Algebra CC
Graded Review #1

Name _____

Date _____

Early grading on Wednesday. All papers due on Friday
LATE PAPERS WILL NOT BE ACCEPTED!!

SCORE:_____/20

FINAL SCORE:_____/20

Multiple Choice – 2 points per question (Show all work for full credit)

1. **A car uses one gallon of gasoline for every 20 miles it travels. If a gallon of gasoline costs $3.98, how much will the gas cost, to the *nearest dollar*, to travel 180 miles?**

   (1) 9 **(3) 45**
   (2) 36 **(4) 80**

2. **The equation 3(4x) = (4x)3 illustrates which property?**

   (1) commutative **(3) distributive**
   (2) associative **(4) multiplicative inverse**

3. **If $A = 3x^2 + 5x - 6$ and $B = -2x^2 - 6x + 7$, then $A - B$ equals**

   (1) $-5x^2 - 11x + 13$ **(3)** $-5x^2 - x + 1$
   (2) $5x^2 + 11x - 13$ **(4)** $5x^2 - x + 1$

4. **The sum of $8n^2 - 3n + 10$ and $-3n^2 - 6n - 7$ is**

   (1) $5n^2 - 9n + 3$ **(3)** $-11n^2 - 9n - 17$
   (2) $5n^2 - 3n - 17$ **(4)** $-11n^2 - 3n + 3$

5. The equation (3 + x) + y = 3 + (x + y) illustrates which property?

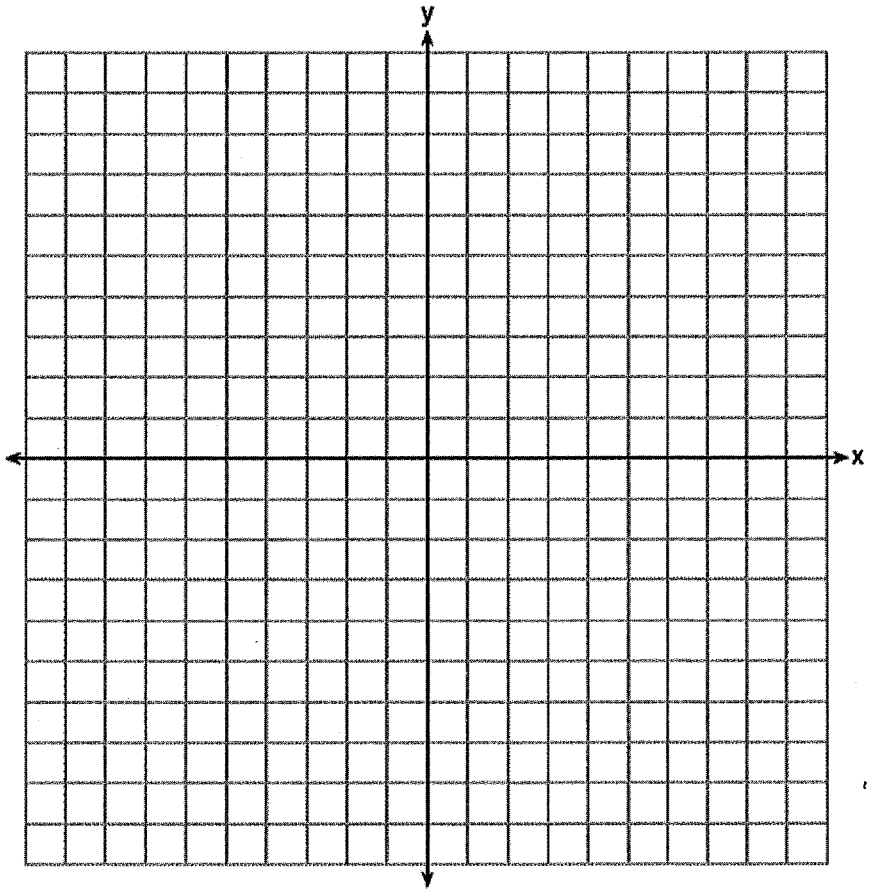
   A) commutative **B)** distributive **C)** associative **D)** identity

Short Answer – 10 points. Show all work and indicate final answers for full credit.
Solve the following equation and state the property used at each step:

6. $-2(x - 1) + 4 = 8$

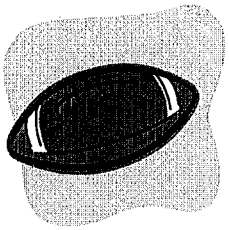
Property Bank *(Use each only once)*
Additive Property of Equality
Distributive Property
Combine Like Terms
Multiplicative Property of Equality

7. On the set of axes below, draw the graph of the equation $y = -\frac{3}{4}x + 3$.



Is the point (3,2) a solution to the equation? Explain your answer based on the graph drawn.

Algebra 1
Graded Review #2



Name _____

Date _____

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SCORE:_____/20

FINAL SCORE:_____/20

Multiple Choice – 2 points per question (Show all work for full credit)

1. **Which verbal expression is represented by $2(x + 4)$?**
   (1) twice the sum of a number and four
   (2) the sum of two times a number and four
   (3) two times the difference of a number and four
   (4) twice the product of a number and four

2. **Which expression represents "5 less than twice x"?**
   (1) $2x - 5$
   (2) $5 - 2x$
   (3) $2(5 - x)$
   (4) $2(x - 5)$

3. **What is the product of $(3x + 2)$ and $(x - 7)$?**
   (1) $3x^2 - 14$
   (2) $3x^2 - 5x - 14$
   (3) $3x^2 - 19x - 14$
   (4) $3x^2 - 23x - 14$

4. **The expression** $\frac{(4x^3)^2}{2x}$ **is equivalent to**
   (1) $4x^4$
   (2) $4x^5$
   (3) $8x^4$
   (4) $8x^5$

5. The equation $(x + 2)(3x - 1) = 3x(x + 2) - (x + 2)$ illustrates which property of equality?
   (1) commutative **(2)** distributive **(3)** associative **(4)** identity

Short Answer – 10 points. Show all work and indicate final answers for full credit.

6. If $A = 11x - 7$ and $B = -4x + 3$, determine the following in simplest form:

a.) $A + B =$ _____

b.) $B + A =$ _____

c.) $A - B =$ _____

d. $B - A =$ _____

e.) $AB =$ _____

7. Rewrite the following expression as a binomial:

$$3x(x - 4) - 2x(x + 3)$$

Algebra 1
Graded Review #3

Name _____

Date _____

Early grading on Wednesday. All papers due on Friday
LATE PAPERS WILL NOT BE ACCEPTED!!

SCORE:_____/20

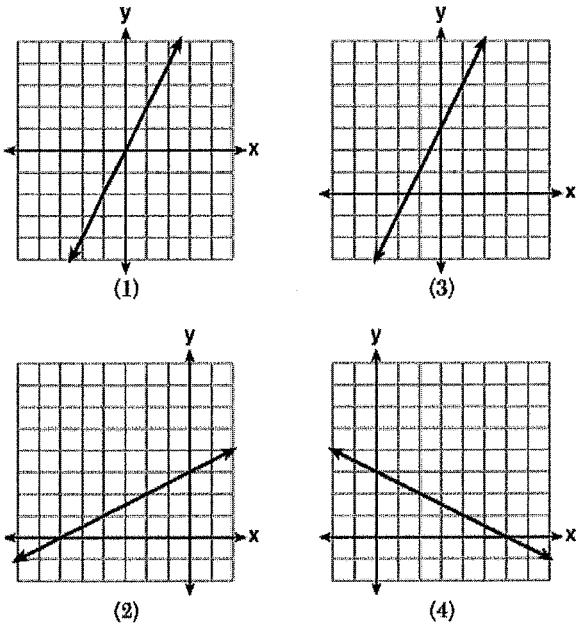
FINAL SCORE:_____/20

Multiple Choice – 2 points per question (Show all work for full credit)

1. **Which equation is an example of the use of the associative property of addition?**

(1) $x + 7 = 7 + x$
(2) $3(x + y) = 3x + 3y$
(3) $(x + y) + 3 = x + (y + 3)$
(4) $3 + (x + y) = (x + y) + 3$

2. Which graph shows a line where each value of y is three more than half of x?



3. A cell phone can receive 120 messages per minute. At this rate, how many messages can the phone receive in 150 seconds?

(1) 48
(2) 75
(3) 300
(4) 18,000

4. Dan took 12.5 seconds to run the 100-meter dash. He calculated the time to be approximately

(1) 0.2083 minute
(2) 750 minutes
(3) 0.2083 hour
(4) 0.52083 hour

5.

What is the value of x in the equation $2(x - 4) = 4(2x + 1)$?

(1) -2
(2) 2
(3) $-\frac{1}{2}$
(4) $\frac{1}{2}$

Short Answer – 10 points. Show all work and indicate final answers for full credit.

6. **A turtle and a rabbit are in a race to see who is first to reach a point 100 feet away. The turtle travels at a constant speed of 20 feet per minute for the entire 100 feet. The rabbit travels at a constant speed of 40 feet per minute for the first 50 feet, stops for 3 minutes, and then continues at a constant speed of 40 feet per minute for the last 50 feet.**

Determine which animal won the race and by how much time.

7. Simply the following expressions:

a.) If $A = 11x + 2$ and $B = -5x + 6$, then $A - B =$ _____

b.) $4(2x - 1) + 7(3 - x) =$ _____

c.) $5(x^2 - 8x + 4) =$ _____

d.) If $A = 3x + 2$ and $B = 3x - 1$, then $A \cdot B =$ _____

Algebra 1
Graded Review #4
Castor/Palmer/Pastore

Name _____

Date _____

CMQ

Early grading on Wednesday. All papers due on Friday
LATE PAPERS WILL NOT BE ACCEPTED!!

SCORE:_____/20

FINAL SCORE:_____/20

Multiple Choice – 2 points per question (Show all work for full credit)

1. **Fred is given a rectangular piece of paper. If the length of Fred's piece of paper is represented by $2x - 6$ and the width is represented by $3x - 5$, then the paper has a total area represented by**

(1) $5x - 11$
(2) $6x^2 - 28x + 30$
(3) $10x - 22$
(4) $6x^2 - 6x - 11$

2. If x represents John's age and his daughter is four years more than one half of his age, then which expression represents his daughter's age in terms of the variable x?

