Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Semester Exam Review Algebra 1 2014-15

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. (2 points) Write all classifications of the real number -3
a. rational
b. irrational
c. rational, integer, whole, natural
d. rational, integer

____ 2. (2 points) Write all the classifications of the real number 1/2.
a. rational
b. irrational
c. rational, integer, whole, natural
d. rational, integer

____ 3. (2 points) Find the additive and multiplicative inverse of $-\frac{5}{8}$
a. additive is $\frac{5}{8}$, multiplicative is $\frac{8}{5}$
b. additive is $-\frac{8}{5}$, multiplicative is $\frac{5}{8}$
c. additive is $\frac{5}{8}$, multiplicative is $-\frac{8}{5}$
d. additive is $-\frac{5}{8}$, multiplicative is $-\frac{8}{5}$

____ 4. (2 points) What property is used to make the equality: $8+(3x+4)=(8+3x)+4$
a. commutative property of addition
b. asscociative property of multiplication
c. distributive property
d. associative property of addition

____ 5. (2 points) What property is used to make the equality: 7+(3x+1)=(3x+1)+7
a. associative property of addition
b. commutative property of addition
c. distributive property
d. commutative property of multiplication

____ 6. (2 points) What property is used to make the following equality: $5(2x+1)=10x+5$
a. commutative property of addition
b. associative property of multiplication
c. distributive property
d. associative property of addition

____ 7. (2 points) Jasmine texts 30 friends a month. Write an expression for the number of friends she texts in m months.
a. 30+m
b. 30m
c. $\frac{30}{m}$
d. $\frac{m}{30}$

____ 8. (2 points) Evaluate the expression 3a+7b for a=2 and b=5
a. 41
b. 107
c. 29
d. 65

____ 9. (2 points) Evaluate the expression 5p-3q for p=4 and q=-3.
a. 11
b. 26
c. 29
d. 52

____ 10. (2 points) Solve for x. -11+x=17
a. x=6
b. x=28
c. x=-6
d. x=-28

____ 11. (2 points) Solve. 2p+8+3p=p+48

a. p=10
c. p=8
b. p=9
d. p=5

____ 12. (2 points) Solve for x. $\frac{3}{4}x = -15$

a. x=20
c. x=-63
b. x=-20
d. x=-11.25

____ 13. (2 points) Solve. $2n + 9 + n = 17 - 3n$

a. $\frac{4}{3}$
c. no solution
b. $\frac{3}{4}$
d. $\frac{13}{3}$

____ 14. (2 points) Solve the inequality. $x - 1.7 \geq -3$

a. $x \geq -4.7$
c. $x \geq -1.3$
b. $x \geq 1.3$
d. $x \leq -1.3$

____ 15. (2 points) Lauren owes her sister $50. Lauren has saved $16 of her babysitting money. Lauren wants to be debt free with some money to spare. Write an inequality to show how much money she needs to reach her goal, if money she earns is x.

a. 16+x>50
c. x+16<50
b. x-16>50
d. x-16<50

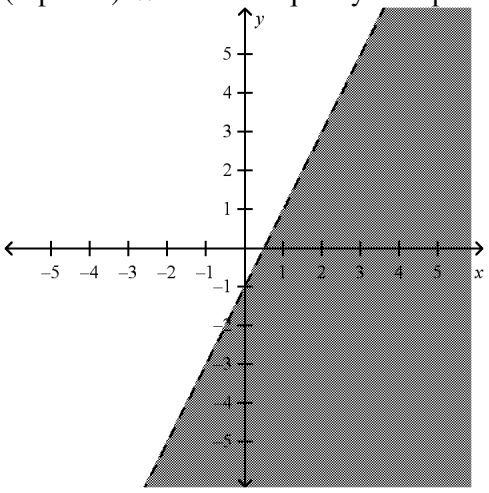
____ 16. (2 points) Solve the inequality. $\frac{r}{-3} \geq 10$

a. $r \geq -30$
c. $r \leq 13$
b. $r \geq 13$
d. $r \leq -30$

____ 17. (2 points) Solve. $\begin{cases} y - 2x = 5 \\ 3y = 6x + 15 \end{cases}$

a. no solution
c. (2,9)
b. infinite number of solutions
d. (9,2)

