Honors Algebra 1 Name_____

Unit 6 Solving Systems of an Equation Homework

Section 1 Solving Systems by Graphing: Solve each system by graphing.

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

2) $y = \frac{5}{3}x - 4$
$y = -\frac{2}{3}x + 3$

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

4) $y = \frac{1}{2}x + 1$
$y = \frac{1}{2}x - 1$

5) $y = -\frac{2}{3}x + 2$
$2x + y = -2$

6) $y = \frac{5}{4}x - 3$
$y = -\frac{1}{4}x + 3$

7) $x - 2y = -6$
$2x + y = -2$

8) $x - 2y = -8$
$x - 2y = 8$

9) $y = -x + 2$
$x + y = 2$

10) $x + 3y = -9$
$x - y = -1$

Section 2 Solving Systems of Equations by Substitution: Solve each system by substitution.

11) $y = -2x - 13$
$y = x + 11$

12) $y = 3x - 4$
$y = 2x - 1$

13) $y = x - 2$
$y = -3x + 18$

14) $16x - 2y = -40$
$y = 8x + 20$

15) $3x - 5y = -14$
$y = 2x$

16) $7x - y = 1$
$y = 3x - 5$

17) $y = -3x - 8$
$6x + 2y = -5$

18) $-2x - 3y = 8$
$x + 6y = 5$

19) $-4x + 2y = -10$
$x - 8y = -20$

20) $3x - 3y = -24$
$x - 8y = -22$

21) $5x - 4y = 20$
$-x + y = -5$

22) $5x + y = -7$
$2x + 7y = -16$

Section 3 Solving Systems of Equations by Elimination: Solve each system by elimination.

23) $3x + 5y = -17$
$-3x + 2y = -11$

24) $3x + 5y = -26$
$3x - 4y = 10$

25) $-3x - 4y = 5$
$12x + 2y = 8$

26) $-8x + 6y = -6$
$10x - 12y = -24$

27) $-x - 6y = -28$
$-9x + 3y = -24$

28) $-9x + 9y = 9$
$3x - 6y = 24$

29) $5x - 5y = -14$
$10x - 10y = -30$

30) $15x + 45y = 28$
$-9x - 27y = -18$

31) $8x - 3y = -6$
$-7x - 8y = -16$

32) $-6x + 10y = -16$
$-5x + 9y = -14$

33) $-7x - 6y = 12$
$4x + 5y = -21$

34) $-10x - 35y = 5$
$-16x - 56y = 8$

Section 4 Choosing the Appropriate Method of Solving Systems of Equations: Solve by any method and explain why you chose that method.

35) $y = -4x - 6$
$y = -2x - 2$

36) $y = -2x + 3$
$y = x + 3$

37) $-6x - 10y = 18$
$-3x - 5y = 9$

38) $8x - 7y = 22$
$y = -5x + 3$

39) $x + y = -7$
$3x + y = -27$

40) $-10x - 2y = 8$
$y = -5x$

41) $7x + 8y = -15$
$5x - 7y = 2$

42) $y = -2x - 2$
$-4x - 2y = 4$

43) $-3x - 5y = 25$
$6x + 5y = -10$

44) $-25x + 10y = 14$
$10x - 4y = -6$

45) $y = -4x - 10$
$y = -7x - 16$

46) $-9x - 9y = 26$
$10x + 10y = -20$

Section 5 Applications of Systems of Equations

47) Fabulously Fit offers memberships for $35 per month plus a $50 enrollment fee. The Fitness Studio offers memberships for $40 per month plus a $35 enrollment fee. In how many months will the fitness clubs cost the same? What will the cost be?

48) Traveling downstream a certain boat went 15 mph. Traveling upstream it only went 3 mph. Find the speed of the boat in still water and the speed of the current.

49) Rob's school is selling tickets to a play. On the first day of ticket sales the school sold 2 senior citizen tickets and 13 student tickets for a total of $108. The school took in $72 on the second day by selling 2 senior citizen tickets and 7 student tickets. What is the price each of one senior citizen ticket and one student ticket?

50) Going down the river a boat went 11 mph. Going up the river it only went 1 mph. Find the speed of the boat in still water and the speed of the current.

51) Trevon and Cody are selling pies for a school fundraiser. Customers can buy cherry pies and pumpkin pies. Trevon sold 2 cherry pies and 13 pumpkin pies for a total of $258. Cody sold 2 cherry pies and 8 pumpkin pies for a total of $168. Find the cost each of one cherry pie and one pumpkin pie.

52) The senior classes at High School A and High School B planned separate trips to the county fair. The senior class at High School A rented and filled 7 vans and 3 buses with 227 students. High School B rented and filled 1 van and 3 buses with 161 students. Each van and each bus carried the same number of students. Find the number of students in each van and in each bus.

53) Shayna and Abhasra are selling wrapping paper for a school fundraiser. Customers can buy rolls of plain wrapping paper and rolls of holiday wrapping paper. Shayna sold 5 rolls of plain wrapping paper and 12 rolls of holiday wrapping paper for a total of $85. Abhasra sold 11 rolls of plain wrapping paper and 4 rolls of holiday wrapping paper for a total of $75. What is the cost each of one roll of plain wrapping paper and one roll of holiday wrapping paper?

54) Maribel has $1.25 in her pocket. The money is in quarters and dimes. There are a total of 8 coins. How many quarters and dimes does Maribel have in her pocket?

55) Traveling with the current a certain boat went 16 mph. Against the same current it only went 4 mph. What is the speed of the current? How fast would the boat go if there were no current?

56) Jessica and Kim each improved their yards by planting rose bushes and shrubs. They bought their supplies from the same store. Jessica spent $19 on 2 rose bushes and 3 shrubs. Kim spent $24 on 3 rose bushes and 3 shrubs. Find the cost of one rose bush and the cost of one shrub.

57) The local amusement park is a popular field trip destination. This year the senior class at High School A and the senior class at High School B both planned trips there. The senior class at High School A rented and filled 7 vans and 9 buses with 299 students. High School B rented and filled 11 vans and 8 buses with 347 students. Every van had the same number of students in it as did the buses. How many students can a van carry? How many students can a bus carry?

58) The school that Wilbur goes to is selling tickets to a spring musical. On the first day of ticket sales the school sold 1 adult ticket and 12 child tickets for a total of $71. The school took in $52 on the second day by selling 2 adult tickets and 6 child tickets. What is the price each of one adult ticket and one child ticket?

Section 6 Systems of Linear inequalities: Sketch the graph of each linear inequality.

59) $y \geq 2x - 5$

60) $y > -\frac{7}{5}x + 3$

61) $y > 5$

62) $x + 2y \geq 6$

Sketch the solution to each system of inequalities.

63) $y < -2$
$y < x + 1$

64) $y > -\frac{1}{3}x - 2$
$y \leq -\frac{4}{3}x + 1$

65) $y \leq \frac{1}{2}x - 3$
$y \geq \frac{1}{2}x + 2$

66) $y > -x + 2$
$y \leq 2x - 1$

67) $y \leq \frac{2}{3}x + 1$
$x \geq -3$

68) $y > 3x - 3$
$y < 3x + 2$

69) $y \leq \frac{1}{2}x - 2$
$y > -\frac{3}{2}x + 2$

70) $y < \frac{1}{3}x + 1$
$y \leq \frac{1}{3}x + 3$