(1) $4 + \frac{1}{2}x$
(2) $\frac{1}{2}x + 4$
(3) $\frac{1}{2}(x + 4)$
(4) $\frac{1}{2}(4 + x)$

3. **What is the value of x in the equation $\frac{x-2}{3} + \frac{1}{6} = \frac{5}{6}$?**

(1) 4
(2) 6
(3) 8
(4) 11

4. **If $A = 3x^2 + 5x - 6$ and $B = -2x^2 - 6x + 7$, then $A - B$ equals**

(1) $-5x^2 - 11x + 13$
(2) $5x^2 + 11x - 13$
(3) $-5x^2 - x + 1$
(4) $5x^2 - x + 1$

5. The expression $x(2x - 3) - 4(2x - 3)$ is equivalent to each of the following *except* which choice?

(1) $(x - 4)(2x - 3)$
(2) $(2x - 3)(x - 4)$
(3) $10x + 9$
(4) $2x^2 - 11x + 12$

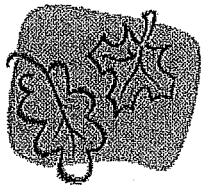
Short Answer – 10 points. Show all work and indicate final answers for full credit.

6. **a.** If Jack's age is two years less than twice Tiana's age, t, then what would the sum of their ages be as a binomial expression?

b. If Tiana is seventeen years old then how old is Jack?

7. **Write an equation that defines $m(x)$ as a trinomial where $m(x) = (3x - 1)(3 - x) + 4x^2 + 19$.**

Algebra 1
Graded Review #5
Pastore



Name _____

Date _____

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SCORE:_____/20

FINAL SCORE:_____/20

Multiple Choice – 2 points per question (Show all work for full credit)

1. Sam and Jeremy have ages that are consecutive odd integers. The product of their ages is 783. Which equation could be used to find Jeremy's age, j, if he is the younger man?

   (1) $j^2 + 2 = 783$
   (2) $j^2 - 2 = 783$
   (3) $j^2 + 2j = 783$
   (4) $j^2 - 2j = 783$

2. Which value of x is in the solution set of the inequality $-2(x - 5) < 4$?

   (1) 0
   (2) 2
   (3) 3
   (4) 5

3. The value of y in the equation $0.06y + 200 = 0.03y + 350$ is

   (1) 500
   (2) $1{,}666.\overline{6}$
   (3) 5,000
   (4) $18{,}333.\overline{3}$

4. Jason's part-time job pays him \$155 a week. If he has already saved \$375, what is the minimum number of weeks he needs to work in order to have enough money to buy a dirt bike for \$900?

   (1) 8
   (2) 9
   (3) 3
   (4) 4

5. What is the value of the expression $-3x^2y + 4x$ when $x = -4$ and $y = 2$?

   (1) -112
   (2) -80
   (3) 80
   (4) 272

Short Answer – 10 points. Show all work and indicate final answers for full credit.

6. Find the solution(s) to a and b below.

a.) $4x - 30 = -3x + 12$

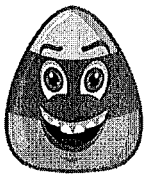
b.) $4x - 30 \geq -3x + 12$

c.) **EXPLAIN** the difference between the two (consider graphing solutions on a number line for each)

7. Solve the following equation and state the properties used to complete each step:

$3(x + 1) - 1 = 26$	Property

Algebra 1
Graded Review #6



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SCORE:_____/20

FINAL SCORE:_____/20

Multiple Choice – 2 points per question (Show all work for full credit)

1. **What is the value of x in the equation $2(x-4)=4(2x+1)$?**

(1) -2 **(3)** $-\frac{1}{2}$

(2) 2 **(4)** $\frac{1}{2}$

2. Determine which compound inequality is true.

(1) $5>2$ *and* $4<1$ **(2)** $-2>0$ *or* $-6\geq 6$

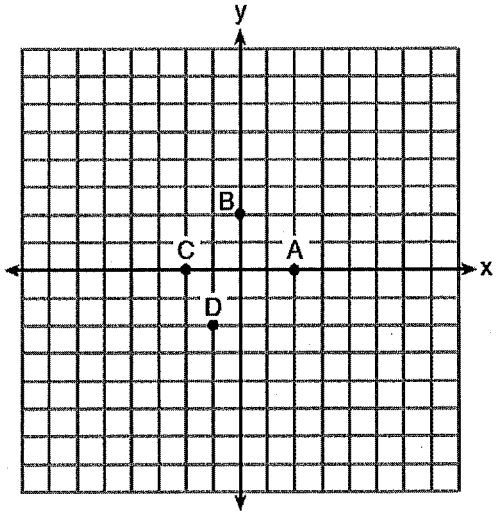
(3) $5\leq 5$ *and* $-6\geq -5$ **(4)** $-2\geq -4$ *and* $3>0$

3. **What is the solution of $3(2m-1)\leq 4m+7$?**

(1) $m\leq 5$ **(3)** $m\leq 4$

(2) $m\geq 5$ **(4)** $m\geq 4$

4. The graph of $y=f(x)$ is shown below.



Which point could be used to find $f(2)$?

(1) A (3) C

(2) B (4) D

5. **Solve for x: $\frac{3}{5}(x+2)=x-4$**

(1) 8 **(3)** 15

(2) 13 **(4)** 23

Short Answer – 10 points per question (Show all work and circle final answer for full credit).

. Translate the following phrase into an inequality and then find the solution set by solving the inequality.

When 5 times a number, n, is decreased by 4 it's at most 21

7. **If the difference $(3x^2 - 2x + 5) - (x^2 + 3x - 2)$ is multiplied by $\frac{1}{2}x^2$, what is the result, written in standard form?**

Algebra
Graded Review #7

Name _____

Date _____

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SCORE:_____/20

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FINAL SCORE:_____/20

Multiple Choice – 2 points per question (Show all work for full credit)

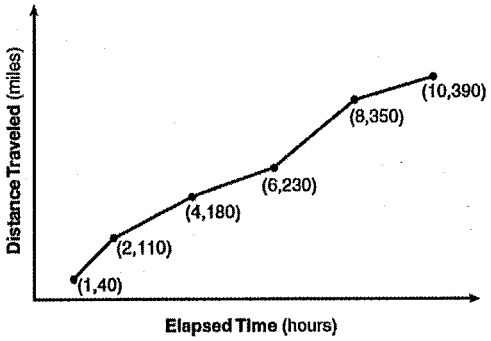
1. Let f be a function such that $f(x) = 2x - 4$ is defined on the domain $2 \leq x \leq 6$. The range of this function is

(1) $0 \leq y \leq 8$
(2) $0 \leq y < \infty$
(3) $2 \leq y \leq 6$
(4) $-\infty < y < \infty$

2. A company produces x units of a product per month, where $C(x)$ represents the total cost and $R(x)$ represents the total revenue for the month. The functions are modeled by $C(x) = 300x + 250$ and $R(x) = -0.5x^2 + 800x - 100$. The profit is the difference between revenue and cost where $P(x) = R(x) - C(x)$. What is the total profit, $P(x)$, for the month?

(1) $P(x) = -0.5x^2 + 500x - 150$
(2) $P(x) = -0.5x^2 + 500x - 350$
(3) $P(x) = -0.5x^2 - 500x + 350$
(4) $P(x) = -0.5x^2 + 500x + 350$

3. The Jamison family kept a log of the distance they traveled during a trip, as represented by the graph below.



During which interval was their average speed the greatest?

(1) the first hour to the second hour
(2) the second hour to the fourth hour
(3) the sixth hour to the eighth hour
(4) the eighth hour to the tenth hour

4. The expression $3(x^2 - 1) - (x^2 - 7x + 10)$ is equivalent to

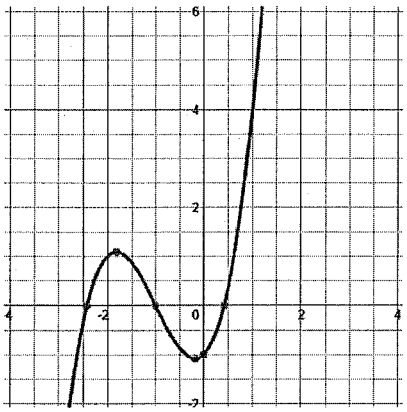
(1) $2x^2 - 7x + 7$
(2) $2x^2 + 7x - 13$
(3) $2x^2 - 7x + 9$
(4) $2x^2 + 7x - 11$

5. A store sells self-serve frozen yogurt sundaes. The function $C(w)$ represents the cost, in dollars, of a sundae weighing w ounces. An appropriate domain for the function would be

(1) integers
(2) rational numbers
(3) nonnegative integers
(4) nonnegative rational numbers

Short Answer – 5 points per question (Show all work and circle final answer for full credit).

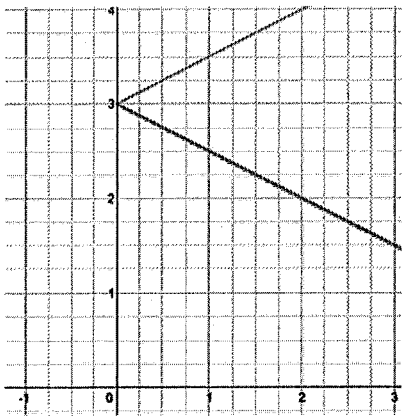
6. Given the following graphic relations determine if they represent a function and if so state the domain and range.



