

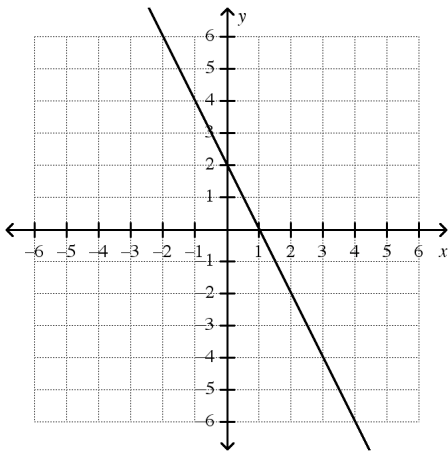
Lexington High School ALGEBRA 1 FINAL EXAM 2008

Multiple Choice

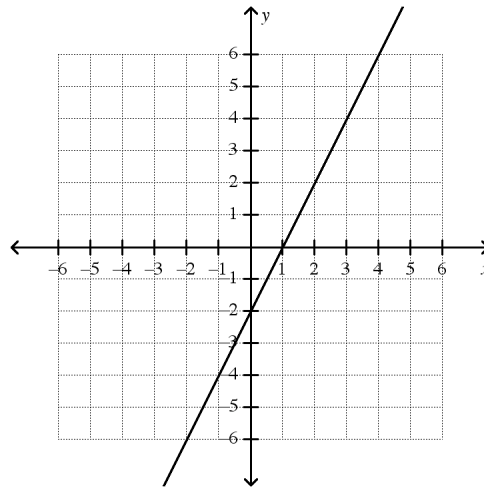
- ✓ Identify the choice that best completes the statement or answers the question.
- ✓ Read all the possible answer BEFORE making your final choice.
- ✓ Clearly write the letter on the line provided.
- ✓ USE CAPITAL LETTERS PLEASE.
- ✓ Each question is worth 1 point.
- ✓ There is no penalty for an incorrect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

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

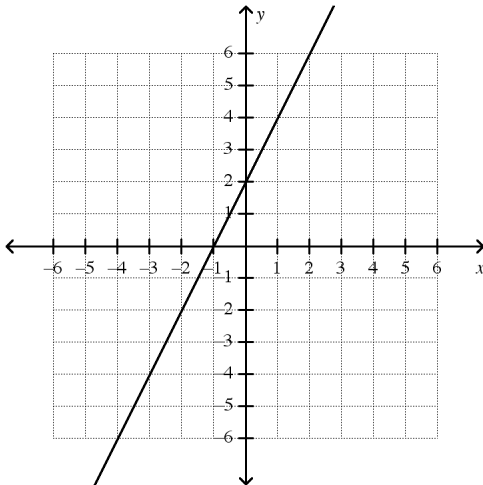
A.



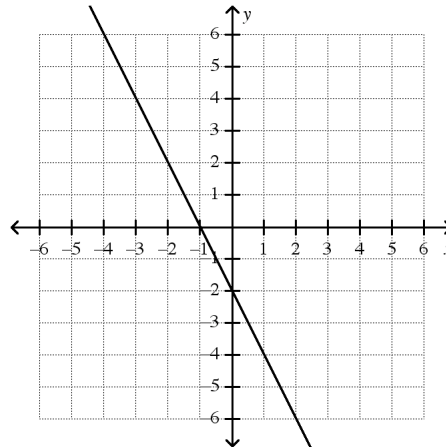
C.



B.



D.



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

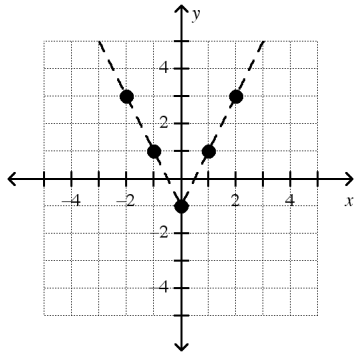
- | | |
|---|---|
| <p>A. Because $a < 0$, the parabola opens downward.</p> <p>B. Because $a > 0$, the parabola opens downward.</p> | <p>C. Because $a < 0$, the parabola opens upward.</p> <p>D. Because $a > 0$, the parabola opens upward.</p> |
|---|---|

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.

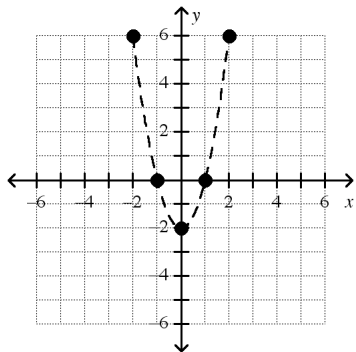
x	y	(x, y)
-2	3	$(-2, 3)$
-1	1	$(-1, 1)$
0	-1	$(0, -1)$
1	1	$(1, 1)$
2	3	$(2, 3)$



The points form a V shape.

