

11. The student council wants to hire a DJ for the school dance. Rappin' Ron charges $160 plus $35 per hour. The Pips charge $180 plus $30 per hour. Let y be the total cost for booking the DJ and x the number of hours the DJ plays at the party.

a) Write an equation to represent the total cost to hire Rappin' Ron.

b) Write an equation to represent the total cost to hire The Pips.

c) How many hours must be played for the costs to be the same for both DJs?

d) Who should the student council hire for the party? Explain why.

12. Sandra is helping her parents paint the fence in the backyard. In the beginning, she could paint one panel in 40 min. Then she got tired and it took her 60 min to finish painting one panel. In the end, Sandra painted 4 panels in 3 h and 10 min.

a) Let x represent the number of panels that Sandra painted at 40 min per panel. Let y represent the amount of panels that Sandra painted at 60 min per panel. Write a system of linear equations to represent the information.

b) How many panels does Sandra paint at each speed?

13. Jamal is fundraising by manufacturing and selling buttons and friendship bracelets. The button-making machine costs $40 and the materials cost $0.10 per button. The materials for the friendship bracelets cost $0.35 per bracelet.

a) Jamal has a starting budget of $165. He wants to make a total of 500 buttons and bracelets. Write a system of linear equations to represent this information.

b) How many buttons and how many friendship bracelets can he make?

c) Jamal sells the buttons for $1 each and the friendship bracelets for $3 each. Jamal finds he can sell twice as many buttons as friendship bracelets. What is the minimum number of buttons and friendship bracelets that must be sold in order to break even?

d) How much profit will Jamal make if he sells all the buttons and friendship bracelets?