Function?_____

Domain:_____

Range:_____



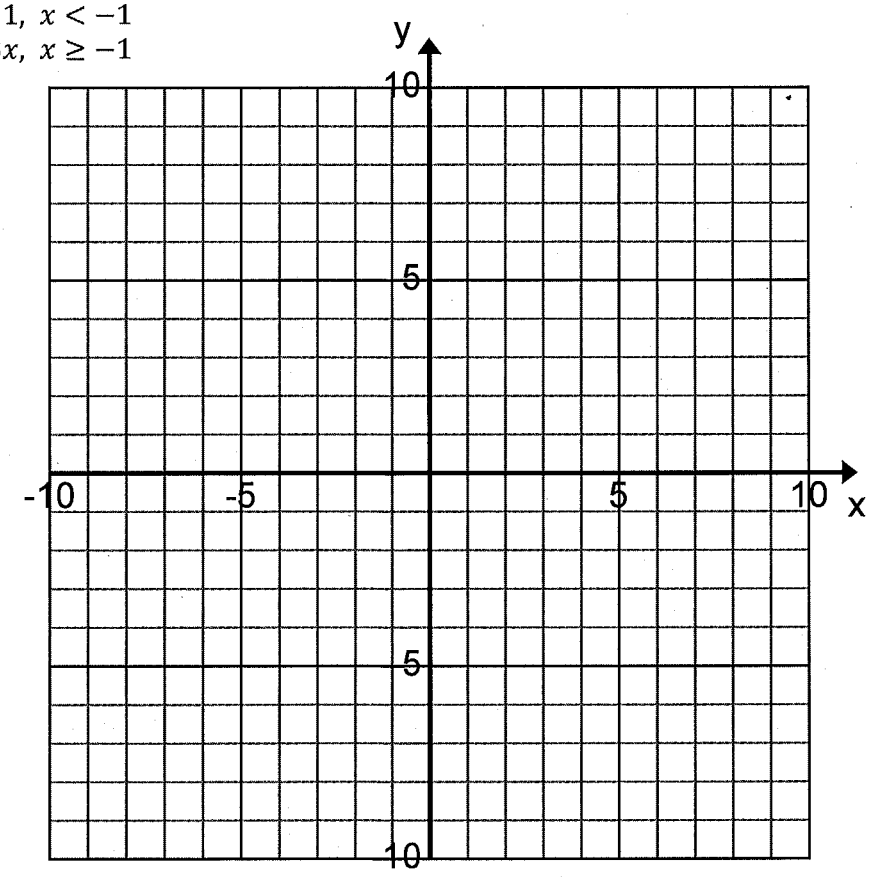
Function?_____

Domain:_____

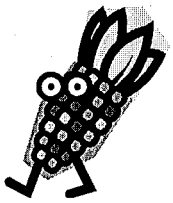
Range:_____

7. Graph the following piecewise function:

$$f(x) = \begin{cases} x + 1, & x < -1 \\ 3x, & x \geq -1 \end{cases}$$



Algebra 1
Graded Review #8



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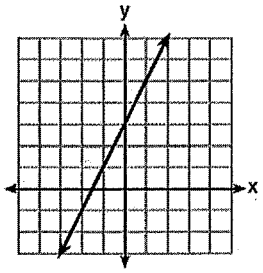
SCORE:_____/20

LATE PAPERS WILL NOT BE ACCEPTED!!

FINAL SCORE:_____/20

Multiple Choice – 2 points per question (Show all work for full credit)

1. What is the equation of the graphed line?



(1) $2y = -4x + 6$ (3) $2y = 4x + 6$

(2) $y = 3x + 2$ (4) $y = \frac{1}{2}x + 3$

2. Let f be defined as the function $f(x) = \begin{cases} -2x + 5 & if\ x < 5 \\ 10 - x & if\ x \geq 5 \end{cases}$. Evaluate *f(10).*

(1) -15
(2) 0
(3) -25
(4) 20

3. If $3ax + b = c$, then x equals

(1) $c - b + 3a$ (3) $\frac{c-b}{3a}$

(2) $c + b - 3a$ (4) $\frac{b-c}{3a}$

4. Nicole's aerobics class exercises to fast-paced music. If the rate of the music is 120 beats per minute, how many beats would there be in a class that is 0.75 hour long?

(1) 90 (3) 5,400

(2) 160 (4) 7,200

5. The tables below show the values of four different functions for given values of x.

x	f(x)
1	12
2	19
3	26
4	33

x	g(x)
1	–1
2	1
3	5
4	13

x	h(x)
1	9
2	12
3	17
4	24

x	k(x)
1	–2
2	4
3	14
4	28

Which table represents a linear function?

(1) $f(x)$ (3) $h(x)$

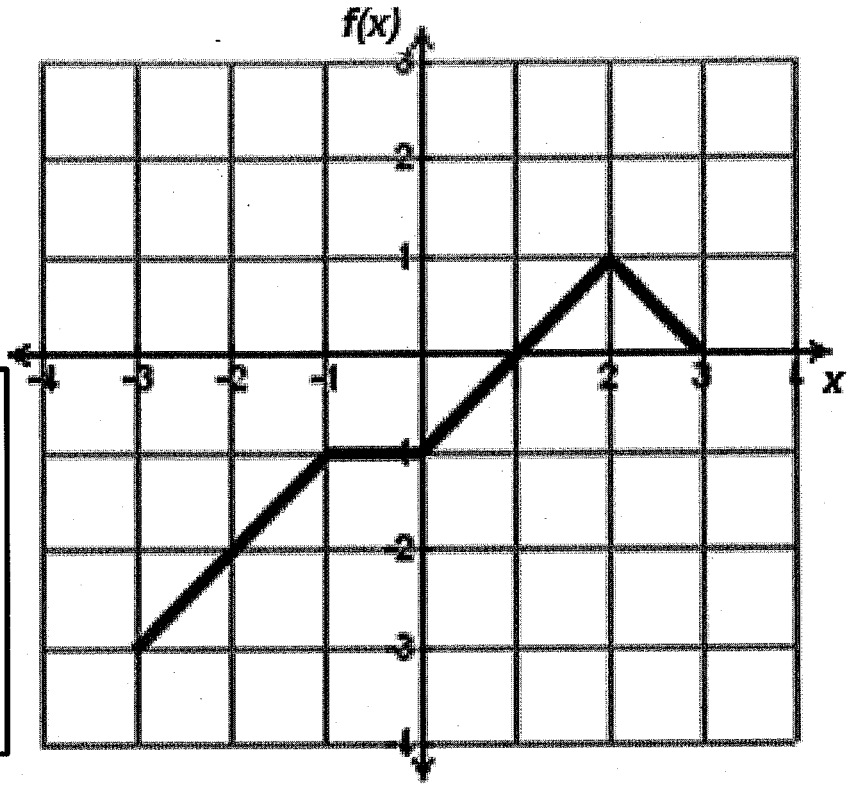
(2) $g(x)$ (4) $k(x)$

Short Answer – 5 points per question (Show all work and circle final answer for full credit).

6. The graph of a piecewise function f is shown to the right. The domain of f is $-3 \leq x \leq 3$.

a. Create an algebraic representation for f by filling in the appropriate blanks. Assume that the graph of f is composed of straight line segments.

$$f(x) = \begin{cases} \_\_\_\_\_, & \_\_\_\_\_ \\ \_\_\_\_\_, & \_\_\_\_\_ \\ \_\_\_\_\_, & \_\_\_\_\_ \\ \_\_\_\_\_, & \_\_\_\_\_ \end{cases}$$



Function Bank
$-x + 3$
-1
$x - 1$
x

Domain Bank
$-1 \leq x < 0$
$0 \leq x < 2$
$-3 \leq x < -1$
$2 \leq x \leq 3$

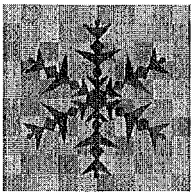
7. **A gardener is planting two types of trees:**

Type *A* is three feet tall and grows at a rate of 15 inches per year.

Type *B* is four feet tall and grows at a rate of 10 inches per year.

Algebraically determine exactly how many years it will take for these trees to be the same height.

Algebra
Graded Review #9
Castor/Palmer/Pastore



Name _____

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SCORE:_____/20

LATE PAPERS WILL NOT BE ACCEPTED!!

FINAL SCORE:_____/20

Multiple Choice – 2 points per question (Show all work for full credit)

1. If $A = 3x^2 + 5x - 6$ and $B = -2x^2 - 6x + 7$, then $A - B$ equals

(1) $-5x^2 - 11x + 13$
(2) $5x^2 + 11x - 13$
(3) $-5x^2 - x + 1$
(4) $5x^2 - x + 1$

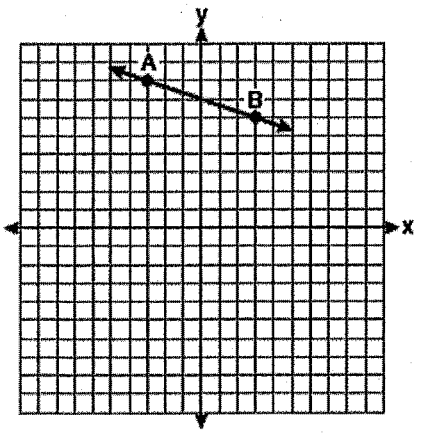
2. What is the slope of the line whose equation is $3x - 7y = 9$?

(1) $-\frac{3}{7}$
(2) $\frac{3}{7}$
(3) $-\frac{7}{3}$
(4) $\frac{7}{3}$

3. What is the slope of the line that passes through the points (-6,1) and (4,-4)?

(1) -2
(2) 2
(3) $-\frac{1}{2}$
(4) $\frac{1}{2}$

4. What is the slope of the line passing through the points *A* and *B*, as shown on the graph below?



(1) −3
(2) $-\frac{1}{3}$
(3) 3
(4) $\frac{1}{3}$

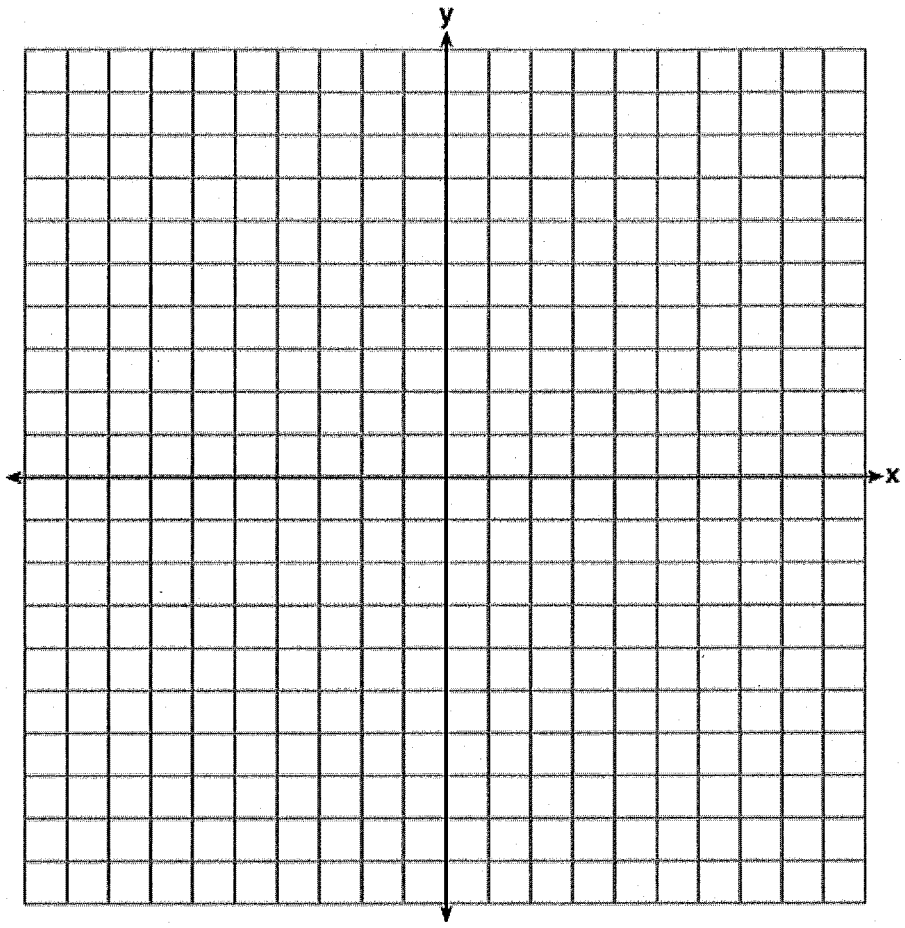
5. Which value of x is in the solution set of the inequality $-2(x - 5) < 4$?

