

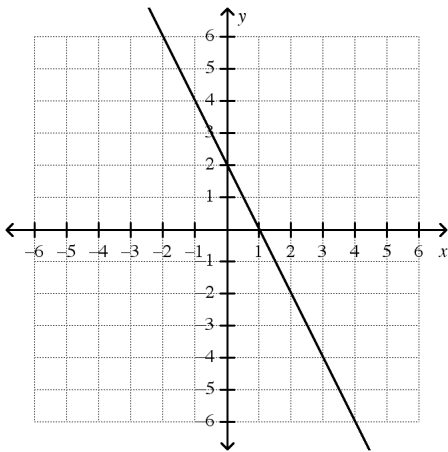
**Lexington High School ALGEBRA 1 FINAL EXAM 2008**

**Multiple Choice**

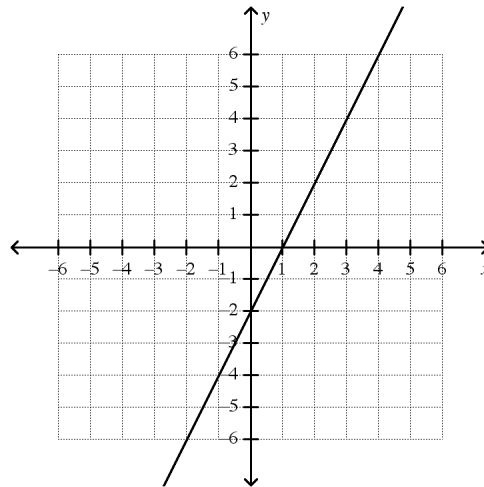
- ✓ Identify the choice that best completes the statement or answers the question.
- ✓ Read all the possible answer BEFORE making your final choice.
- ✓ Clearly write the letter on the line provided.
- ✓ USE CAPITAL LETTERS PLEASE.
- ✓ Each question is worth 1 point.
- ✓ There is no penalty for an incorrect answer so answer EVERY question.

1. (1 point) Graph the function  $y = 2x - 2$ .

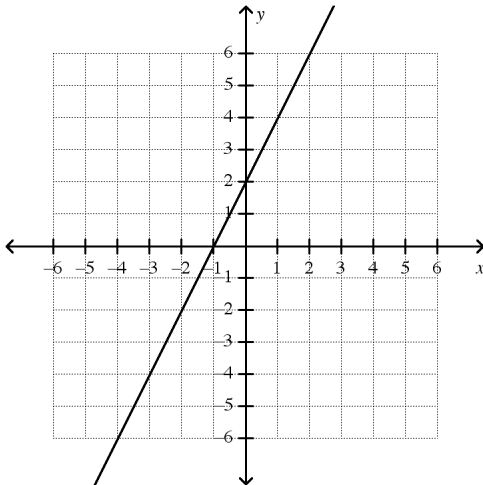
A.



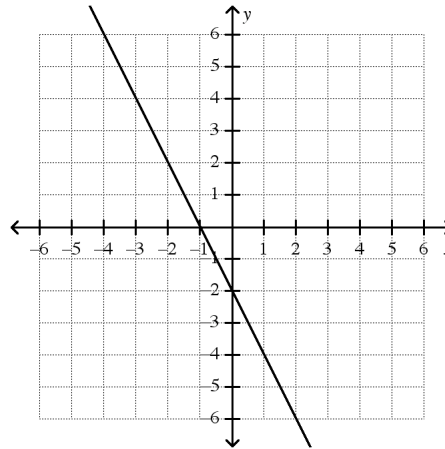
C.



B.



D.



2. (1 point) Tell whether the graph of the quadratic function  $y = -3x^2 + x + 1$  opens upward or downward. Explain.

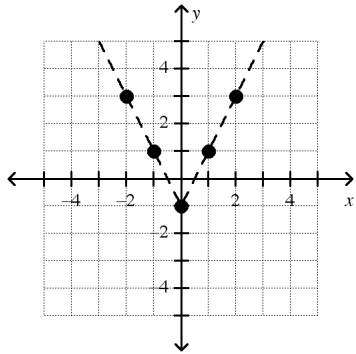
- |   |   |
|---|---|
| A. Because $a < 0$ , the parabola opens downward. | C. Because $a < 0$ , the parabola opens upward. |
| B. Because $a > 0$ , the parabola opens downward. | D. Because $a > 0$ , the parabola opens upward. |