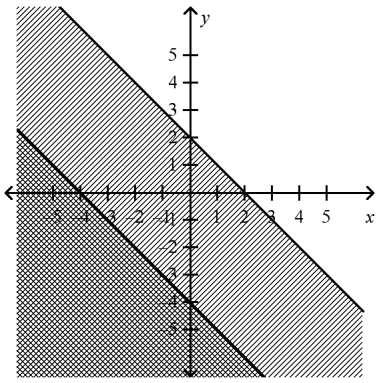
____ 18. (2 points) Write an inequality to represent the graph.



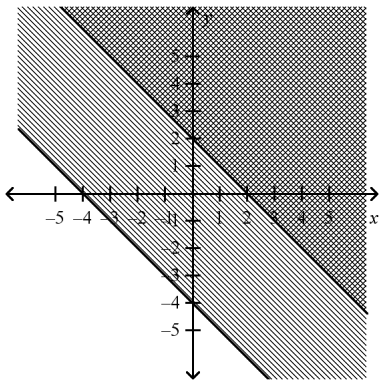
a. $y < 2x - 1$
c. $y > 2x - 1$
b. $y \leq 2x - 1$
d. $y \geq 2x - 1$

____ 19. (2 points) Graph the system of linear inequalities $\begin{cases} y \le -x+2 \\ y \ge -x-4 \end{cases}$.

a.



c.



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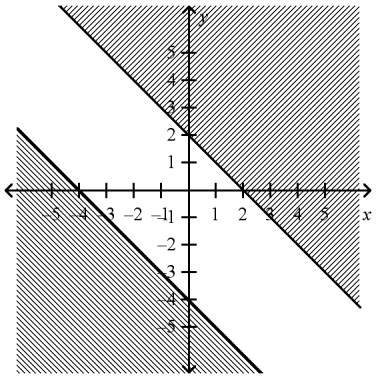
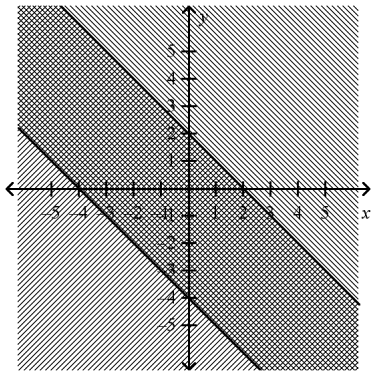


d.



____ 20. (2 points) Molly is painting a picket fence in her yard. Molly can paint 8 feet per hour. The length of the fence is 400 feet. Write a function to represent the lenght(L) left to paint after t hours.

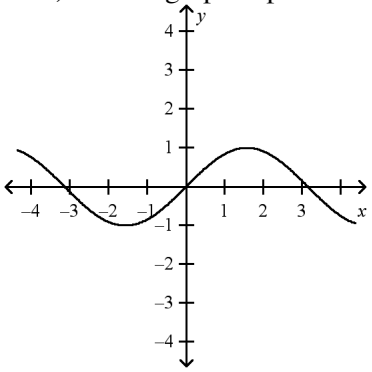
a. L=8t+400
c. L=400t-8
b. L=400-8t
d. L=8t-400

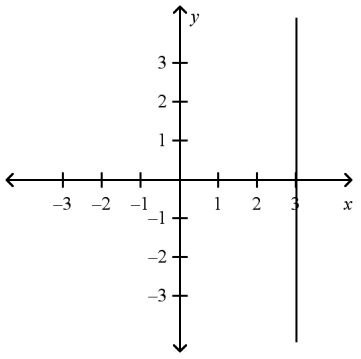
____ 21. (2 points) Tell whether the relation is a function.