(1) 0
(2) 2
(3) 3
(4) 5

Short Answer – 5 points per question (Show all work and circle final answer for full credit).

6. On the set of axes below, graph the piecewise function:

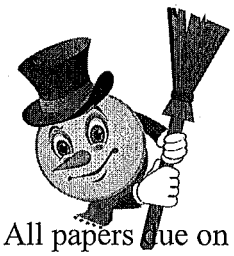
$$f(x) = \begin{cases} 2x + 1, & x \leq -1 \\ 2 - x^2, & x > -1 \end{cases}$$



7. **a)** Solve for x algebraically: $5x - 2(5x - 12) \geq 5x + 12 - 8x$

b) List the three largest integer values for x.

Algebra
Graded Review #10
Pastor/Palmer/Pastore



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SCORE:_____/20

LATE PAPERS WILL NOT BE ACCEPTED!!

FINAL SCORE:_____/20

Multiple Choice – 2 points per question (Show all work for full credit)

1. **Jack bought 3 slices of cheese pizza and 4 slices of mushroom pizza for a total cost of $12.50. Grace bought 3 slices of cheese pizza and 2 slices of mushroom pizza for a total cost of $8.50. What is the cost of one slice of mushroom pizza?**

   (1) $1.50
   (2) $2.00
   (3) $3.00
   (4) $3.50

2. **What is the solution of $3(2m - 1) \leq 4m + 7$?**

   (1) $m \leq 5$
   (2) $m \geq 5$
   (3) $m \leq 4$
   (4) $m \geq 4$

3. **If $rx - st = r$, which expression represents x?**

   (1) $\frac{r + st}{r}$
   (2) $\frac{r}{r + st}$
   (3) $\frac{r}{r - st}$
   (4) $\frac{r - st}{r}$

4. **What is the product of $(3x + 2)$ and $(x - 7)$?**

   (1) $3x^2 - 14$
   (2) $3x^2 - 5x - 14$
   (3) $3x^2 - 19x - 14$
   (4) $3x^2 - 23x - 14$

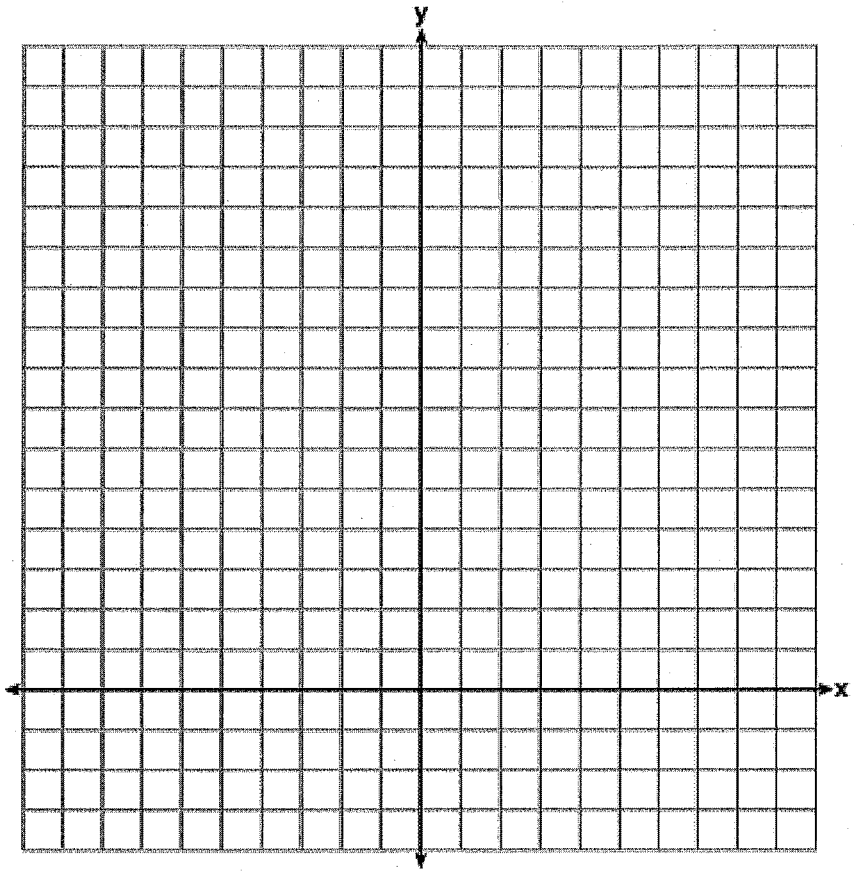
5. **The third term in an arithmetic sequence is 10 and the fifth term is 26. If the first term is a_1, which is an equation for the nth term of this sequence?**

   (1) $a_n = 8n + 10$
   (2) $a_n = 8n - 14$
   (3) $a_n = 16n + 10$
   (4) $a_n = 16n - 38$

Short Answer – 5 points per question (Show all work and circle final answer for full credit).

6. The sum of two numbers, x and y, is more than 8. When you double x and add it to y, the sum is less than 14.

Graph the inequalities that represent this scenario on the set of axes below.

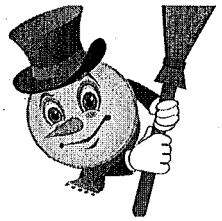


7. Two functions f(x) and g(x) are given below. Determine which of these functions has the greater average rate of change over the interval $3 \leq x \leq 7$. Support your final answer.

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

x	2	3	4	5	6	7	8
G(x)	21	32	43	54	65	76	87

Algebra 1
Graded Review #11
Castor/Palmer/Pastore



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SCORE:_____/20

FINAL SCORE:_____/20

Multiple Choice – 2 points per question (Show all work for full credit)

1. **A hiker walked 12.8 miles from 9:00 a.m. to noon. He walked an additional 17.2 miles from 1:00 p.m. to 6:00 p.m. What is his average rate for the entire walk, in miles per hour?**

   (1) 3.75
   (2) 3.86
   (3) 4.27
   (4) 7.71

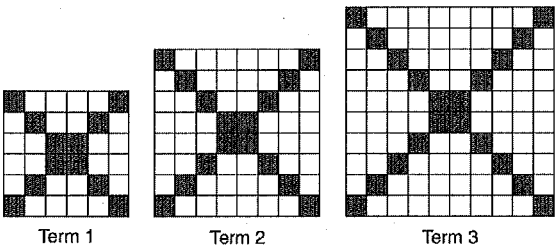
2. **Michael is 25 years younger than his father. The sum of their ages is 53. What is Michael's age?**

   (1) 14
   (2) 25
   (3) 28
   (4) 39

3. **When $5x + 4y$ is subtracted from $5x - 4y$, the difference is**

   (1) 0
   (2) $10x$
   (3) $8y$
   (4) $-8y$

4. The diagrams below represent the first three terms of a sequence.

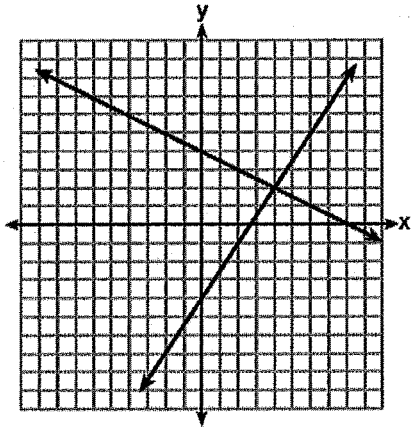


Assuming the pattern continues, which formula determines a_n, the number of shaded squares in the nth term?

a. $a_n = 4n + 12$
b. $a_n = 4n + 8$
c. $a_n = 4n + 4$
d. $a_n = 4n + 2$

A system of equations is graphed on the set of axes below.

5.



The solution of this system is

(1) (0,4)
(2) (2,4)
(3) (4,2)
(4) (8,0)

Short Answer – 5 points per question (Show all work and circle final answer for full credit).

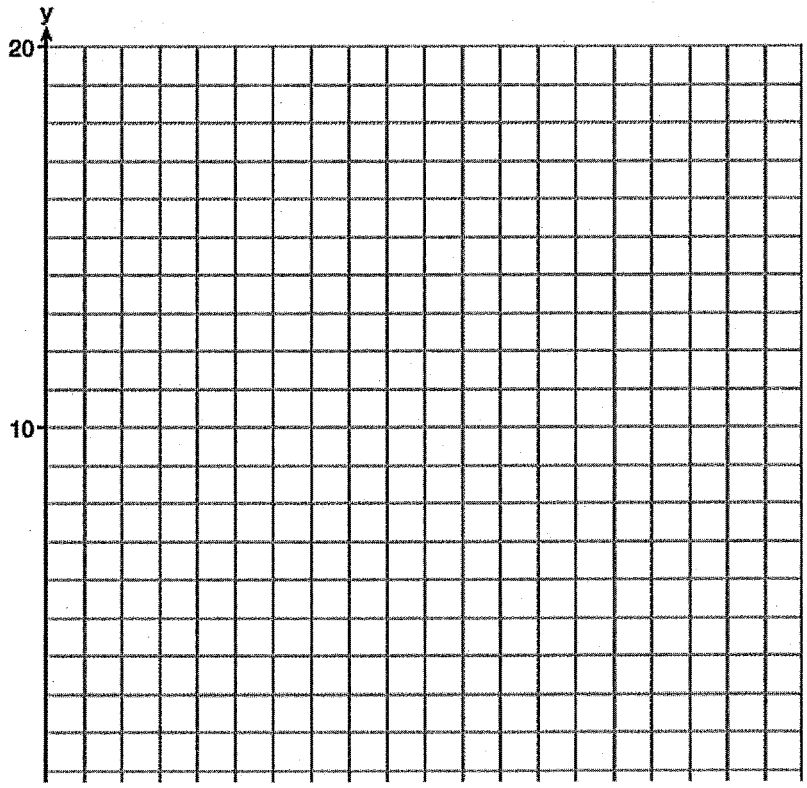
6.

