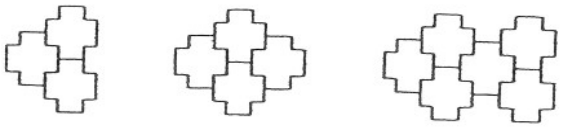
Algebra IA
Exam Review
Ch. 1, 3, 4

NAME: _____
DATE: _____ HOUR: ____

For each sequence, draw the next 2 terms and describe the pattern.

1. 

2. 3, –6, 12, –24, _____, _____

Use the sequence below to answer Questions 3 and 4.

Term (n)	1	2	3	4	5
Sequence	3	7	11	15	19

3. Write an expression showing the relationship between the term and the sequence. Let n represent the term.

4. Use the expression from Question 3 to find the 20th term of the sequence. Show all your work.

Perform the indicated operations. Show all your work.

5. $3^4 - (2 + 6) + 5$

6. $(10 - 6)^2 + 3(2 - 7)$

7. A couple ate dinner at a restaurant and their bill totaled $65.85. They left a 20% tip. How much did they leave for a tip? Show all your work and use a complete sentence in your answer.

8 Janelle's net pay last month was $370.60. She had $174.40 withheld from her pay. What was her gross pay and what percentage of her pay was withheld?

gross pay = net pay + withholding

Solve each equation. Show all your work.

9. $-8x - 15 = -39$

10. $\frac{x}{5} + 23 = 30$

11. Algebraically determine whether 67 is a solution of the equation $3x - 45 = 156$. Show all of your work and use a complete sentence in your answer.

Read the scenario below. Use the scenario to answer Questions 12 through 15

A parking garage charges \$2.25 for the first hour of parking and \$1.50 for each additional hour.

