Sem 1: Review   **Comprehensive Review**

1. Simplify $2x - 9y + 4x + 11y$ by combining like terms and then evaluate at x = -2 and y = 4.

2. Simplify $2/6 - 1/7 + 3$

3. Simplify $1 - 4(3z - 2) - 2(7 - z)$ and then evaluate at z = -5.

4. Solve for y: $11(y - 2) + 2[\, y - 3(y + 1)\,] = 0$

5. Solve for p: $-p - (5 - 6p) + (p + 8) = 15$

6. Solve for h: $3(-h - 3) = -3(h + 1) + 2$

7. Solve this inequality and express the answer both symbolically and as a graph on a number line: $3x - 11 \leq 4$
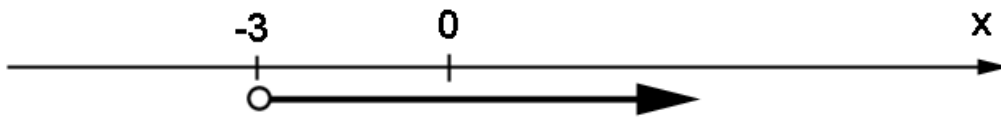
8. Solve this inequality and express the answer both symbolically and as a graph on a number line: $4(2 + x) < 6x + 12$

9. Rewrite the inequality $x \leq y$ after multiplying both sides by -6 .

10. Define a variable and then write this expression algebraically:

"47 decreased by the width"

11. Write the inequality that describes this graph:

12. Which of the following is a solution to the inequality shown in problem 11?

{ -5, -4, - 3, -2, 11.304 }

13. 26 is what percent of 79.2?

14. The length of a rectangle is 5 more than its width. What are the dimensions of the rectangle if its perimeter is 26?

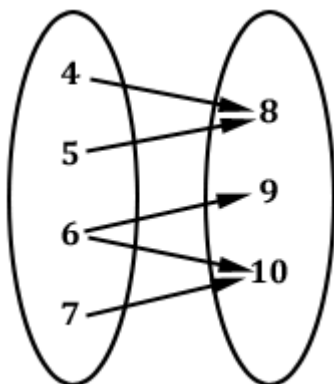15. What is the rate of commission on the sale of a car if the salesman makes $300 on the sale of a $4,700 used car?

16. 29% of what is 172?	17. Convert .0289% to a decimal fraction.
18. Plot the point P(-8, 6) on a coordinate plane and then show a new point Q that is the reflection of P across the x-axis. In which quadrant is Q?	19. What is the equation of a vertical line passing through (5, − 6)?

20. Find the domain and range of the relation represented by this mapping. Is it a function? Why?

21. Find the domain and range of the
relation represented by this table. Is it a
function? Why?

x	y
2	6
9	9
13	13
22	30

22. If f(x) = –x + 16x – 2 and g(x) = 3x –7, find the value of 2g(3) – 5f(–1).

23. A left-over dish is taken from a refrigerator at 34°F and placed in a 250°F
oven. Sketch a graph of the temperature of the dish over the next few hours.

Which is the dependent variable?

Which is the independent variable?

The _____ is a function of _____
and the functional notation is

_____

24. What is the equation of the line having a slope of –3/5 and passing through
the y-axis at y = 22?

25. What is the equation of the line that passes through the x-axis just two units to the left of the origin and the point (–5, 12)?

26. What is the equation of the line passing through the origin and perpendicular to the line given by 3y + 2x = 7?	27. What is the equation of the line that passes through (4, –8) and is parallel to the line given by y + 6 = 0?

