Name: _____ Date: _____

Incoming Intermediate Algebra H Packet

Directions: Solve all problems. You must show all work in order to receive credit.

Part 1: Order of Operations

Given $a = 6,\ b = -3,\ c = 7,\ d = 0$ evaluate each algebraic expression using order of operations.

1. $a + b + c$

2. $a^2 + b^2$

3. $a^2 - b^2$

4. $-(a + b) - c$

5. $a^2 + b^2 + c^2$

6. $b^2 + (c + a)^2$

7. $-b^2$

8. $(-b)^2$

9. $4b - 2a - c$

10. $d(2a + 1)$

11. $\frac{-2b+4a-3c}{d}$

12. $|-a - c|$

Part 2: Simplifying Algebraic Expressions

Simplify each expression.

13. $4(x + y) + 7x$

14. $x - y - (3x + y)$

15. $(8x - 2) - (5x - 3)$

16. $-3(6 - 8m)$

17. $(2 - a) + (4a - 9b + 2) - (1 - b)$

18. $\frac{-18x+12}{4}$

19. $\frac{32y+24}{16}$

20. $4xy - 3xy^2 + 8xy$

Part 3: Solving Equations

Solve each equation for the variable.

21. $3x + 2 = 5$

22. $-x + 9 = 3$

23. $3x = 105$

24. $-3 - x = -5$

25. $\frac{1}{3}x = 9$

26. $4x + 8 = 40$

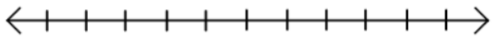
27. $15y + 31 = 61$

28. $5(3x + 5) = 4x - 8$

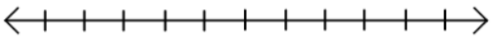
Part 4: Inequalities

Solve each inequality and graph the solution on a number line.

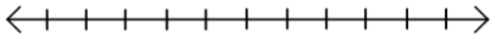
29. $2x + 4 \leq 3x + 6$



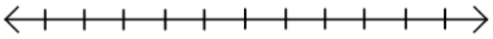
30. $(1 - 5x) > 1 - x + 16$



31. $2x + 4 < 2(1 + x)$



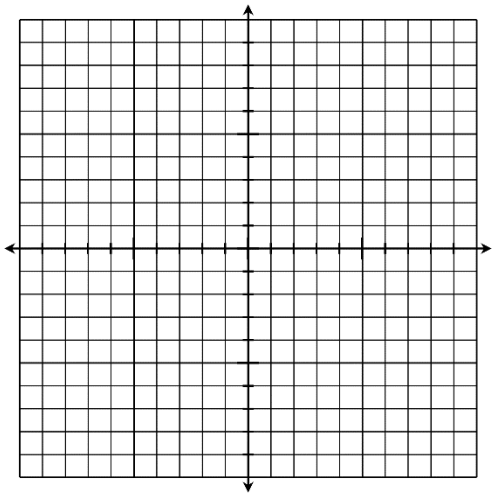
32. $7x + 12 - (-3x) > 4x + 1$



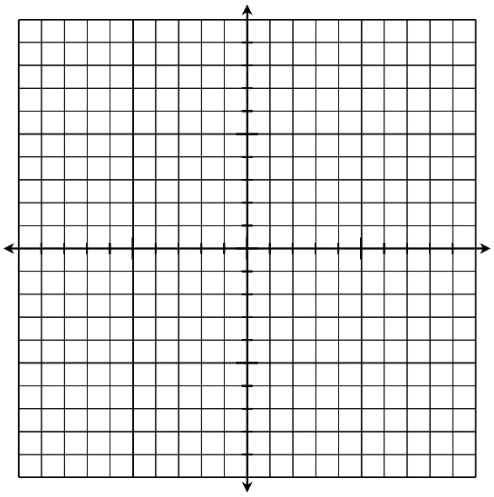
Part 5: Graphing

Graph each linear equation using a table of values.

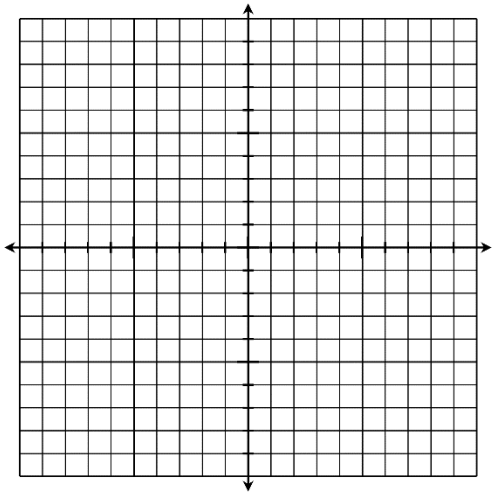
33. $y = x + 4$



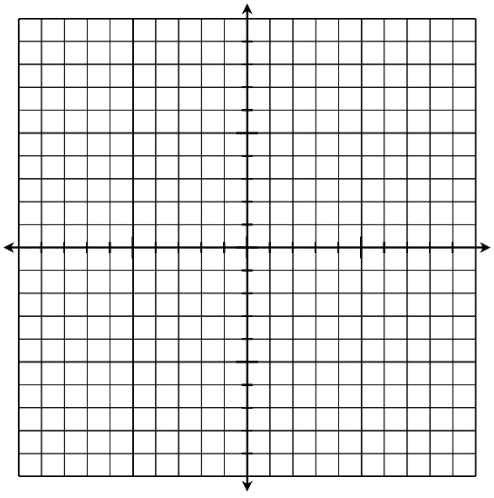
34. $y = 3x + 1$



35. $y = -x$



36. $x + y = 3$



Part 6: Function Rules

Write a function rule that represents the given sentence or situation.

37. 8 less than one third of x is y.

38. 12 more than the quotient of a number t and 7 is y

39. 10 more than 8 times a number a is b

40. The product of 2 and x is 3 times greater than 8.

41. The price p of a large cheese pizza is $7.95 plus $0.75 for each topping, t, on the pizza

42. The total fees, f, of a book club membership are $10 per month, m, and a one-time administrative fee of $4.75.

Part 7: Evaluating Functions

Evaluate the function.

43. $f(x) = 2x - 3$, find $f(-1)$

44. $f(x) = 3x^2$, find $f(2)$

45. $f(x) = \frac{3+x}{9}$, find $f(0)$

46. $f(x) = -(3x + 7) - 2x$, find $f(-3)$

Part 8: Critical Thinking

47. The original price of a car is $15,000. Find the percent of decrease if the sale price of that same car is $ 13, 050

48. A house originally had 1700 square feet but added an extra 255 square feet. What was the percent of increase?

49. The sale price of a television set is $280 which represents 30% off the original price. What was the original price of the television?

50. A dress is on sale for 40% off the original price of $60. As an additional bonus, there is another 60 % off the price of the dress. How much is the cost of the dress?