3. (1 point) Simplify  $2 \cdot 2^4$ .
- A. 10  
B. 32  
C.  $\frac{1}{32}$   
D. Cannot simplify
4. (1 point) Multiply.  $(y - 5)(y + 3)$
- A.  $y^2 - 5y - 15$   
B.  $y^2 - 2y - 15$   
C.  $y^2 - 15$   
D.  $y(y + 3) - 5(y + 3)$
5. (1 point) Solve  $49p - 34 = 52p - 67$ .
- A.  $p = 33$   
B.  $p = -11$   
C.  $p = -33$   
D.  $p = 11$
6. (1 point) Simplify  $-6^2$ .
- A. -12  
B. -36  
C. 36  
D. -4
7. (1 point) The water level of a river is 34 feet and it is receding at a rate of 0.5 foot per day. Write an equation that represents the water level,  $w$ , after  $d$  days. Identify the slope and y-intercept
- A.  $w = -0.5d - 34$   
The slope is  $-0.5$  and the y-intercept is  $-34$ .
- B.  $w = 34d + 0.5$   
The slope is 34 and the y-intercept is 0.5.
- C.  $w = -0.5d + 34$   
The slope is  $-0.5$  and the y-intercept is 34.
- D.  $w = 34d - 0.5$   
The slope is 34, and the y-intercept is  $-0.5$ .

8. (1 point) Create a table of ordered pairs for the function  $y = 2x^2 - 2$  using the values  $x = -2, -1, 0, 1, \text{ and } 2$ . Graph the ordered pairs and describe the shape of the graph.

A.

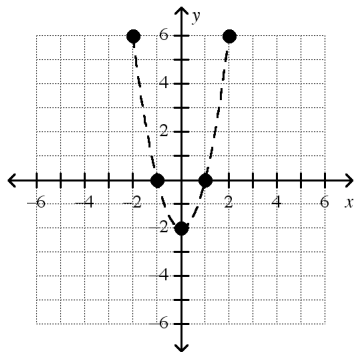
| $x$ | $y$ | $(x, y)$  |
|-----|-----|-----------|
| -2  | 3   | $(-2, 3)$ |
| -1  | 1   | $(-1, 1)$ |
| 0   | -1  | $(0, -1)$ |
| 1   | 1   | $(1, 1)$  |
| 2   | 3   | $(2, 3)$  |



The points form a V shape.

B.

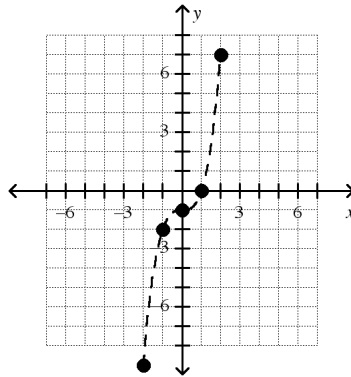
| $x$ | $y$ | $(x, y)$  |
|-----|-----|-----------|
| -2  | 6   | $(-2, 6)$ |
| -1  | 0   | $(-1, 0)$ |
| 0   | -2  | $(0, -2)$ |
| 1   | 0   | $(1, 0)$  |
| 2   | 6   | $(2, 6)$  |



The points form a U shape.

C.

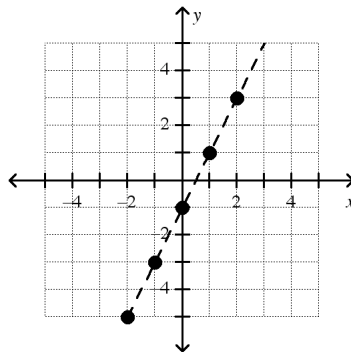
| $x$ | $y$ | $(x, y)$   |
|-----|-----|------------|
| -2  | -9  | $(-2, -9)$ |
| -1  | -2  | $(-1, -2)$ |
| 0   | -1  | $(0, -1)$  |
| 1   | 0   | $(1, 0)$   |
| 2   | 7   | $(2, 7)$   |



The points form an S shape.