28. Examine these two linear equations and determine if their two-dimensional graphs are perpendicular, parallel, or neither. How many points would be in the solution to this system of equations?   4y + 3x = 12   and   y – x + 234 = 1

29. Examine these two linear equations and determine if their graphs are perpendicular, parallel, or neither. How many points would be in the solution to this system of equations? x = 4   and   17 – x = 0

30. Examine these two linear equations and determine if their graphs are perpendicular, parallel, or neither. How many points would be in the solution to this system of equations? $8x + 3 = -5y$ and $16y - 10x + 1 = 0$
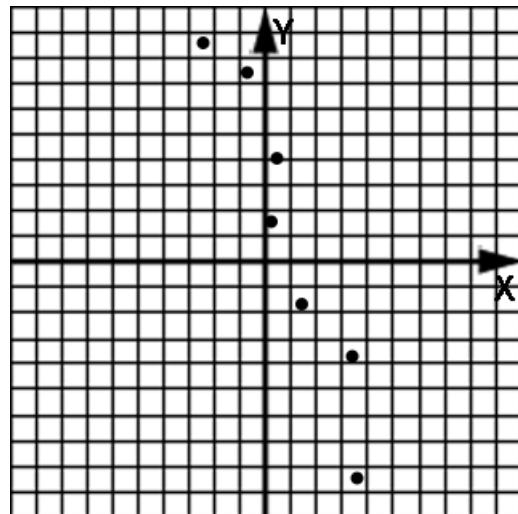
31. Draw a line that has an x-intercept of -6 and a y-intercept of -10. What is the equation of this line? Which quadrants are touched by this line?

32. Draw a line of best-fit for this scatter plot and then find the equation of the line.

What is the correlation of this scatterplot?

33. Use a graphing calculator to make a scatter plot of the data in this table. Use linear regression to produce a line of best-fit. Sketch the calculator display.

x	y
-8	120
-4	82
-1	67
2	36
6	15
8	-5

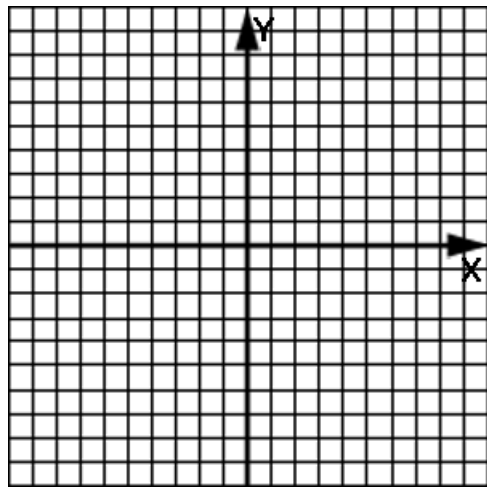| 34. What type of correlation does the data of problem 33 exhibit?	35. What is the slope (to two decimal places) of the line of best-fit?
36. What is the y-intercept (to two decimal places) of the line of best-fit?	37. What is the equation of the line of best-fit in slope-intercept form?

38. Determine if (4, –5) is a solution to this system:

   $y = 8x - 37$; $4x + 6y - 1 = 0$

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39. Graph these two lines to find their intersection point.

   $x - 2y = 8$; $2x + y = 1$

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40. Use the substitution method to find the intersection point of these lines:

   $x = 4y - 9$; $2x + y = 9$

41. Use the elimination method to find the solution to this system:

$$4x - 6y + 2 = 0; \ 2x - 5y = 11$$

42. Use the elimination method to find the intersection point of these two lines:

$$-7y - 2x = 5 ; \ x - 3y = 4$$

43. Use the substitution method to find the intersection point of these two lines:

$$2x - 5y = 2; \ 3x + y = 0$$

44. Use a graphing calculator find the intersection of these two lines. Make a sketch of the calculator display:

y = .37x + 2.01 ; y = -1.156x − 2.4

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45. The number of boys in the class is 5 more than the number of girls. If there are 31 students in the class, how many girls are in the class?

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46. The number of green birds is inversely proportional to the number of red birds. In one instance there were 33 green birds when there were 2 red birds. How many red birds can be expected when there are 22 green birds?

47. The profit p per unit varies as number of features f in the product. What is the constant of proportionality when 11 features yields a profit of $23?

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48. If g is directly proportional to h and g = 2 when h = 3.4, what would be the value of h when g = 11?