Your Name_____Teacher_____Block_____

Grade (Please circle): 9 10 11 12 Course level (please circle): Honors Level 1

LHS Algebra Pre-Test 2004-2005

- The purpose of this test is to assess your current skill level and readiness for Algebra 2.
- For fairness, since some students may not have calculators yet, this is a no-calculator test.
- Make sure that you show your work where requested.
- This test has a 45-minute time limit. Do the best you can in the allowed time.

Test format and scoring

		Your scores
Part A. Multiple choice questions	**5 questions, 2 points each**	**_____ out of 10**
Part B. Writing points, equations, functions, etc.	**4 questions, 3 points each**	**_____out of 12**
Part C. Solving, simplifying, and inequalities	**6 questions, 3 points each**	**_____out of 18**
Part D. Real world problems	**Question 1, 7 points Question 2, 3 points**	**_____out of 10**
		Total _____out of 50

Part A. Multiple choice questions.

***Directions**:* Circle the letter (A, B, C, D, or E) next to the correct answer.

1. Which one of the following expressions is **not** equal to all the others?

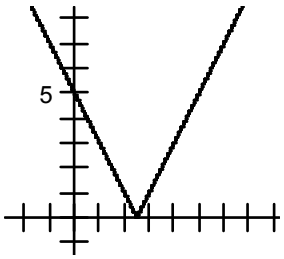
A. $-\frac{1}{x^2}$ B. $\frac{-1}{x^2}$ C. $\frac{1}{-x^2}$ D. $\frac{1}{x^{-2}}$ E. $-\frac{x^2}{x^4}$

2. Simplify this expression as much as possible. $25x^{-3} \bullet \frac{(2xy)^3}{10x^2}$

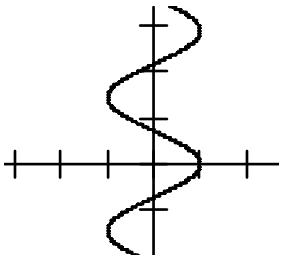
A. $\frac{20y^3}{x^2}$ B. $\frac{5y^3}{x^2}$ C. $\frac{5y^3}{x^4}$ D. $\frac{4y^3}{125x^5}$ E. $20x^4y^3$

3. Which of following graphs could be the graph of a function?

I.



II.



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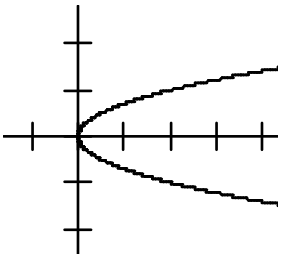

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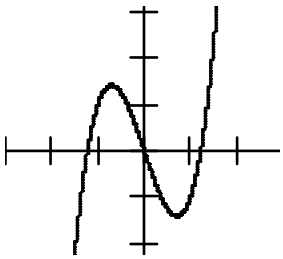

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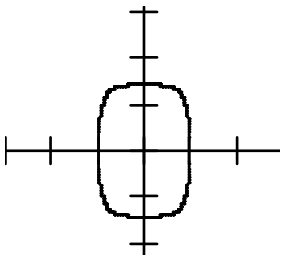


a. I, II, III, IV b. I and IV c. II and III d. V e. I, III, IV, V

4. Find the value of y so that the line passing through the points (0,-2) and (2,y) has a slope equal to 3.

A. -4 B. -8 C. 8 D. 4 E. $1\frac{1}{3}$

5. What is the factored form of $2x^2 - 6 = 4x$?

A. $(x - 3)(x + 1)$ B. $(x - 6)(x + 1)$ C. $(x + 3)(2x - 2)$

D. $2(x - 3)(x + 1)$ E. $2(x + 6)(x - 1)$

Part B. Writing points, equations, tables, graphs, and functions

Directions: Make sure your answers are neat and complete.

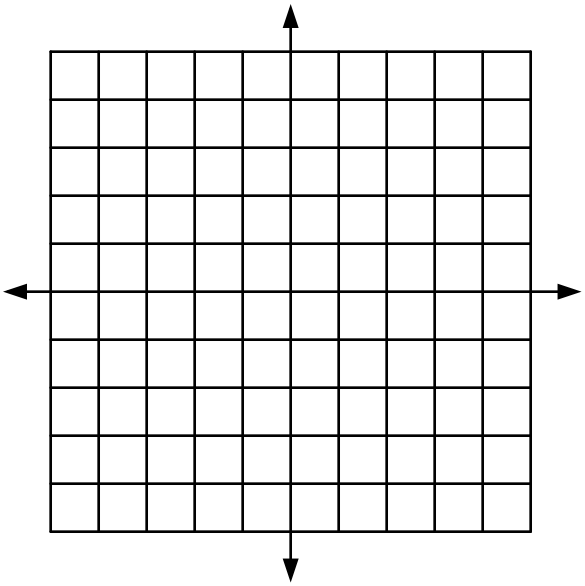
1. Here is a function whose graph is a line: $f(x) = -2x-1$.

a. Write the coordinates of the point that is the y-intercept. _____

b. Write the coordinates of a point that is on the x-axis and also on this line.