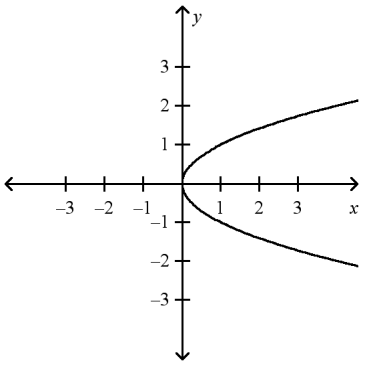
x	4	5	-2	1
y	3	3	6	4

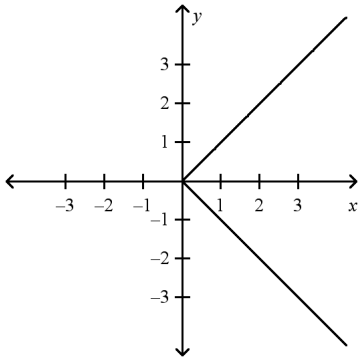
a. The relation is not a function.
b. The relation is a function.

____ 22. (2 points) Which graph represents a function?

a. 

c. 

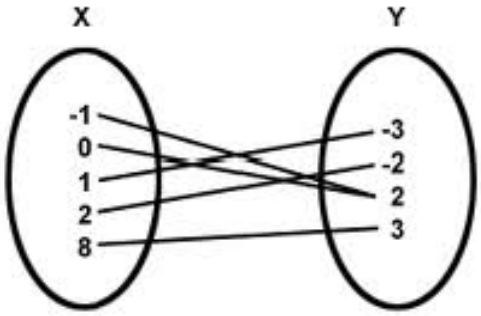
b. 

d. 

____ 23. (2 points) For g(x)=-3x-1, find g(4)

a. -35
c. -13
b. -11
d. 13

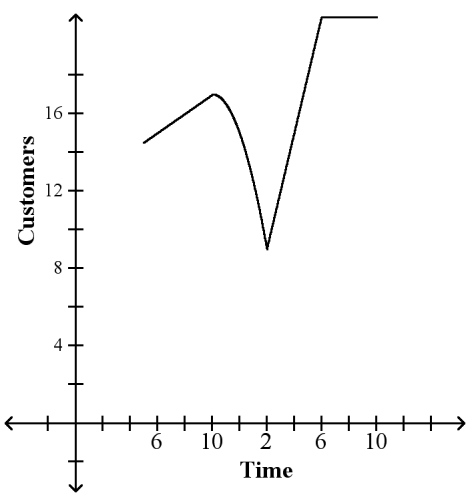
____ 24. (2 points) Write the function that is mapped as a set of ordered pairs.



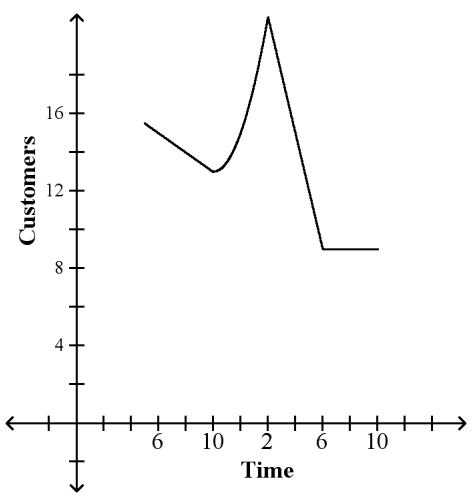
a. $\{(-1,2)(0,2)(1,-3)(2,-2)(8,3)\}$
c. $\{(1,2)(0,2)(1,-3)(2,-2)(8,3)\}$
b. $\{(2,-1)(2,0)(-3,1)(-2,2)(3,8)\}$
d. $\{(-1,-2)(0,-2)(1,-3)(2,-2)(8,3)\}$

____ 25. (2 points) The golf driving range has lots of senior citizens hitting balls when then open at 6, but then things taper off until after lunch when they are very busy. After dinner they have hardly any business. Which graph best represents this scenerio?