The formula for the sum of the degree measures of the interior angles of a polygon is $S = 180(n - 2)$. Solve for n, the number of sides of the polygon, in terms of S.

7. Edith babysits for x hours a week after school at a job that pays \$4 an hour. She has accepted a job that pays \$8 an hour as a library assistant working y hours a week. She will work both jobs. She is able to work *no more than* 15 hours a week, due to school commitments. Edith wants to earn *at least* \$80 a week, working a combination of both jobs.

Write a system of inequalities that can be used to represent the situation.

Graph these inequalities on the set of axes below.



Determine and state one combination of hours that will allow Edith to earn *at least* \$80 per week while working *no more than* 15 hours.

Algebra 1
Graded Review #12
Castor/Palmer/Pastore

Name _____

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FINAL SCORE:_____/20

Multiple Choice – 2 points per question (Show all work for full credit)

1. The formula for the volume of a pyramid is $V = \frac{1}{3}Bh$. What is h expressed in terms of B and V?

(1) $h = \frac{1}{3}VB$

(2) $h = \frac{V}{3B}$

(3) $h = \frac{3V}{B}$

(4) $h = 3VB$

2. A laboratory technician studied the population growth of a colony of bacteria. He recorded the number of bacteria every other day, as shown in the partial table below.

t (time, in days)	0	2	4
f(t) (bacteria)	25	15,625	9,765,625

Which function would accurately model the technician's data?

(1) $f(t) = 25^t$

(2) $f(t) = 25^{t+1}$

(3) $f(t) = 25t$

(4) $f(t) = 25(t + 1)$

3. **The total score in a football game was 72 points. The winning team scored 12 points more than the losing team. How many points did the winning team score?**

(1) 30

(2) 42

(3) 54

(4) 60

4. Alicia has invented a new app for smart phones that two companies are interested in purchasing for a 2-year contract.

Company A is offering her \$10,000 for the first month and will increase the amount each month by \$5000.

Company B is offering \$500 for the first month and will double their payment each month from the previous month.

Monthly payments are made at the end of each month. For which monthly payment will company B's payment first exceed company A's payment?

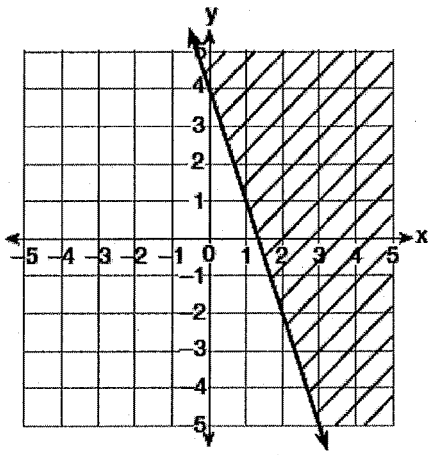
(1) 6

(2) 7

(3) 8

(4) 9

5. Which inequality is represented in the graph below?



(1) $y \geq -3x + 4$

(2) $y \leq -3x + 4$

(3) $y \geq -4x - 3$

(4) $y \leq -4x - 3$

Short Answer – 5 points per question (Show all work and circle final answer for full credit).

6. During a recent snowstorm in Red Hook, NY, Jaime noted that there were 4 inches of snow on the ground at 3:00 p.m., and there were 6 inches of snow on the ground at 7:00 p.m.

If she were to graph these data, what does the slope of the line connecting these two points represent in the context of this problem?

7. The number of carbon atoms in a fossil is given by the function $y = 5100(0.95)^x$, where x represents the number of years since being discovered.

What is the percent of change each year? Explain how you arrived at your answer.

Algebra 1
Graded Review #13
Pastor/Palmer/Pastore

Name _____

Date _____

Early grading on Wednesday. All papers due on Friday
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SCORE:_____/20

FINAL SCORE:_____/20

Multiple Choice – 2 points per question (Show all work for full credit)

1. **What is the product of $(3x + 2)$ and $(x - 7)$?**

(1) $3x^2 - 14$
(2) $3x^2 - 5x - 14$
(3) $3x^2 - 19x - 14$
(4) $3x^2 - 23x - 14$

2. **Using the substitution method, Ken solves the following system of equations algebraically.**

$$2x - y = 5$$
$$3x + 2y = -3$$

Which equivalent equation could Ken use?

(1) $3x + 2(2x - 5) = -3$
(2) $3x + 2(5 - 2x) = -3$
(3) $3\left(y + \frac{5}{2}\right) + 2y = -3$
(4) $3\left(\frac{5}{2} - y\right) + 2y = -3$

3. **If $f(x) = \frac{1}{3}x + 9$, which statement is always true?**

(1) $f(x) < 0$
(2) $f(x) > 0$
(3) If $x < 0$, then $f(x) < 0$.
(4) If $x > 0$, then $f(x) > 0$.

4. Which ordered pair is ***not*** in the solution set of $y > -\frac{1}{2}x + 5$?

(1) (5, 3)
(2) (4, 3)
(3) (3, 4)
(4) (4, 4)

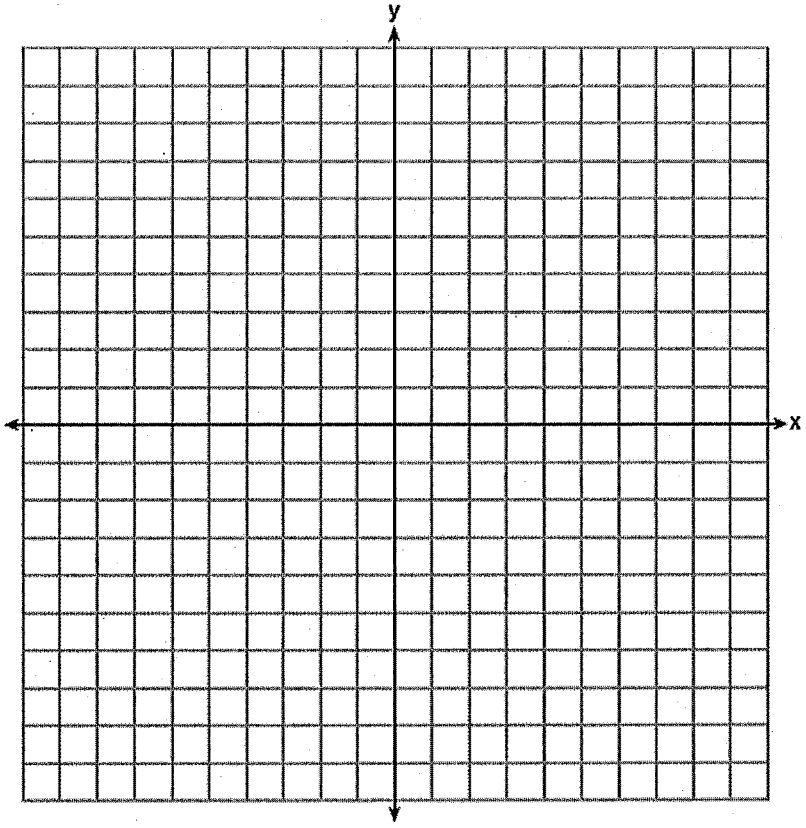
5. **The Celluloid Cinema sold 150 tickets to a movie. Some of these were child tickets and the rest were adult tickets. A child ticket cost \$7.75 and an adult ticket cost \$10.25. If the cinema sold \$1470 worth of tickets, which system of equations could be used to determine how many adult tickets, a, and how many child tickets, c, were sold?**

(1) $a + c = 150$
$10.25a + 7.75c = 1470$
(2) $a + c = 1470$
$10.25a + 7.75c = 150$
(3) $a + c = 150$
$7.75a + 10.25c = 1470$
(4) $a + c = 1470$
$7.75a + 10.25c = 150$

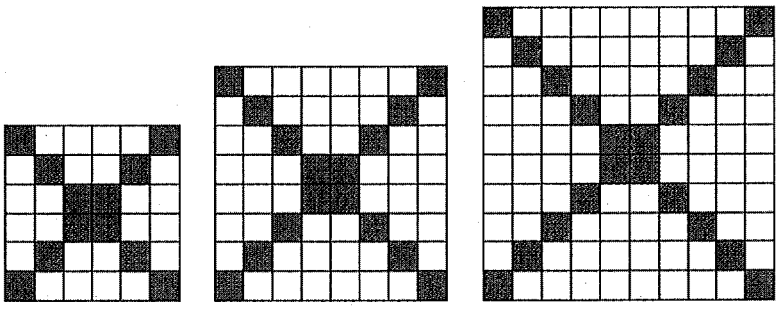
6. On the set of axes below, solve the following system of inequalities graphically.

$$y + 3 < 2x$$
$$-2y \leq 6x - 10$$

State the coordinates of a point in the solution set.



7. The diagrams below represent the first three terms of a sequence.



Assuming the pattern continues, write a formula which determines, a_n, the number of shaded squares in the nth term?

