Name: _____

Algebra I: Semester 1 Review Packet for Chapters 1 – 5 and 7.

1. Write an algebraic expression for the phrase 2 less than a number.

2. Write an algebraic expression for the phrase 8 times the sum of 12 and x.

3. Evaluate $(xyz)^3$ for $x=-1, y=2, z=3$

4. Evaluate $|2y-z|$ for $y=5, z=-4$

5. Simplify $\frac{2}{3}-\frac{3}{4}$

6. Simplify $\frac{-5}{8}+\frac{4}{5}$

7. Write an equation to model the data shown in the table:

a	b
3	7
4	8
5	9
6	10
7	11

8. Simplify $(-5)^3$

9. Simplify -5^3

10. Simplify -4^4

11. Simplify $-(x+3y)$

12. Simplify $-4(2x+3)$

13. Simplify $5-(x+4)$

14. Simplify $\frac{1}{4}(8x+16)$

15. Simplify $\frac{-2}{5}(10x-30)$

16. Simplify $-2(3x-1)+2x-8$

Name the sets of numbers to which each belongs:

17. $\frac{1}{2}$

18. 42

19. -13

20. Write from least to greatest: $\frac{1}{3}, \frac{-2}{3}, \frac{3}{8}, -1$

Name the property shown by each equation:

21. $7+5=5+7$

22. $2\cdot(3\cdot5)=(2\cdot3)\cdot5$

23. $7+0=7$

Tell in which quadrant or on which axis each point would be found:

24. $(-3,0)$

25. $(-5,-3)$

26. $(3,-2)$

Solve each equation:

27. $\frac{2}{3}x=40$

28. $x+\frac{2}{5}=\frac{-2}{3}$

29. $4b+5=-2b-13$

30. $4=\frac{x-5}{3}$

31. $7=\frac{p}{-2}-5$

32. $3x+4=2(x+1)-4(x+2)$

33. The sum of two consecutive integers is 35. Write and solve an equation to find the values of the integers.

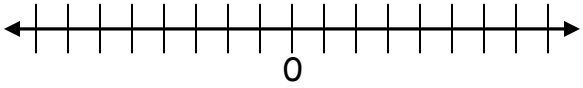
34. The width of a rectangle is 2 cm less than its length. The perimeter of the rectangle is 16 cm. What are the length and width of the rectangle?

35. Solve for y: $y-7=\frac{3}{4}(x-12)$

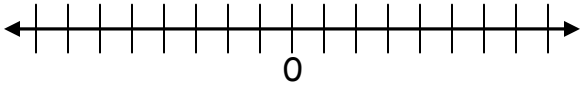
36. Solve for c: $d=2ce$

37. Solve for r: $2r+4=6x$

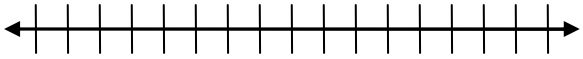
38. Graph $x>4$



39. Graph $x\leq -1$

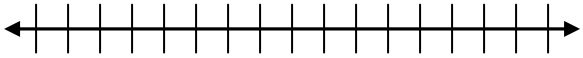


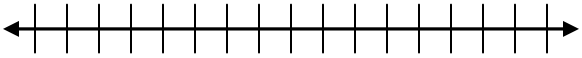
40. You want to get at least an 88 on the next test. Write and graph an inequality to model this situation.



41. Solve and graph: $-2x > 8$

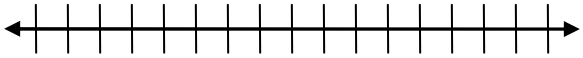
42. Solve and graph: $b + 7 \leq -3$

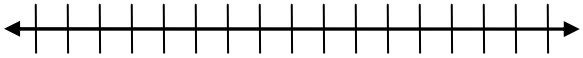




43. Solve and graph $-8 < 3x + 1 < 10$

44. Solve and graph: $4x - 1 < 5$ or $-2x < -4$





45. Solve $-6x + 12 > 18$

46. An 8-ounce bottle of lotion costs $4.50. What is the cost per ounce?

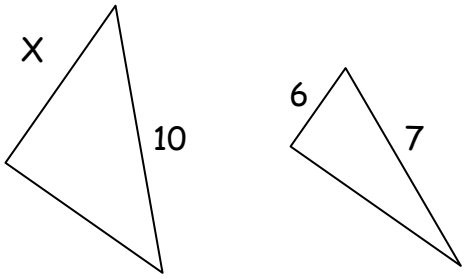
47. A pound of coffee costs $14.99. What is the cost per ounce?