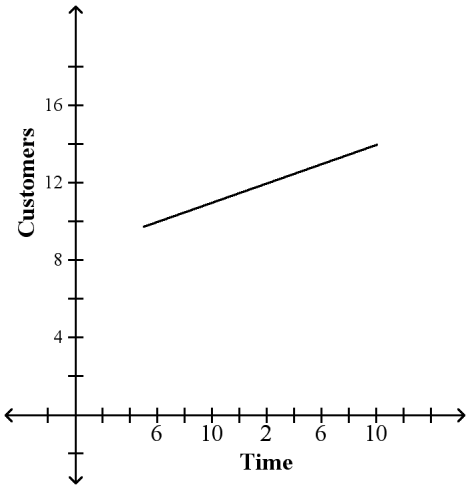
a.



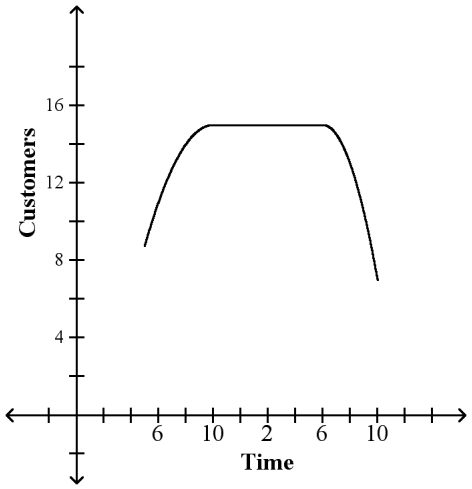
c.



b.

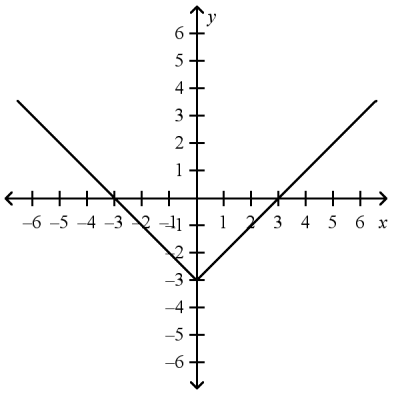


d.

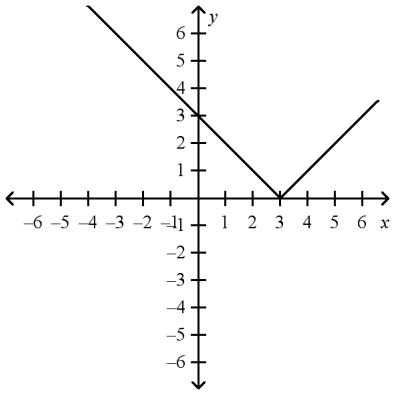


____ 26. (2 points) Which graph represents $f(x) = |x - 3|$?.

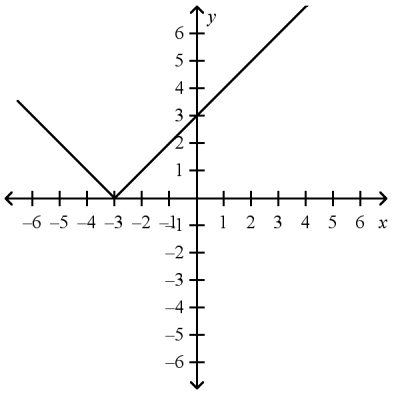
a.