_____

c. On the grid below, make a graph for this function. Label two points.

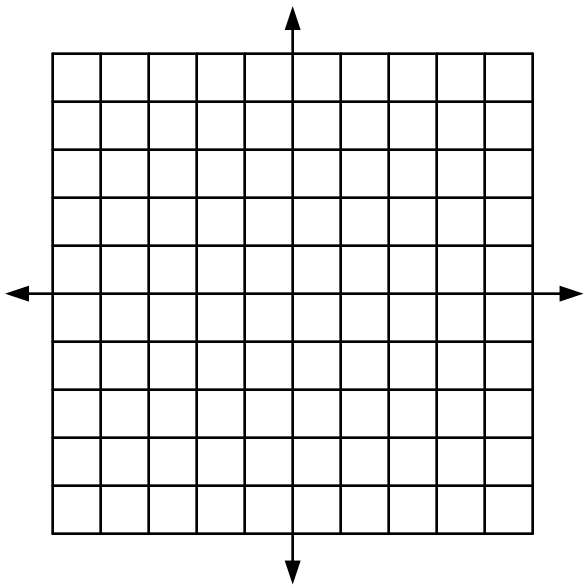


2. Here is a word description of a function: "Square the number, then divide by two."

a. Write an equation for this function. _____

b. What is the name of this type of function? _____

c. On the grid below, make a graph for this function. Label five points on this graph.



3. Evaluate the following equation for the values of x given in the table below.

$$y = \left(\frac{1}{3}\right)^x$$

x	y
-2	
-1	
0	
1	
2	

.

What kind of equation is this? _____

4. Is it possible to find another line that is parallel to $3x + 9y = 1$ and passes through the point $\left(0, \frac{1}{9}\right)$?

Yes No Sometimes (*circle a response*)

Explain your reasoning on the lines below.

_____

_____

_____

Part C. Solving and simplifying

Directions: Show all your work in the spaces provided.

1. Solve this equation for b_1: $A = \frac{h}{2}(b_1 + b_2)$

(Note: This is the formula for the area of a trapezoid where h is the height, b_1 and b_2 are the two bases, and A is the area.)

Show your solving steps here:

Write your solution here: _____

2. A 6 foot tree is planted beside a building that is 16 feet tall. The tree grows 1.25 feet per year. At this rate, **after** how many years will the tree be taller than the building?

a. Write an inequality to represent this problem. _____

b. Solve the inequality. Show all work below. _____

3. Solve this system of equations.

$y = 2x + 2$
$4x - y = -6$

_____

4. Expand the expression $(2p - 7)^2$

_____

5. Solve the equation $|-2x + 3| = 5$

_____
_____

6. Evaluate $-x^2 + x$ when $x = -4$

_____

Part D. Real world problems

Directions: Show all work for these open response problems.

1. On January 1, a company had $360,000.00 in an account. On June 1 of the same year, the same company had $210,000.00 in its account. If the amount in the company's account changed by an equal amount each month, find the rate of change. Label your answer with the correct units.

_____

2. Next summer Thomas plans to mow lawns in his neighborhood to earn money for a new pair of rollerblades. The relationship between the hours he will work (*h*) and the amount of money that he can earn (*d*) is shown in the table below:

Hours (*h*)	Money Earned (*d*)
1	$6.00
2	$12.00
3	$18.00
4	$24.00

a. Based on this data, how much would you predict that Thomas can earn for 6 hours of work?

_____

b. Based on this data, how much would you predict that Thomas could earn for *h* hours of work?

_____

c. Based on this data, how many hours would you predict that Thomas would have to work to earn $ 270.00?

_____

d. Write a formula that uses the given variables to represent this problem.

_____

e. What are the numerical values of the slope and the intercept? (The intercept in this case refers to the intercept of the "Money Earned" axis)

Slope = _____ Intercept =_____