Algebra 1
Graded Review #14
Pastor/Palmer/Pastore

Name _____

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Early grading on Wednesday. All papers due on Friday

SCORE:_____/20

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FINAL SCORE:_____/20

Multiple Choice – 2 points per question (Show all work for full credit)

1. What is the product of $3x^2y^3z$ and $4y^5x^9z$?

(1) $7x^{11}y^8z^2$
(2) $7x^{18}y^{15}z$
(3) $12x^{18}y^{15}z$
(4) $12x^{11}y^8z^2$

2. The expression $\frac{12w^9y^3}{-3w^3y^3}$ is equivalent to

(1) $-4w^6$
(2) $-4w^3y$
(3) $9w^6$
(4) $9w^3y$

3. The expression $3(x^2 - 1) - (x^2 - 7x + 10)$ is equivalent to

(1) $2x^2 - 7x + 7$
(2) $2x^2 + 7x - 13$
(3) $2x^2 - 7x + 9$
(4) $2x^2 + 7x - 11$

4. The range of the function $f(x) = x^2 + 2x - 8$ is all real numbers

(1) less than or equal to -9
(2) greater than or equal to -9
(3) less than or equal to -1
(4) greater than or equal to -1

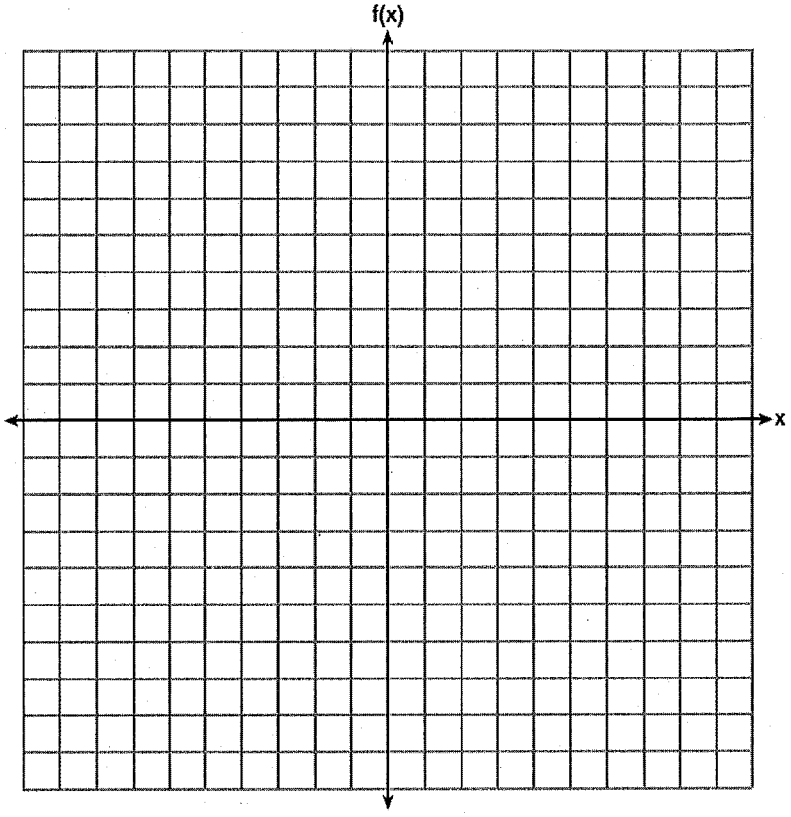
5. The zeros of the function $f(x) = x^2 - 5x - 6$ are

(1) -1 and 6
(2) 1 and -6
(3) 2 and -3
(4) -2 and 3

Short Answer – 5points per question (Show all work and circle final answer for full credit).

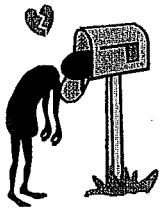
6. Graph the following function on the set of axes below.

$$f(x) = \begin{cases} |x|, & -3 \le x < 1 \\ 4, & 1 \le x \le 8 \end{cases}$$



7. Sue and Kathy were doing their algebra homework. They were asked to write the equation of the line that passes through the points $(-3,4)$ and $(6,1)$. Sue wrote $y - 4 = -\frac{1}{3}(x + 3)$ and Kathy wrote $y = -\frac{1}{3}x + 3$. Justify why both students are correct.

Algebra 1
Graded Review #15
Pastor/Palmer/Pastore



Name _____

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SCORE:_____/20

FINAL SCORE:_____/20

Multiple Choice – 2 points per question (Show all work for full credit)

1. What is the formula for the nth term of the sequence 54, 18, 6, . . .?

(1) $a_n = 6\left(\frac{1}{3}\right)^n$

(2) $a_n = 6\left(\frac{1}{3}\right)^{n-1}$

(3) $a_n = 54\left(\frac{1}{3}\right)^n$

(4) $a_n = 54\left(\frac{1}{3}\right)^{n-1}$

2. What is the common difference of the arithmetic sequence 5, 8, 11, 14?

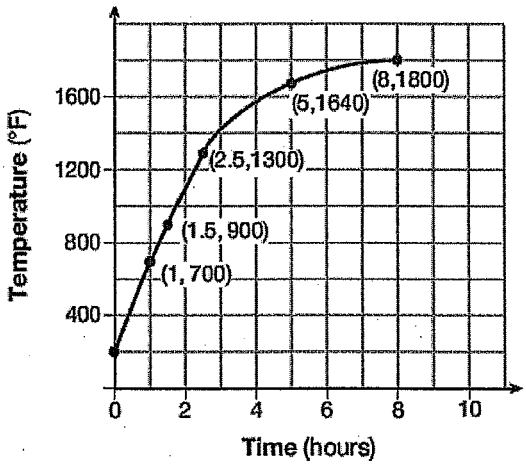
(1) $\frac{8}{5}$

(2) -3

(3) 3

(4) 9

3. Firing a piece of pottery in a kiln takes place at different temperatures for different amounts of time. The graph below shows the temperatures in a kiln while firing a piece of pottery after the kiln is preheated to 200°F.



During which time interval did the temperature in the kiln show the greatest average rate of change?

(1) 0 to 1 hour
(2) 1 hour to 1.5 hours
(3) 2.5 hours to 5 hours
(4) 5 hours to 8 hours

4. If $s = \frac{2x + t}{r}$, then x equals

(1) $\frac{rs - t}{2}$

(2) $\frac{rs + 1}{2}$

(3) $2rs - t$

(4) $rs - 2t$

5. Marcy determined that her father's age is four less than three times her age. If x represents Marcy's age, which expression represents her father's age?

(1) $3x - 4$

(2) $3(x - 4)$

(3) $4x - 3$

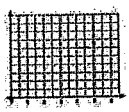
(4) $4 - 3x$

Short Answer – 5points per question (Show all work and circle final answer for full credit).

6. Assume that a bacteria population doubles every hour. Which of the following three tables of data, with x representing time in hours and y the count of bacteria, could represent the bacteria population with respect to time? For the chosen table of data, plot the graph of that data. Label the axes appropriately with units.

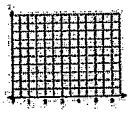
a)

x	0	1	2	3	4	5	6
y	4	7	10	13	16	19	22



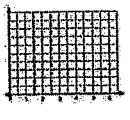
b)

x	0	1	2	3	4	5	6
y	3	6	12	24	48	96	192



c)

x	0	1	2	3	4	5	6
y	1	3	7	13	21	31	43



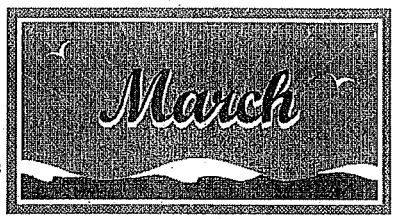
b) Write a function which models the bacteria population, $B(t)$, with respect to time t. *(Hint: You may need to use the regression capability of the graphing calculator)*

7. **A function is shown in the table below.**

x	f(x)
-4	2
-1	-4
0	-2
3	16

If included in the table, which ordered pair, $(-4,1)$ or $(1,-4)$, would result in a relation that is no longer a function? Explain your answer.

Algebra 1
Graded Review #16
Castor/Palmer/Pastore



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FINAL SCORE:_____/20

Multiple Choice – 2 points per question (Show all work for full credit)

1. **Factored completely, the expression $3x^3 - 33x^2 + 90x$ is equivalent to**

(1) $3x(x^2 - 33x + 90)$ (3) $3x(x + 5)(x + 6)$

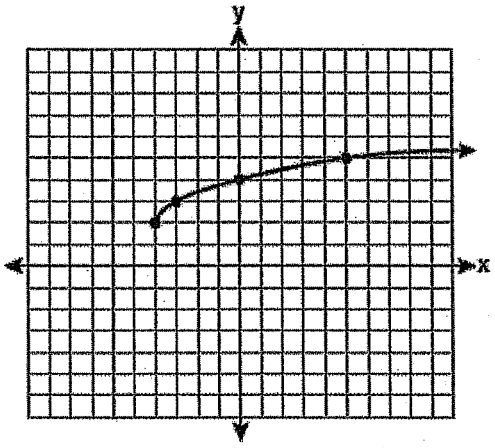
(2) $3x(x^2 - 11x + 30)$ (4) $3x(x - 5)(x - 6)$

2. If the roots of a quadratic equation are -2 and 3, the equation can be written as

(1) $(x - 2)(x + 3) = 0$ (3) $(x + 2)(x + 3) = 0$

(2) $(x + 2)(x - 3) = 0$ (4) $(x - 2)(x - 3) = 0$

What are the domain and the range of the function shown in the graph below?