D.

| $x$ | $y$ | $(x, y)$   |
|-----|-----|------------|
| -2  | -5  | $(-2, -5)$ |
| -1  | -3  | $(-1, -3)$ |
| 0   | -1  | $(0, -1)$  |
| 1   | 1   | $(1, 1)$   |
| 2   | 3   | $(2, 3)$   |

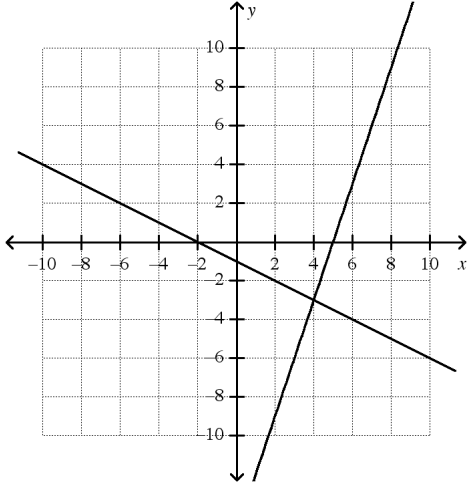


The points form a straight line.

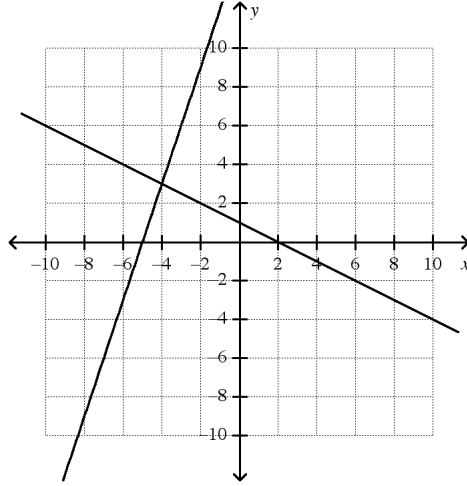


11. (1 point) Solve the system  $\begin{cases} -3x + y = 15 \\ x + 2y = 2 \end{cases}$  by graphing.

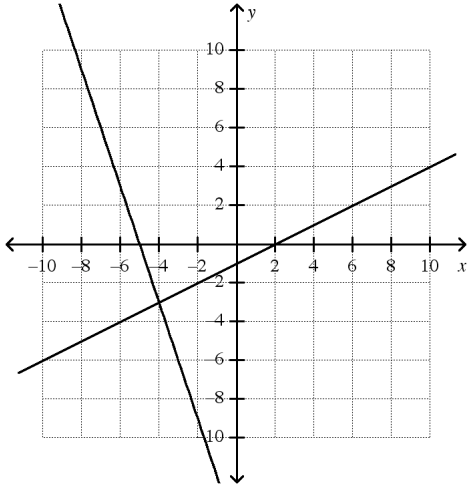
A.  $(4, -3)$



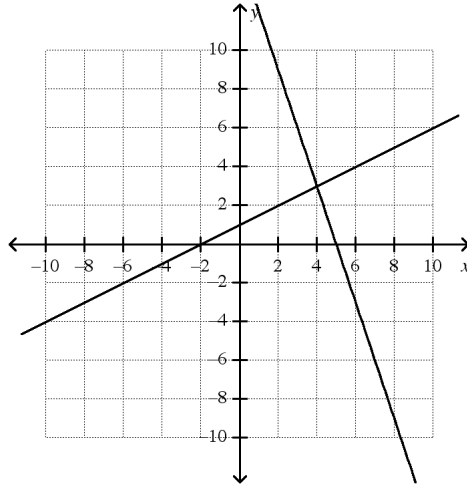
C.  $(-4, 3)$



B.  $(-4, -3)$

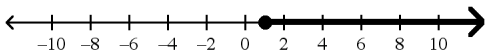


D.  $(4, 3)$

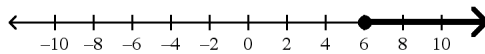


12. (1 point) Solve the inequality  $-2c - 5 \geq -7$  and graph the solutions.