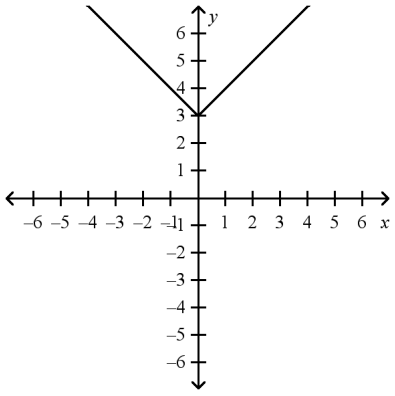
c.



b.



d.



____ 27. (2 points) Find the slope of the line that contains (-2, -5) and (-6, 9).

a. $-\frac{7}{2}$

c. 1

b. $\frac{7}{2}$

d. –1

____ 28. (2 points) Tell whether the table of ordered pairs satisfies a linear function. Explain.

x	5	7	9	11
y	3	7	11	15

a. Yes; there is no constant change in x that corresponds to a constant change in y.

c. No; there is a constant change in x that corresponds to a constant change in y.

b. Yes; there is a constant change in x that corresponds to a constant change in y.

d. No; there is no constant change in x that corresponds to a constant change in y.

____ 29. (2 points) Write the equation that describes the line with slope = $-\frac{1}{2}$ and y-intercept = -2 in slope-intercept form.

a. $y = -2x - \frac{1}{2}$

b. $x = -\frac{1}{2}y - 2$

c. $y = -\frac{1}{2}x - 2$

d. $-\frac{1}{2}x + y = -2$

____ 30. (2 points) Write an equation in slope-intercept form for the line that passes through $(8, 4)$ and $(9, 9)$.

a. $y = 5x - 36$

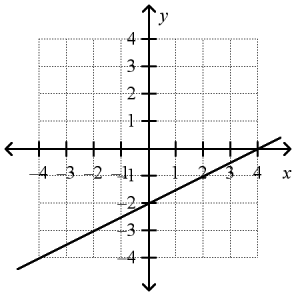
b. $y = \frac{1}{5}x - 36$

c. $y = -5x - 36$

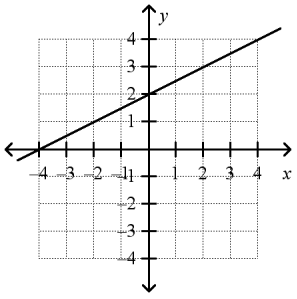
d. $y = 5x - \frac{1}{36}$

____ 31. (2 points) Graph $x + 2y = 4$.

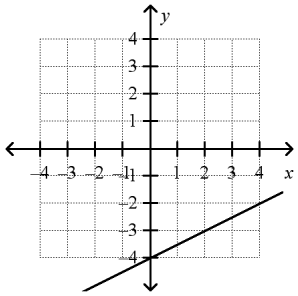
a.



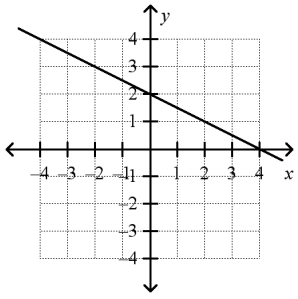
b.



c.

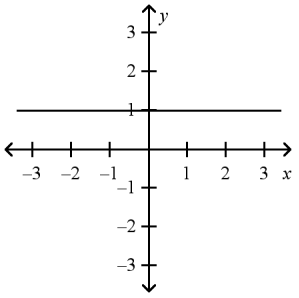


d.

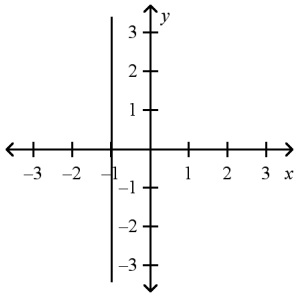


____ 32. (2 points) Graph $x = 1$.

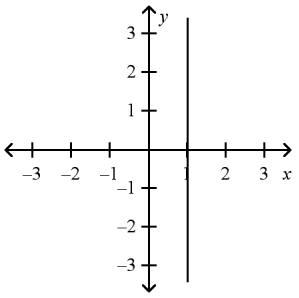
a.