(1) $\{x \mid x > -4\}; \{y \mid y > 2\}$ (3) $\{x \mid x > 2\}; \{y \mid y > -4\}$

(2) $\{x \mid x \geq -4\}; \{y \mid y \geq 2\}$ (4) $\{x \mid x \geq 2\}; \{y \mid y \geq -4\}$

4. **The current population of a town is 10,000. If the population, P, increases by 20% each year, which equation could be used to find the population after t years?**

1) $P = 10{,}000(0.2)^t$ (3) $P = 10{,}000(1.2)^t$

2) $P = 10{,}000(0.8)^t$ (4) $P = 10{,}000(1.8)^t$

5. **What is the slope of the line represented by the equation $4x + 3y = 12$?**

(1) $\frac{4}{3}$ (3) $-\frac{3}{4}$

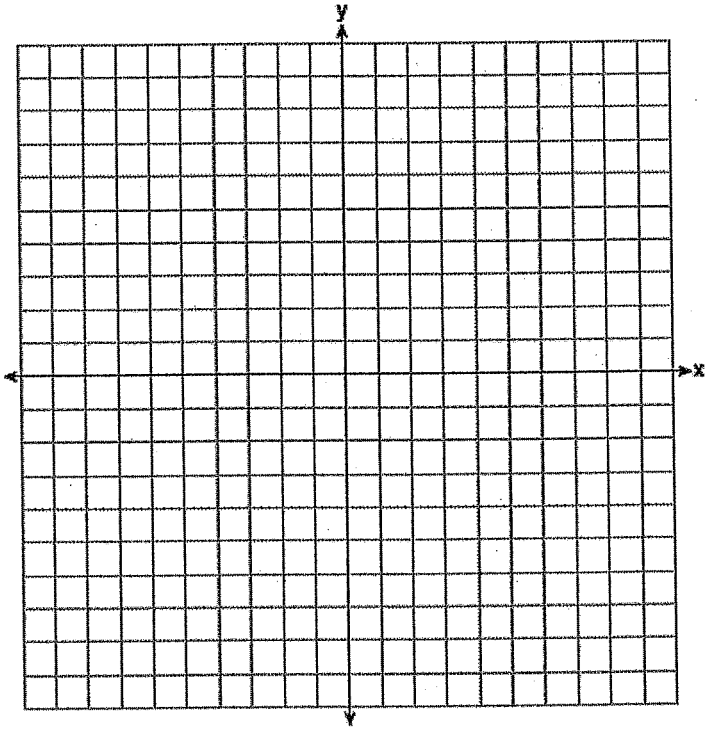
(2) $\frac{3}{4}$ (4) $-\frac{4}{3}$

Short Answer – 5points per question (Show all work and circle final answer for full credit).

6. Express the product of $2x^2 + 7x - 10$ and $x + 5$ in standard form.

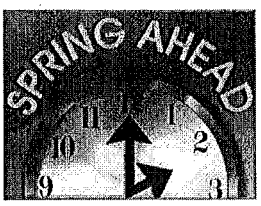
7. On the axes below graph the solution set to the following inequality:

$$y - 4x \geq 2$$



State a point in the solution set._____

Algebra 1
Graded Review #17
Castor/Palmer/Pastore



Name _____

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SCORE:_____/20

LATE PAPERS WILL NOT BE ACCEPTED!!

FINAL SCORE:_____/20

Multiple Choice – 2 points per question (Show all work for full credit)

1. Which of the ordered pairs is *not* a function?

(1) {(0, 9), (9, 0), (1, 2), (3, 4)}

(2) {(0, 1), (-1, 0), (1, 2), (3, 2)}

(3) {(2, 3), (3, 4), (4, 5), (5, 6)}

(4) {(2, 3), (2, 4), (4, 5), (4, 6)}

2. What is the vertex of the parabola represented by the equation $y = -2x^2 + 24x - 100$?

(1) $x = -6$

(2) $x = 6$

(3) $(6,-28)$

(4) $(-6,-316)$

3. What is the product of $(x+1)$ and $(2x^2+3x-1)$?

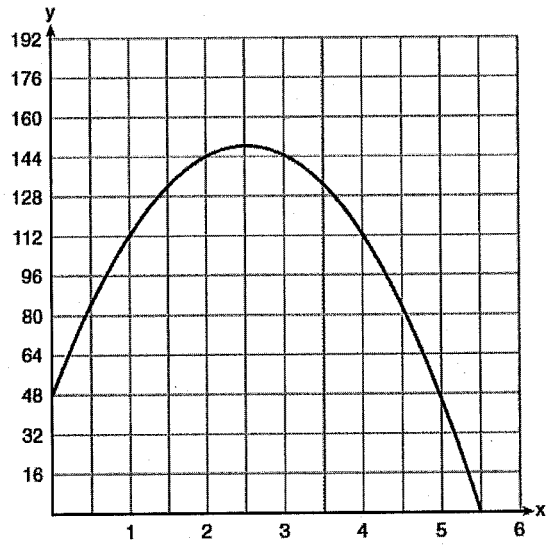
(1) $2x^2 + 5x^2 - x - 1$

(2) $2x^3 + 5x^2 + 2x - 1$

(3) $2x^3 + 3x^2 + 3x + 1$

(4) $2x^3 + 3x^2 - 3x - 1$

4. A ball is thrown into the air from the edge of a 48-foot-high cliff so that it eventually lands on the ground. The graph below shows the height, y, of the ball from the ground after x seconds.



For which interval is the ball's height always *decreasing*?

(1) $0 \le x \le 2.5$

(2) $0 < x < 5.5$

(3) $2.5 < x < 5.5$

(4) $x \ge 2$

5. If $4x^2 - 100 = 0$, the roots of the equation are

(1) -25 and 25

(2) -25, only

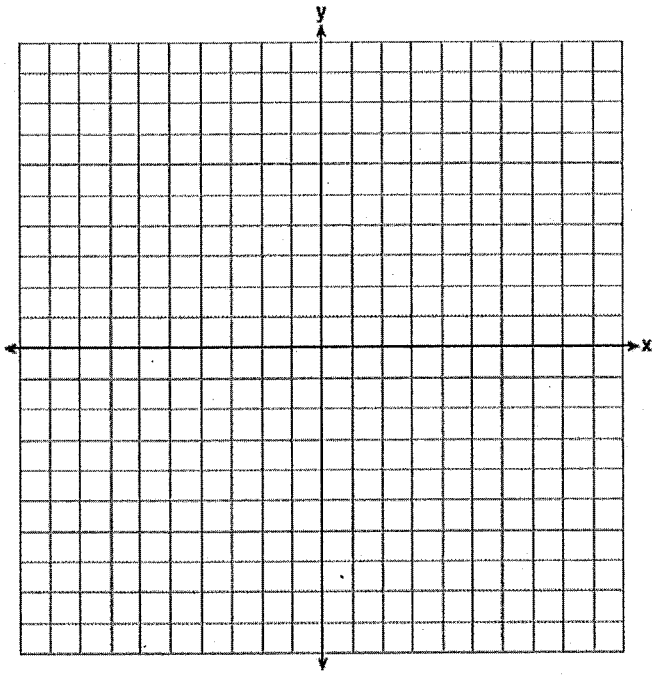
(3) -5 and 5

(4) -5, only

Short Answer – 5 points per question (Show all work and circle final answer for full credit).

6. a. Graph the following system of inequalities:

$$y \leq \frac{1}{2}x + 4$$
$$4x + 2y > 3$$



b. Name a point in the solution set of the system of inequalities: _____

7. **A school is building a rectangular soccer field that has an area of 6000 square yards. The soccer field must be 40 yards longer than its width. Determine algebraically the dimensions of the soccer field, in yards.**

Algebra 1
Graded Review #18
Castor/Palmer/Pastore

Name _____

Date _____

Early grading on Wednesday. All papers due on Friday

SCORE:_____/20

LATE PAPERS WILL NOT BE ACCEPTED!!

FINAL SCORE:_____/20

Multiple Choice – 2 points per question (Show all work for full credit)

1. Joey's math class is studying the basic quadratic functions, $f(x) = x^2$. Each students is supposed to make two new functions by adding or subtracting a constant to the function. Joey chooses the functions $g(x) = x^2 - 5$ and $h(x) = x^2 + 2$. What transformation would map $f(x)$ *to* g(x) and $f(x)$ *to* $h(x)$?

(1) shift left 5, shift right 2

(2) shift right 5, shift left 2

(3) shift up 5, shift down 2

(4) {shift down 5, shift up 2

2. Mrs. Jones is describing a function to her students. She says the output is equal to seven less than twice the input. Which of the following equations models this relationship?'

(1) $f(x) = 7 - 2x$ (2) $f(x) = 2x - 7$ (3) $f(x) = 2(7 - x)$ (4) $f(x) = 2(x - 7)$

3. Find the average rate of change between $f(-4)$ and $f(-1)$ in the function $f(x) = x^2 + 2x - 8$.

(1) *-9* (2) *-3* (3) *3* (4) *9*

4. **The expression $x^4 - 16$ is equivalent to**

(1) $(x^2 + 8)(x^2 - 8)$ **(3) $(x^2 + 4)(x^2 - 4)$**

(2) $(x^2 - 8)(x^2 - 8)$ **(4) $(x^2 - 4)(x^2 - 4)$**

5. **An expression of the fifth degree is written with a leading coefficient of seven and a constant of six. Which expression is correctly written for these conditions?**

(1) $6x^5 + x^4 + 7$ **(3) $6x^7 - x^5 + 5$**

(2) $7x^6 - 6x^4 + 5$ **(4) $7x^5 + 2x^2 + 6$**

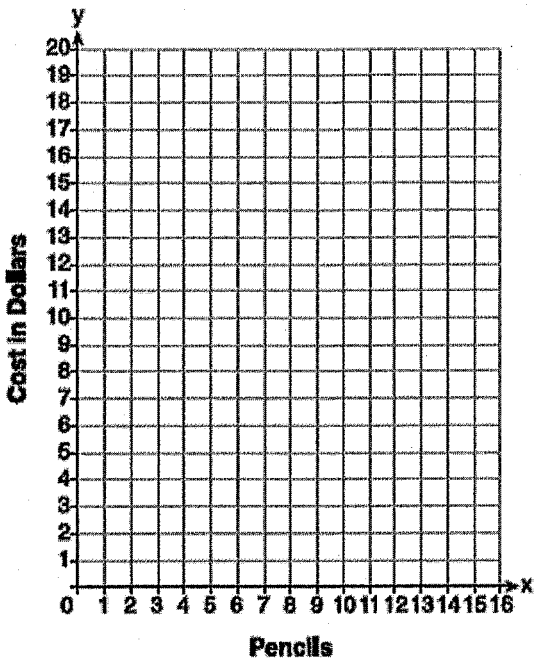
Short Answer – 5points per question (Show all work and circle final answer for full credit).

6. **At an office supply store, if a customer purchases fewer than 10 pencils, the cost of each pencil is $1.75. If a customer purchases 10 or more pencils, the cost of each pencil is $1.25.**

Let c be a function for which $c(x)$ is the cost of purchasing x pencils, where x is a whole number.

$$c(x) = \begin{cases} 1.75x, & \text{if } 0 \le x \le 9 \\ 1.25x, & \text{if } x \ge 10 \end{cases}$$

Create a graph of c on the axes below.



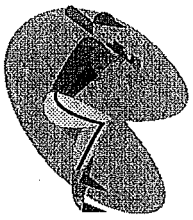
A customer brings 8 pencils to the cashier. The cashier suggests that the total cost to purchase 10 pencils would be less expensive. State whether the cashier is correct or incorrect. Justify your answer.