12. Write an equation to represent the relationship between the time h and the cost for parking c.

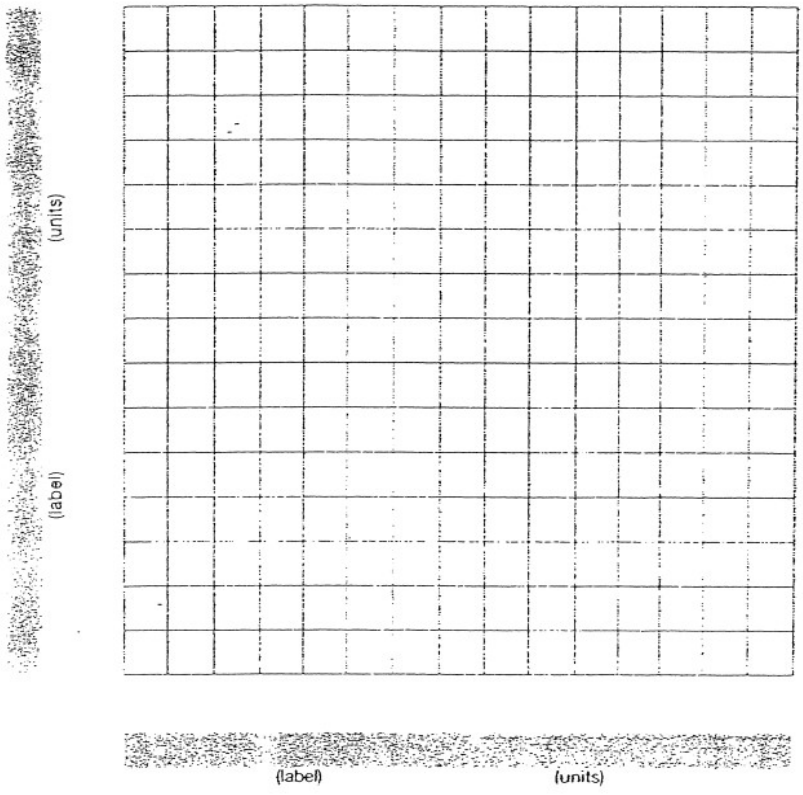
$$c = 0.75 + 1.50h$$

13. Complete the table of values that shows the relationship between the time and the cost for parking.

	Time	Cost
Labels		
Units		
Expressions		
	1	
	3	
	6	
	10	
	15	

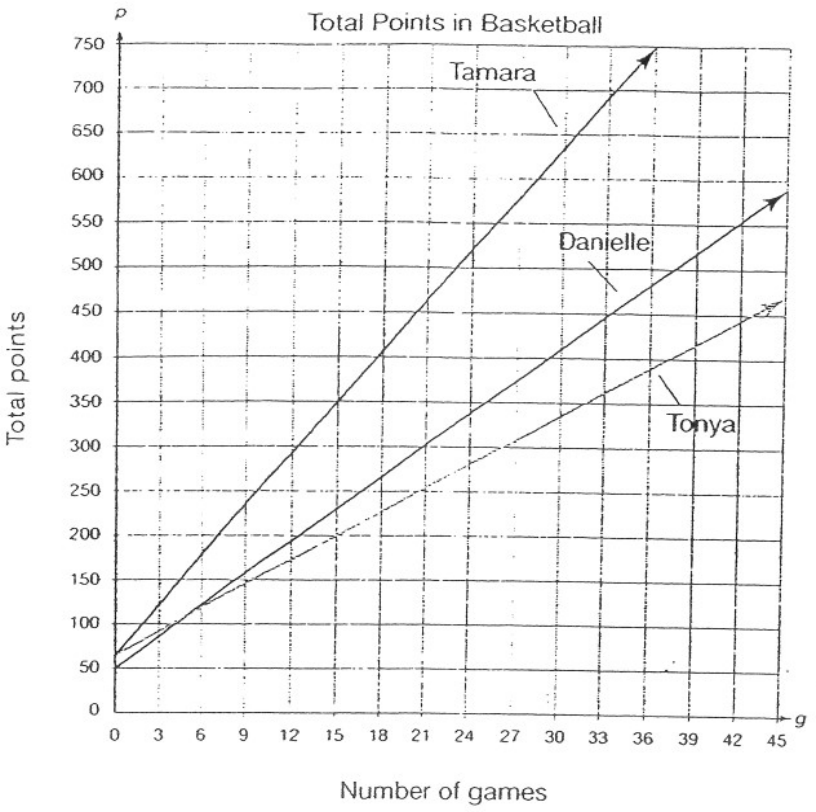
14. Use the grid below to create a graph of the data from the table in Question 13. First, choose your bounds and intervals. Be sure to label your graph clearly.

Variable quantity	Lower bound	Upper bound	Interval
Time	0	30	2
Cost	0	60	4



15.. Use your graph to estimate how much it would cost to leave your car in the parking garage for 20 hours. Use complete sentences to explain how you found your answer.

Use the graph below to answer Questions 16 through 18



16. Danielle scored 50 points in the first two weeks of the season. On the average, she scores 12 points a game. Use the graph of Danielle's points to graphically determine whether 25 is a solution of $12g + 50 = 350$. Use complete sentences to explain your reasoning.

17. After how many games will Danielle and Tonya have the same number of points? Use complete sentences to explain how you determined your answer.

18. Use the graph to estimate when Tamara will have 600 points. Use complete sentences to explain how you determined your answer.

Solve each equation. Show all your work.

19. $y + 12 = -4$

20. $b - 7 = -9$

21. $-8h = 72$

22. $\frac{r}{-5} = -13$

23. $3z + (-18) = 36$

24. $-2n - 14 = -54$

25. $\frac{x}{3} + 21 = 18$

26. $\frac{a}{-4} - 6 = 7$

27. The daily cost to visit Wild and Crazy Amusement Park is $18.75. Write an equation that shows the relationship between the cost C and the number of visits v.

28. The owners of Wild and Crazy Amusement Park are offering a special weekday pass. The weekday pass costs $75, and then the cost each time you visit the park is $15. Write an equation that shows the relationship between the cost C and the number of visits v if you purchase a weekday pass.

29. The owners of Wild and Crazy Amusement Park are also offering an anytime pass. The anytime pass costs $100, and then the cost each time you visit the park is $12.50. Write an equation that shows the relationship between the cost C and the number of visits v if you purchase an anytime pass.

Decide whether each relation is a function. If the relation is a function, identify the domain and range. If the relation is not a function, explain why. Use complete sentences in your answers.

30. Relation: (–50, 50), (–40, 40), (–30, 30), (–20, 30), (–10, 40)

31. Relation: (14, 23), (15, 25), (16, 27), (14, 29), (13, 27)

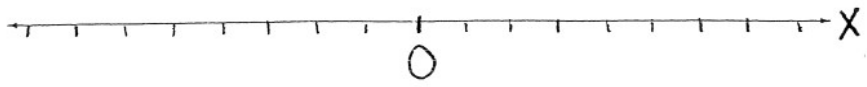
Evaluate each function at the specified value. Show all your work.