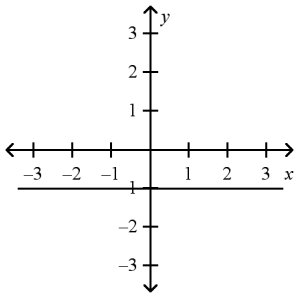
c.



b.



d.



____ 33. (2 points) Write the equation of a line in point-slope form that has a slope of 2 and passes through the point (-4, 1).

a. $y = 2x + 9$

c. $2x - y = -9$

b. $y - 1 = 2(x + 4)$

d. $y - 1 = 2(x - 4)$

____ 34. (2 points) What is the slope of the line represented by the equation x - 3y = 9?

a. -3

c. -1

b. $-\frac{1}{3}$

d. $\frac{1}{3}$

____ 35. (2 points) Write the equation -3x-5y=20 in slope-intercept form.

a. $-5y = 3x + 20$

c. $y = \frac{3}{5}x + 4$

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

d. $y = 8x + 20$

____ 36. (2 points) Write an equation in slope-intercept form for a line parallel to y=3x-2, passing through the point (6,-5)

a. y=3x-23

c. $y = -\frac{1}{3}x - 1$

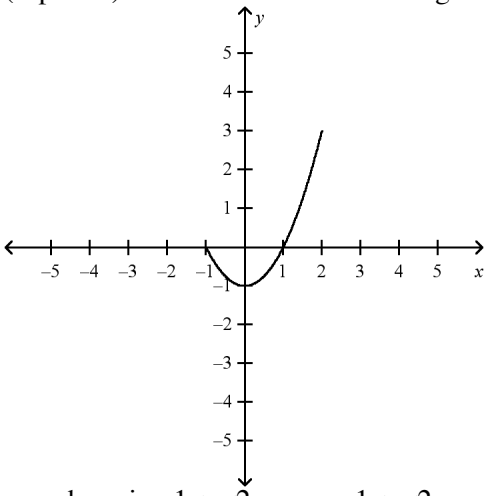
b. $y = \frac{1}{3}x - 5$

d. $y = -3x + 15$

____ 37. (2 points) Find the slope of a line that is perpendicular to the following line: $y = -\frac{2}{3}x + 7$

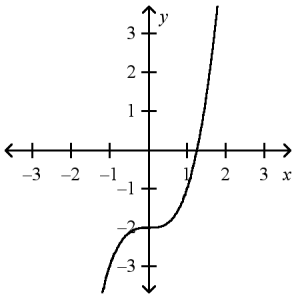
a. $-\frac{2}{3}$
b. $-\frac{3}{2}$
c. $\frac{3}{2}$
d. $\frac{2}{3}$

____ 38. (2 points) Give the domain and range of the given relation.



a. domain:-1≤x≤2, range:-1≤y≤2
b. domain:-1≤x≤2, range:-1≤y≤3
c. domain:-1≤x≤3, range:-1≤y≤2
d. domain:-1≥x≥2, range:-1>y>2

____ 39. (2 points) Identify the function family for the following:



a. Cubic
b. Quadratic
c. Inverse
d. Exponential

____ 40. (2 points) Identify the function family for the following:

$f(x) = 5^x$

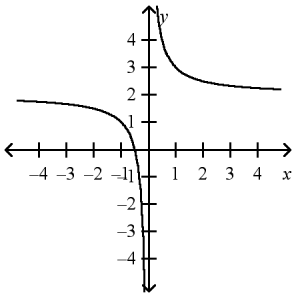
a. linear
b. exponential
c. inverse
d. quadratic