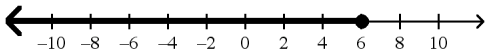
A.  $c \geq 1$



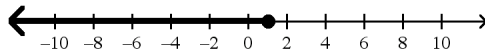
C.  $c \geq 6$



B.  $c \leq 6$

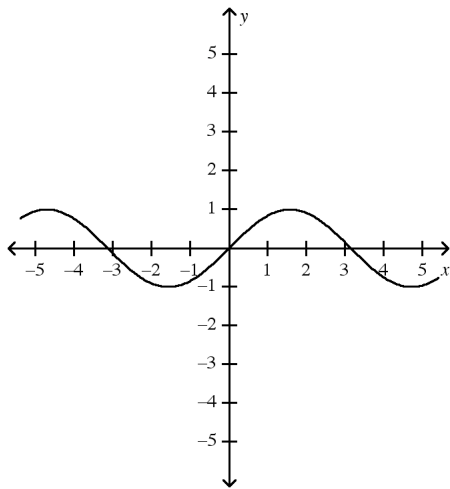


D.  $c \leq 1$

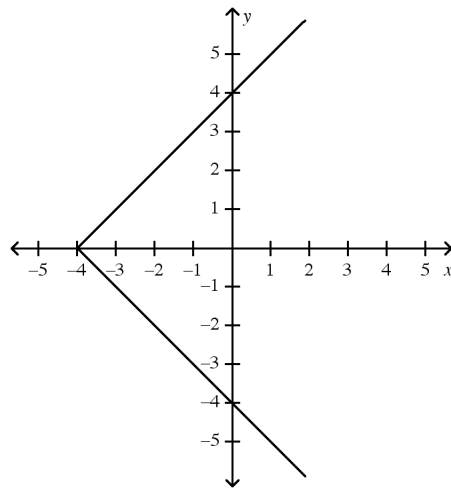


13. (1 point) Which graph represents a function?

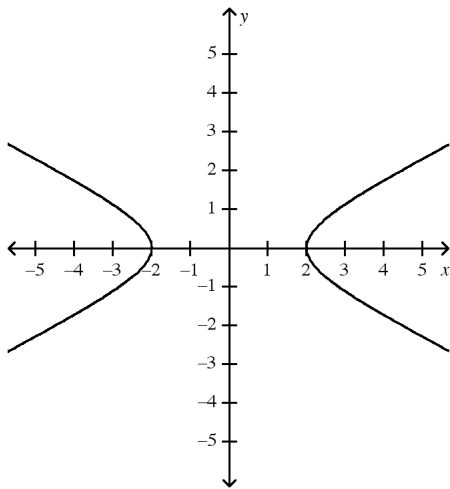
A.



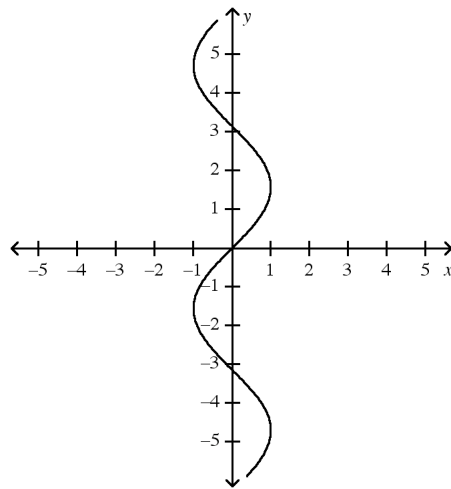
C.



B.



D.



14. (1 point) Give two ways to write the algebraic expression  $p \div 19$  in words.

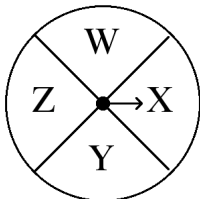
A. the quotient of 19 and  $p$   
19 divided by  $p$

C. the quotient of  $p$  and 19  
 $p$  divided by 19

B.  $p$  subtracted from 19  
 $p$  less than 19

D. the product of  $p$  and 19  
 $p$  times 19

15. (1 point) Identify the sample space and the outcome shown for spinning the game spinner.



A. Sample space:  $\{W, X, Y, Z\}$   
Outcome shown: Z

C. Sample space:  $\{W, Y, Z\}$   
Outcome shown: X

B. Sample space:  $\{V, W, X, Y, Z\}$   
Outcome shown: X

D. Sample space:  $\{W, X, Y, Z\}$   
Outcome shown: X



Name: \_\_\_\_\_

ID: A

19. (6 points) a. Factor  $x^2 + 8x + 12 =$  \_\_\_\_\_

You may use the multiplication table method:

|  |  |
|--|--|
|  |  |
|  |  |

b. Solve the equation:  $x^2 + 8x + 12 = 0$

c. Where is the vertex of the graph  $f(x) = x^2 + 8x + 12$

20. (4 points) Mrs. Gordon likes to serve two different kinds of vegetables with dinner. She has carrots, peas, brocolli, and green beans in her refrigerator.

a) How many different ways can Mrs. Gordon serve two vegetables?

b) Tell whether this situation is a combination or a permutation and explain your choice.

21. (4 points) Solve  $\begin{cases} 4x - 4y = 24 \\ 6x + 4y = 6 \end{cases}$  by using elimination/combination.

Express your answer as an ordered pair.