32. $f(x) = 39 - 4x$ at $x = 9$

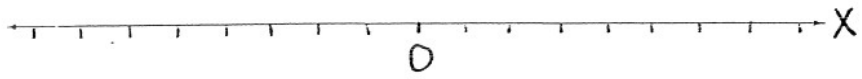
33. $h(x) = 10x + 17$ at $x = -3$

Solve each inequality and graph the solution. Show all your work.

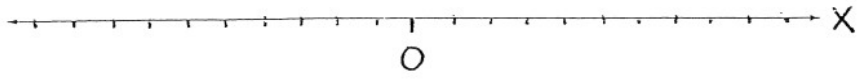
34. $2x + 7 > 19$



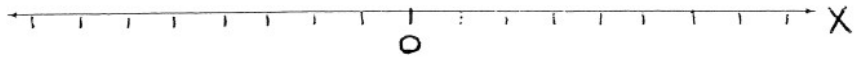
35. $-3x - 14 \geq 7$



36. $|x| + 2 \leq 11$



37. $|4x - 2| > 22$



Your uncle is trying to decide between a cable subscription and a satellite dish. The cable subscription has a $40 hook-up fee and costs $38 per month. The satellite dish costs $260 and the monthly fee is $15.

38. Write an expression that represents the total cost of the cable service, using x to represent the number of months that your uncle has the service.

39. Write an expression that represents the total cost of satellite service, using x to represent the number of months that you have the service.

40. Write and solve an equation to determine the number of months it takes for the total costs to be the same. Show all your work and use a complete sentence in your answer.

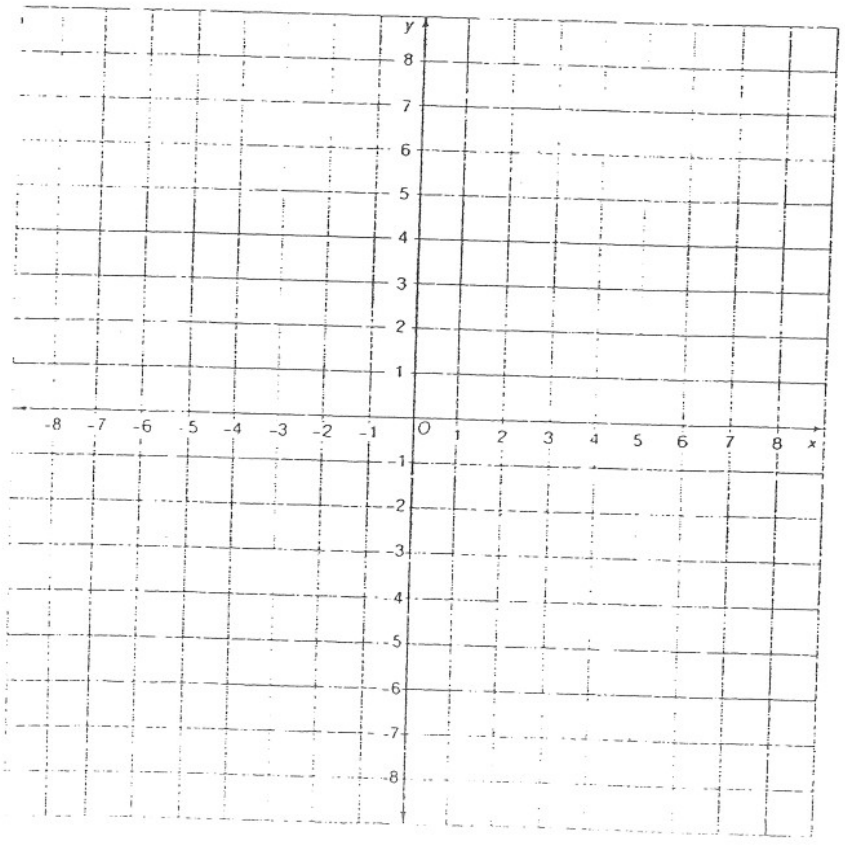
41. Plot and label each point in the coordinate plane.