____ 41. (2 points) Identify the function family for the following:

$f(x) = x^2 + 3$

a. linear
b. absolute value
c. quadratic
d. exponential

____ 42. (2 points) Identify the function family for the following:



a. Cubic
b. Quadratic
c. Exponential
d. Inverse

____ 43. (1 point) What are the x and y intercepts of 3x+4y=6?

a. x intercept is 2
y intercept is 2/3
b. x intercept is 2/3
y intercept is 2
c. x intercept is 2
y intercept is 3/2
d. x intercept is 3/2
y intercept is 2

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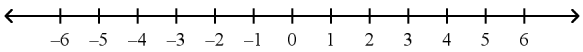
Short Answer

44. (4 points) Solve and graph the following compound inequality.
$3x+1>10 \quad or \quad x-5\le -6$

_____



45. (3 points) In this formula for the area of a regular polygon, solve for a. Show all steps.
$A=\frac{1}{2}ap$

_____

46. (2 points) Write the equation that shows the relationship between x and y in the table below. Is the relationship between x and y a direct variation?

x	1	2	3
y	-2	-4	-6

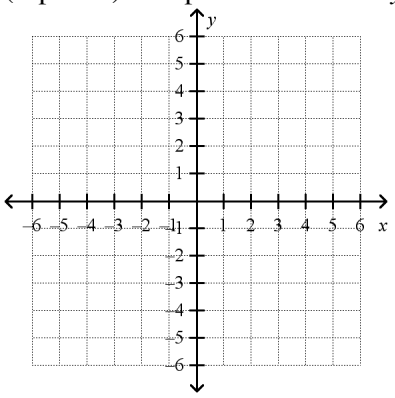
Equation: _____
Is the relationship a direct variation? _____

47. (3 points) Solve $43a+10-26a=27$. Show all your work.

48. (2 points) Solve $38=6-2y$. Show all your work.

49. (1 point) Solve 5-6x=-6(x-1) Show all your work.

50. (2 points) Graph the function $y = 2x - 4$.



51. (4 points) To recieve full credit, you must show ALL your steps.

Solve. $\begin{cases} 2x + 5y = 13 \\ 2x + y = 9 \end{cases}$

Solution_____

52. (4 points) Peter's Plowing charges a flat fee of $150 a season, plus $20 every time they plow your driveway. Power Plowers don't charge a flat fee, but they charge $35 everytime they plow your driveway. After how many snowy days will the two plow companies charge the same price?

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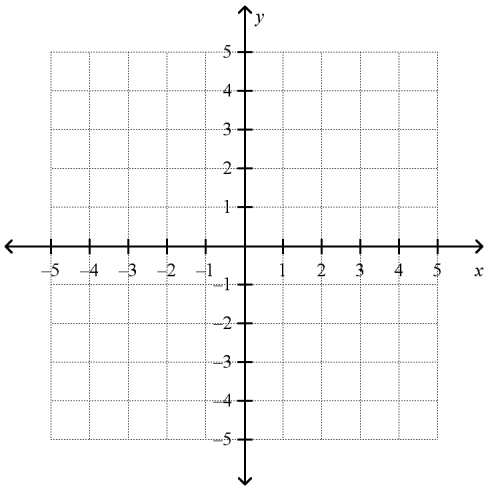
53. (3 points) Solve by graphing. $\begin{cases} x+y=3 \\ y=\frac{1}{2}x-3 \end{cases}$



54. (2 points) Explain why {(1,2),(2,3),(1,5),(3,5)} is not a function.

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55. (3 points) Solve. The sum of two numbers is 28. The difference of the numbers is 12. Write equations, and find the two numbers.

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56. (1 point) Is the point (6,-1) a solution to the system of inequalities $\begin{cases} 2x+y>5 \\ x-2y<8 \end{cases}$?

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57. (1 point) Darian is going to start a lawn care business and bought a $235 lawn mower to get started. Assuming that his Dad gives him free gas for the mower and Darian is charging $30 per lawn to cut grass, how many lawns will he need to cut before he starts making a profit? Show work, and write a complete sentence to explain your reasoning.