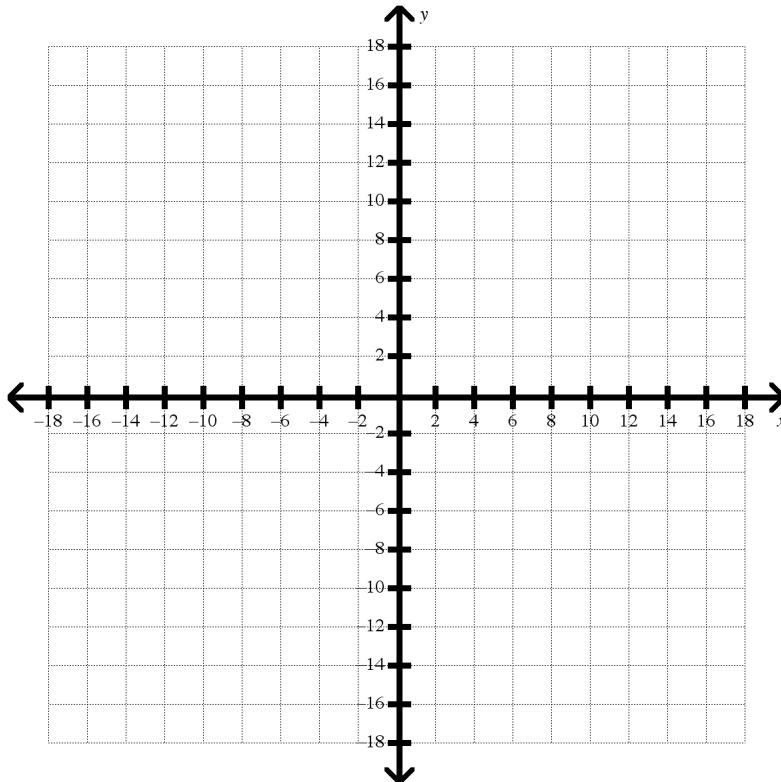


Name: \_\_\_\_\_

ID: A

22. (6 points) Use a table with values  $x = \{-2, -1, 0, 1, 2\}$  to graph the quadratic function  $y = 3x^2$ .

| $x$ | $y = 3x^2$ |
|-----|------------|
|     |            |
|     |            |
|     |            |
|     |            |
|     |            |



Where is the vertex? \_\_\_\_\_

Axis of symmetry? \_\_\_\_\_

Zero(s)? \_\_\_\_\_

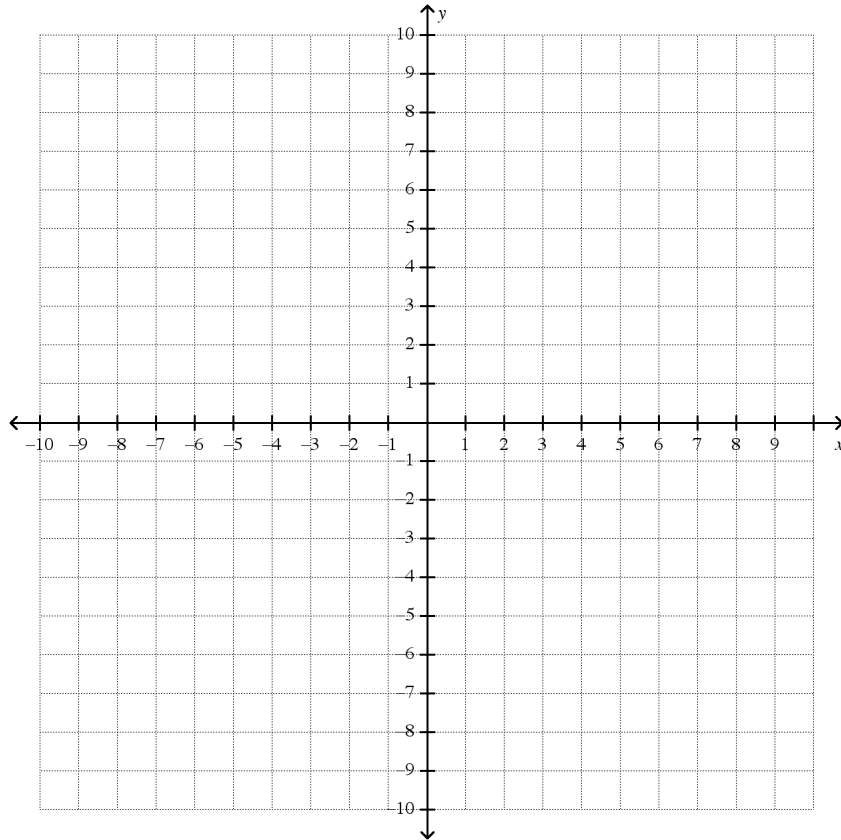
Name: \_\_\_\_\_

ID: A

23. (4 points) Write the equation that describes the line with slope  $= -\frac{1}{3}$  and y-intercept  $= -1$  in slope-intercept form.