48. Solve $\frac{x-1}{-4} = \frac{2}{3}$

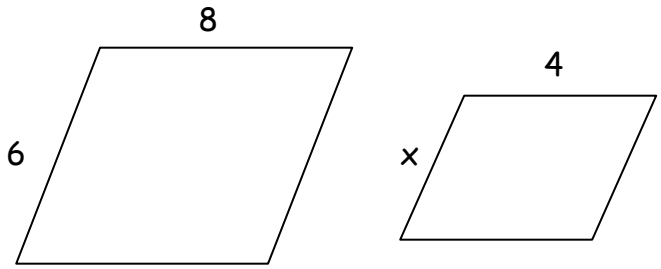
49. Solve $\frac{3}{6} = \frac{x-3}{8}$

50. A canary's heart beats 130 times in 12 seconds. Use a proportion to find out how many times its heart beats in 50 seconds.

51. Using the similar figures, find x.



52. Using the similar figures, find x.



53. A blueprint scale is 1 in : 12 ft. The width of a building is 48 feet. What is the width of the building on the blueprint?

54. A map has a scale of 1 in: 25 mi. Two cities are 175 miles apart. How far apart are they on the map?

55. 25% if what is 28? 56. 60% of what is 45? 57. What is 250% of 14?

58. You spent 16% of your vacation money on food. If you spent $48 on food, how much money did you spend on your vacation?

59. Sarah spends 30% of her monthly income on rent. If she pays $810 for rent each month, what is her monthly income?

60. In 1980, the average annual tuition charge for a four-year public university was $840. The average annual tuition charge fin 2000 was $3356. What is the percent of change?

61. The United States imported 6,909,000 barrels of oil per day in 1980. In 2000, the U.S. imported 11,459,000 barrels of oil per day. What is the percent of change?

62. Find the domain and range of the relation: $\{(-3,-7),(-1,-3),(0,-1),(2,3),(4,7)\ \}$

63. Find the domain and range of the relation: $\{(-5,-4),(-4,2),(0,2),(1,3),(2,4)\}$

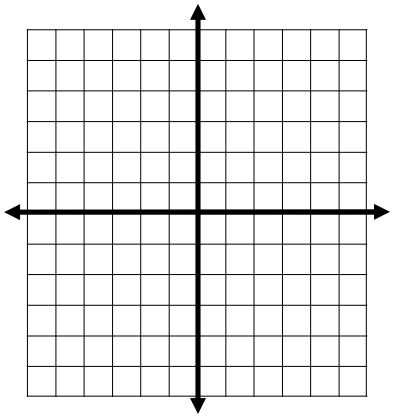
64. Evaluate the function for x = 3 $f(x)=2x-15$

65. Evaluate the function for x = -4 $f(x)=-x+3$

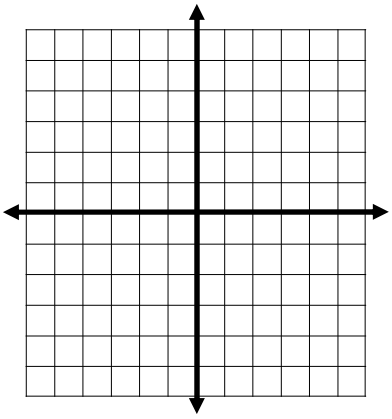
66. Find the range of the function for the given domain:
domain $\{-2,-1,0\}$ $f(x)=-3x+1$

Use a table of values to graph each of the following:

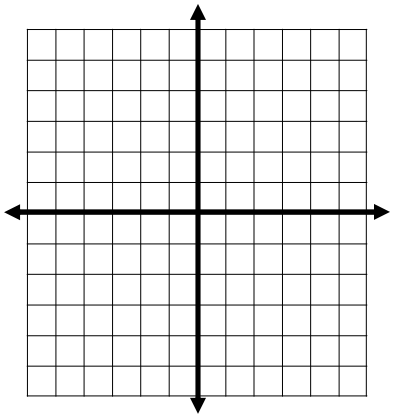
67. $y = |x| - 3$



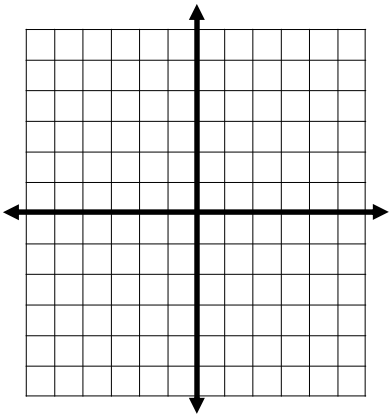
68. $y = x^2 - 4$



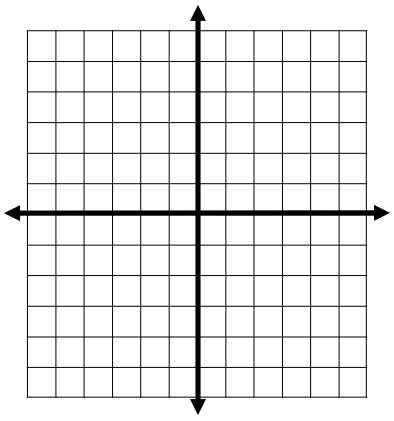
69. $y = -|x| + 3$



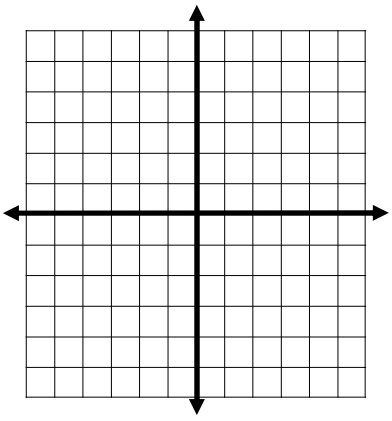
70. $f(x) = -x^2 + 2$



71. Graph $f(x) = -3x + 7$



72. Graph $f(x) = -\frac{1}{2}x + 3$



For 73 and 74, write a function rule for the table:

73.

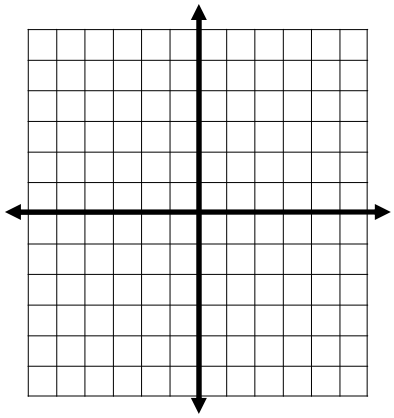
x	y
0	0
1	3
2	6
3	9

74.

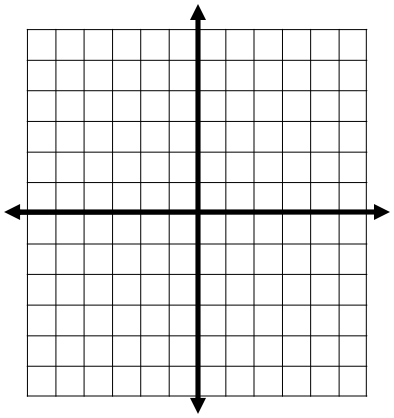
x	$f(x)$
0	-1
1	0
2	1
3	2

For 75, 76, and 77, Graph using the slope and y-intercept:

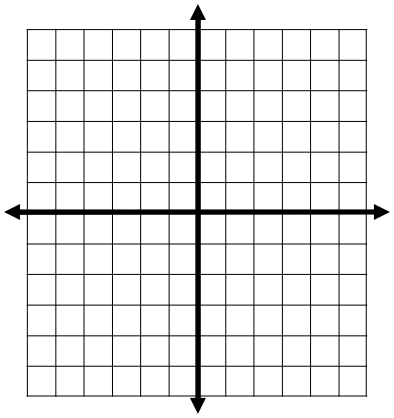
75. $y = \frac{2}{5}x + 3$



76. $y = -6$



77. $y = \frac{-7}{4}x + 6$



78. Write an equation for the line with the given slope and y-intercept.

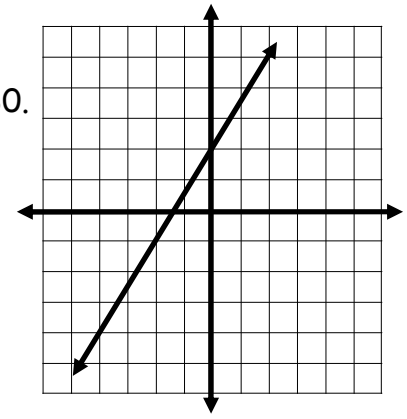
$m = 4 \quad b = 8$

79. Write an equation for the line with the given slope and y-intercept.

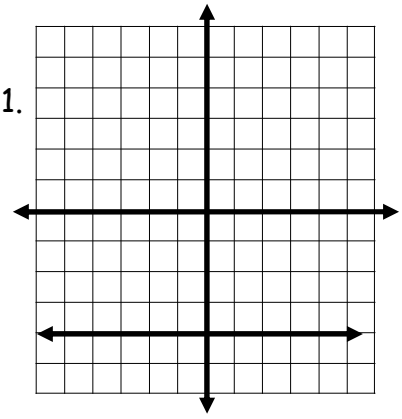
$m = -1, \quad b = -3$

For 80, 81, and 82, write an equation for each line.

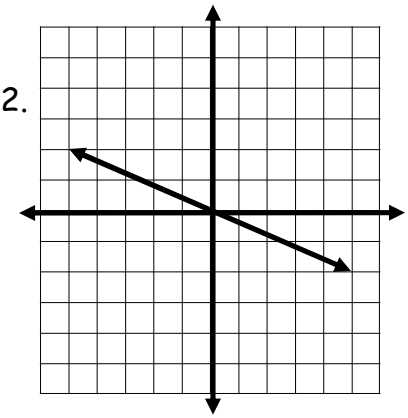
80.



81.



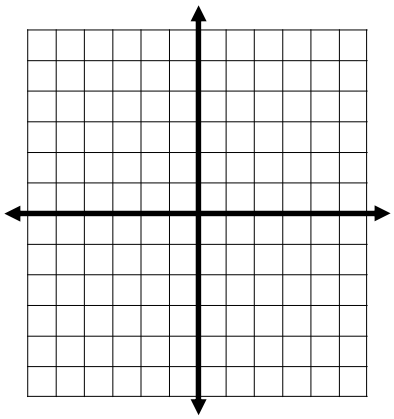
82.



83. Write the equation in standard form: $y = \frac{-x}{3} + \frac{2}{3}$

84. The student council is sponsoring a carnival to raise money. Tickets cost $5 for adults and $3 for students. The student council wants to raise $450.
A) Write an equation to find the number of adult and student tickets they should sell.

B) Graph your equation using x- and y-intercepts.



C) Use your graph to find two different combinations of tickets they can sell to meet their goal.

85. Write an equation in Point-Slope and Slope-Intercept Forms for the line that goes through the points

$(2,-5)$ and $(0,-7)$ Point Slope Form: _____

Slope Intercept Form: _____

85. Write an equation in Point-Slope and Slope-Intercept Forms for the line that goes through the points

$(-2,-6)$ and $(8,4)$ Point Slope Form: _____

Slope Intercept Form: _____

87. Write an equation for the line that is parallel to $y = 2x - 7$ and goes through $(3,4)$.

88. Write an equation for the line perpendicular to $y = \frac{1}{6}x + 1$ through $(-1, -4)$

89. Are the lines parallel, perpendicular, or neither. Explain:

$y = 3x - 8$
$3x - y = -1$

Simplify each of the following expressions.

90. $(-8.6)^0$

91. $12^{-3} \cdot 12^{10} \cdot 12^0$

92. $a^5 \cdot 3b^9 \cdot 6a$

93. $-4x^3 \cdot 2y^{-2} \cdot 5y^5 \cdot y^{-8}$

94. $(4)^{-2}$

95. $(7.46)^{-5} \cdot (7.46)^6$

Re-write each number in Scientific or Standard form as appropriate.

96. 8,670,000,000

97. 9.07×10^{-2}

Simplify and Re-write each expression only using Positive exponents

98. $\frac{12}{c^{-8}d^2}$

99. $7x^{-8} \cdot 6x^3$

100. Order $34 \times 10^2, 1.2 \times 10^7, 8.11 \times 10^{-3}$ *and* 435 from least to greatest