7. Caitlin has a movie rental card worth $175. After she rents the first movie, the card's value is $172.25. After she rents the second movie, its value is $169.50. After she rents the third movie, the card is worth $166.75.

Assuming the pattern continues, write an equation to define $A(n)$, the amount of money on the rental card after n rentals.

Caitlin rents a movie every Friday night. How many weeks in a row can she afford to rent a movie, using her rental card only? Explain how you arrived at your answer.

Algebra 1
Graded Review #19
Castor/Palmer/Pastore



Name _____

Date _____

Early grading on Wednesday. All papers due on Friday

SCORE:_____/20

LATE PAPERS WILL NOT BE ACCEPTED!!

FINAL SCORE:_____/20

Multiple Choice – 2 points per question (Show all work for full credit)

1. Which ordered pair is *not* in the solution set of $y \geq -\frac{1}{2}x+5$ and $y \leq 3x-2$?

(1) (5, 3) (2) (4, 3) (3) (3, 4) (4) (4, 4)

2. If $k = am + 3mx$, the value of m in terms of a, k, and x can be expressed as

(1) $\frac{k}{a+3x}$ (3) $\frac{k-am}{3x}$

(2) $\frac{k-3mx}{a}$ (4) $\frac{k-a}{3x}$

3. When $8x^2 + 3x + 2$ is subtracted from $9x^2 - 3x - 4$, the result is

(1) $x^2 - 2$ (3) $-x^2 + 6x + 6$

(2) $17x^2 - 2$ (4) $x^2 - 6x - 6$

4. If the roots of a quadratic equation are -2 and 3, the equation can be written as

(1) $(x - 2)(x + 3) = 0$ (3) $(x + 2)(x + 3) = 0$

(2) $(x + 2)(x - 3) = 0$ (4) $(x - 2)(x - 3) = 0$

5. If the area of a rectangle is represented by $x^2 + 8x + 15$ and its length is represented by $x + 5$, which expression represents the width of the rectangle?

(1) $x + 3$ (3) $x^2 + 6x + 5$

(2) $x - 3$ (4) $x^2 + 7x + 10$

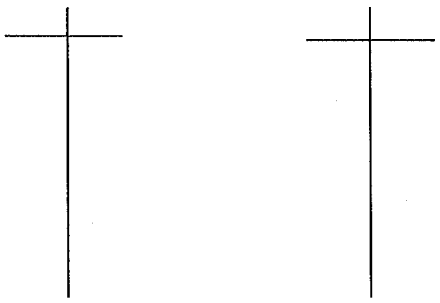
Short Answer – 5points per question (Show all work and circle final answer for full credit).

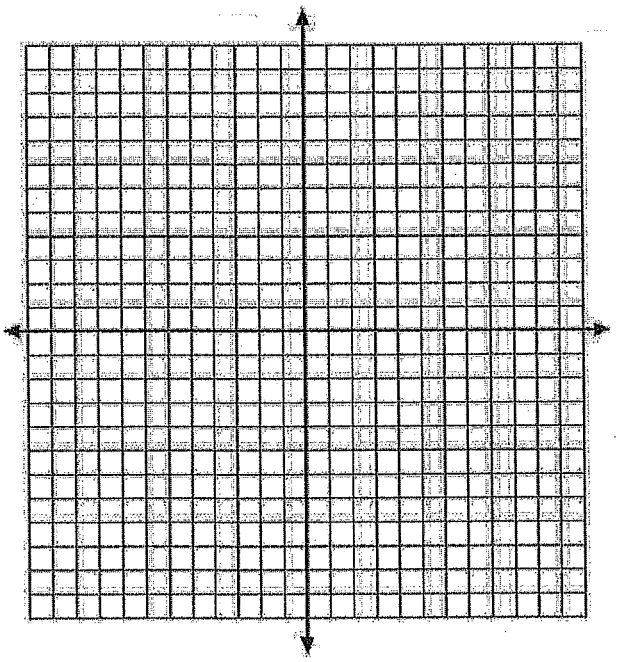
6. Convert the equation $y = x^2 - 6x + 11$ from standard form to vertex form.

b.) State the vertex **and** how you arrived to your answer.

7. Graph and label the function $y = |x|$ and $y = |2x|$ on the set of axes below.

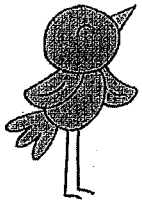
a) Include a table of values for *both* functions.





b) Explain how increasing the coefficient of x affects the graph of $y = |x|$.

Algebra
Graded Review #20
Pastor/Palmer/Pastore



Name _____

Date _____

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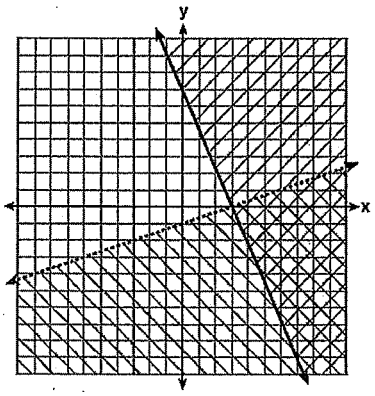
SCORE:_____/20

LATE PAPERS WILL NOT BE ACCEPTED!!

FINAL SCORE:_____/20

Multiple Choice – 2 points per question (Show all work for full credit)

1. What is one point that lies in the solution set of the system of inequalities graphed below?

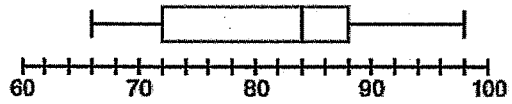


(1) (7,0)
(2) (3,0)
(3) (0,7)
(4) (−3,5)

2. Which equation has the same solution as $x^2 - 6x - 12 = 0$?

(1) $(x + 3)^2 = 21$
(2) $(x - 3)^2 = 21$
(3) $(x + 3)^2 = 3$
(4) $(x - 3)^2 = 3$

3. The box-and-whisker plot below represents the math test scores of 20 students.



What percentage of the test scores are *less than* 72?

(1) 25
(2) 50
(3) 75
(4) 100

4. The zeros of the function $f(x) = (x + 2)^2 - 25$ are

(1) −2 and 5
(2) −3 and 7
(3) −5 and 2
(4) −7 and 3

5. Sandy and Taylor went to *Sliders Snack Shop* at the baseball stadium during the playoff game. Sandy bought 4 sandwiches and 3 drinks for a total of $25.80. Taylor bought 2 sandwiches and 4 drinks for a total of $17.90. If no sales tax was charged, what is a system of equations that can be used to determine the cost of a sandwich (x) and a drink (y)?

(1) $4x + 3y = 17.90$
$x + 4y = 25.80$

(2) $4x + 4y = 25.80$
$2x + 3y = 17.90$

(3) $4x + 3y = 25.80$
$2x + 4y = 17.90$

(4) $x + y = 14.00$
$6x + 7y = 53.70$

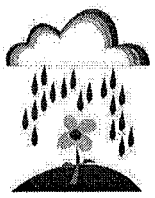
Short Answer – 5points per question (Show all work and circle final answer for full credit).

6. What is the result when $(x + 3)^2$ is subtracted from $2x^2 + 3$?

7. Solve the inequality below to determine and state the smallest possible value for x in the solution set.

$$3(x + 3) \leq 5x - 3$$

Algebra 1
Graded Review #21
Castor/Palmer/Pastore



Name _____

Date _____

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SCORE:_____/20

FINAL SCORE:_____/20

Multiple Choice – 2 points per question (Show all work for full credit)

1. The distance a free falling object has traveled can be modeled by the equation $d = \frac{1}{2}at^2$, where a is acceleration due to gravity and t is the amount of time the object has fallen. What is t in terms of a and d?

(1) $t = \sqrt{\frac{da}{2}}$ (3) $t = \left(\frac{da}{d}\right)^2$

(2) $t = \sqrt{\frac{2d}{a}}$ (4) $t = \left(\frac{2d}{a}\right)^2$

2. **Jack bought 3 slices of cheese pizza and 4 slices of mushroom pizza for a total cost of $12.50. Grace bought 3 slices of cheese pizza and 2 slices of mushroom pizza for a total cost of $8.50. What is the cost of one slice of mushroom pizza?**

(1) $1.50 (3) $3.00

(2) $2.00 (4) $3.50

3. **What is the slope of the line that passes through the points (–6,1) and (4,–4)?**

(1) –2 (3) $-\frac{1}{2}$

(2) 2 (4) $\frac{1}{2}$

4. Isaiah collects data from two different companies, each with four employees. The results of the study, based on each worker's age and salary, are listed in the tables below.

Company 1

Worker's Age in Years	Salary in Dollars
25	30,000
27	32,000
28	35,000
33	38,000

Company 2

Worker's Age in Years	Salary in Dollars
25	29,000
28	35,500
29	37,000
31	65,000

Which statement is true about these data?

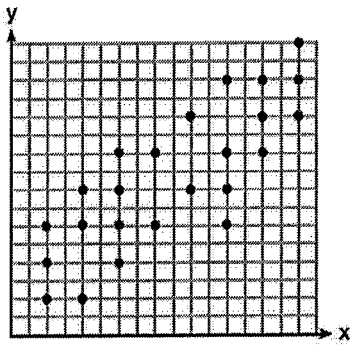
(1) The median salaries in both companies are greater than $37,000.

(2) The mean salary in company 1 is greater than the mean salary in company 2.

(3) The salary range in company 2 is greater than the salary range in company 1.

(4) The mean age of workers at company 1 is greater than the mean age of workers at company 2.

5. The scatter plot shown below represents a relationship between x and y.



This type of relationship is

(1) a positive correlation (3) a zero correlation

(2) a negative correlation (4) not able to be determined

Short Answer – 5 points per question (Show all work and circle final answer for full credit).

6. What is the product of $3x + 2$ and $2x^2 + 3x - 2$?

Robin collected data on the number of hours she watched television on Sunday through Thursday nights for a period of 3 weeks. The data are shown in the table below.

	Sun	Mon	Tues	Wed	Thurs
Week 1	4	3	3.5	2	2
Week 2	4.5	5	2.5	3	1.5
Week 3	4	3	1	1.5	2.5

Using an appropriate scale on the number line below, construct a box plot for the 15 values.