Equation: \_\_\_\_\_

Graph your line:



24. (4 points) Solve  $25e + 24 - 15e = 44$ .

25. (4 points) A phone company advertises a new plan in which the customer **pays a fixed amount** of \$25 per month for unlimited calls in the country, and **\$0.10 per minute** for international calls.

a. Find a rule in slope intercept form,  $y = mx + b$ , for the monthly payment a customer pays according to the new plan.

b. using your rule from part a., write ordered pairs for the monthly payment when the customer uses 90, 120, 145, and 150 international minutes in a month.

| Number of international minutes | Your Rule<br>$y = mx + b$                   | Monthly payment \$ | Ordered pair |
|---------------------------------|---|--------------------|--------------|
| $x$ (input)                     | $y = \underline{\quad} + \underline{\quad}$ | $y$ (output)       | $(x, y)$     |
| 90                              |   |                    |              |
| 120                             |   |                    |              |
|                                 |   |                    |              |
|                                 |   |                    |              |
|                                 |   |                    |              |

26. (4 points) Find the  $x$ - and  $y$ -intercepts of  $2x - y = -6$ .

$x$  intercept: \_\_\_\_\_  $y$ - intercept: \_\_\_\_\_

27. (2 points) Simplify by combining like terms.

$$5x^3 + 3z - x^3 + 2z + 7x^2$$

Name: \_\_\_\_\_

ID: A

28. (4 points) Simplify  $b^4 \cdot n^6 \cdot b^{-2}$ .

29. (1 point) Order the functions from narrowest graph to widest graph.

$$f(x) = -\frac{1}{2}x^2, g(x) = -4x^2, \text{ and } h(x) = 3x^2$$

Narrowest: \_\_\_\_\_ Middle: \_\_\_\_\_ Widest: \_\_\_\_\_

30. (6 points) A grab bag contains 7 football cards and 3 basketball cards. An experiment consists of taking one card out of the bag, **not replacing** it, and then selecting another card.

a. Draw a tree diagram to show taking two cards out one at a time.

b. What is the probability of selecting: a football card and then a basketball card? Express your answer as a fraction or decimal or percent.

c. Which is more likely, (has a higher probability), taking out 2 football cards or 2 baseball cards? Show your work!

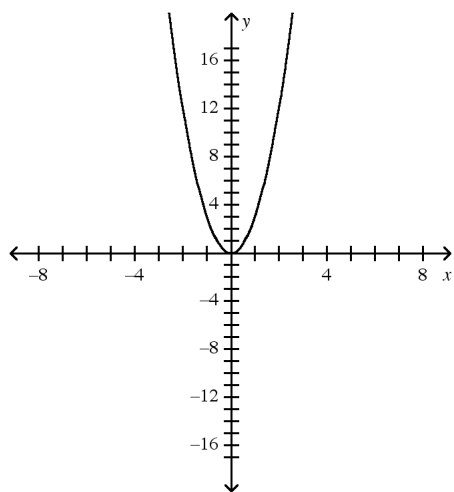
**Lexington High School ALGEBRA 1 FINAL EXAM 2008**  
**Answer Section**

**MULTIPLE CHOICE**

1. C
2. A
3. B
4. B
5. D
6. B
7. C
8. B
9. D
10. B
11. C
12. D
13. A
14. C
15. D
16. B
17. D

**SHORT ANSWER**

18.  $\frac{1}{2}$
19.  $(x-2)(5x-3)$
20. 6, combination
21.  $(3, -3)$
- 22.



23.  $y = -\frac{1}{3}x - 1$
24.  $e = 2$
25.  $y = 25 + 0.10x$ ; (90, 34), (120, 37), (145, 39.5), (150, 40)
26.  $x$ -intercept:  $-3$ ,  $y$ -intercept:  $6$
27.  $4x^3 + 5z + 7x^2$
28.  $b^2 \cdot n^6$
29.  $g(x) = -4x^2$ ,  $h(x) = 3x^2$ ,  $f(x) = -\frac{1}{2}x^2$
30.  $0.21$