$A(-4, 4)$

$B(-3, -2)$

$C(6, 1)$

$D(5, -6)$



42. Solve: $2(x - 4) = \frac{24 - 16}{2}$

Step 1: $2x - 8 = \frac{24 - 16}{2}$

Step 2: $2x - 8 = \frac{24}{2} - \frac{16}{2}$

Which property of real numbers was used in Step 2?

a. Distributive property of division over subtraction

b. Distributive property of multiplication over subtraction

c. Commutative property of addition

d. Multiplicative identity

43. Which relation is a function?

a. (0, 0), (1, 2), (0, 3), (2, 4)

b. (–24, 2), (–23, 2), (–24, 4), (–23, 4)

c. (–6, 1), (–6, 2), (–6, 3), (–6, 4)

d. (4, 9), (6, 13), (9, 4), (13, 6)

44. What is the domain of the function given in the table?

x	*y*
–5	15
–2	6
–1	3
3	–9
4	–12

a. {15, 6, 3, –9, –12}

b. (–5, 15), (–2, 6), (–1, 3), (3, –9), (4, –12)

c. {–5, –2, –1, 3, 4}

d. all real numbers

45. Which of the following is written in function notation?

a. $f = 3x + 2$

b. $y = 3x + 2$

c. $f - x = 3x + 2$

d. $g(x) = 3x + 2$

46. Which of the following real numbers is NOT a rational number?

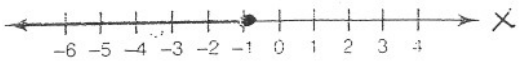
a. 4.216589...

b. 8

c. 1.33333...

d. $\frac{5}{0}$

Write the inequality for each graph shown.

47. 

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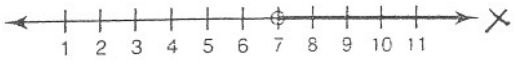
48. 

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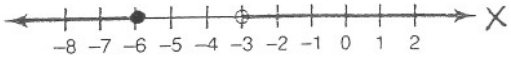
49. 

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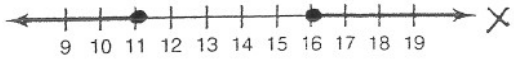
50. 

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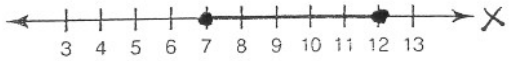
51. 

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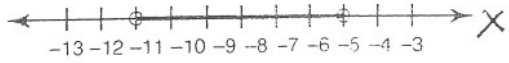
52. 

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Write and solve a percent equation to answer each question.

53. What is 15% of 140?

54. What is 40% of 250?

55. Fifteen is what percent of 60?

56. Four is what percent of 80?

57. Fifty-one is 30% of what number?

58. One hundred eighty-three is 60% of what number?

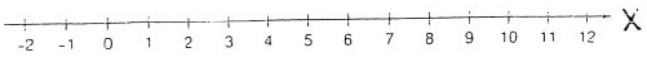
59. Fifty is what percent of 125?

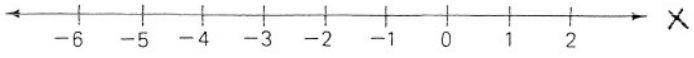
60. One hundred fifty-four is 35% of what number?

Solve each absolute value inequality and graph your solution on a number line.

61. $|x - 8| < 2$

62. $|x + 1| \leq 3$



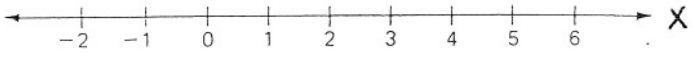


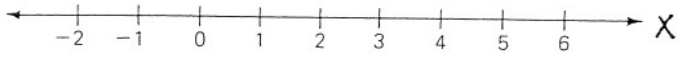
Absolute Value Inequalities

"less than"		"greater than"	
$\|ax + b\| < c$	create "_____" solutions	$\|ax + b\| > c$	create "____" solutions
$\|ax + b\| \leq c$	and graph to be line segments	$\|ax + b\| \geq c$	and graph to be two rays

63. $|4x - 21| \geq 3$

64. $|8x - 14| > 10$





65. Match each set of numbers to its definition.

____ 1. rational numbers

____ 2. irrational numbers

____ 3. integers

____ 4. whole numbers

____ 5. natural numbers

____ 6. real numbers

A. { 1, 2, 3, ...}
B. { 0, 1, 2, 3, ...}
C. { ... , -3, -2, -1, 0, 1, 2, 3, ...}
D. a quotient of two integers, a decimal value that stops or repeats
E. a decimal value that never stops and never repeats (ex. π)
F. the union of the rational and the irrational numbers