B.

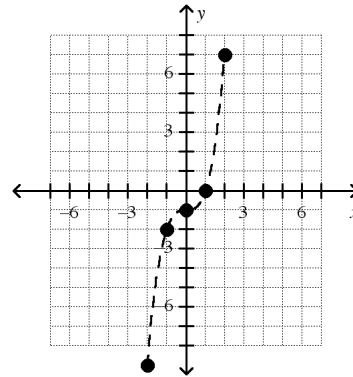
x	y	(x, y)
-2	6	$(-2, 6)$
-1	0	$(-1, 0)$
0	-2	$(0, -2)$
1	0	$(1, 0)$
2	6	$(2, 6)$



The points form a U shape.

C.

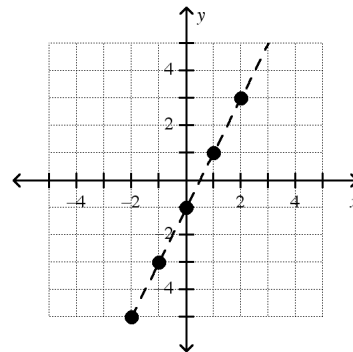
x	y	(x, y)
-2	-9	$(-2, -9)$
-1	-2	$(-1, -2)$
0	-1	$(0, -1)$
1	0	$(1, 0)$
2	7	$(2, 7)$



The points form an S shape.

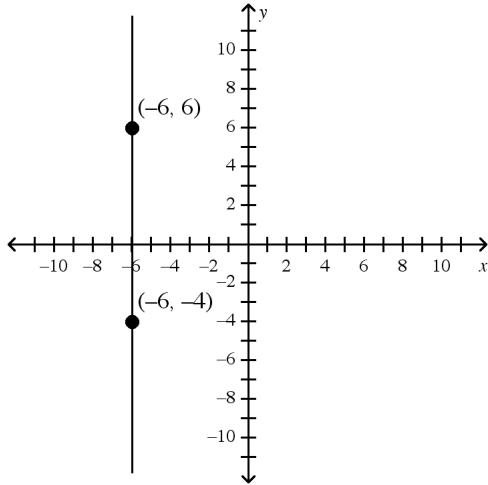
D.

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.

9. (1 point) Find the slope of the line.



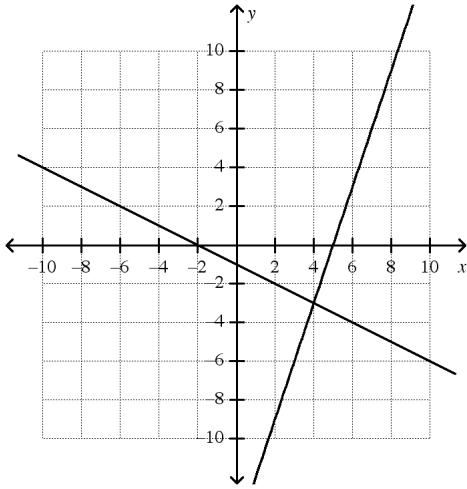
- A. $-\frac{1}{6}$
- B. 0
- C. 10
- D. undefined

10. (1 point) A video club costs \$25 to join. Each video that is rented costs \$2.50. Let v represent the number of videos. Identify the independent and dependent variables. Then, write a rule in function notation for the situation.

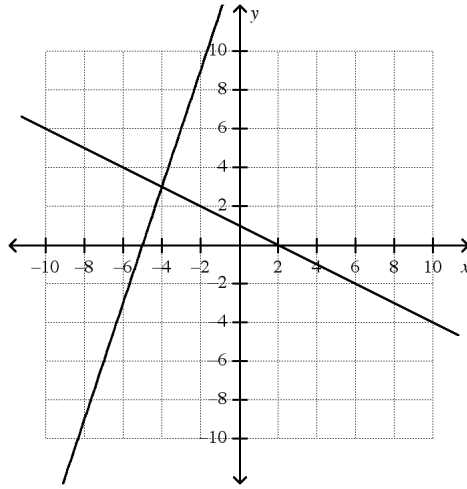
- A. Independent: videos rented;
Dependent: total cost; $f(v) = 25v + 2.5$
- B. Independent: videos rented;
Dependent: total cost; $f(v) = 2.5v + 25$
- C. Independent: total cost; Dependent:
videos rented; $f(v) = 25v - 2.5$
- D. Independent: videos rented;
Dependent: total cost; $f(v) = 2.5v - 25$

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

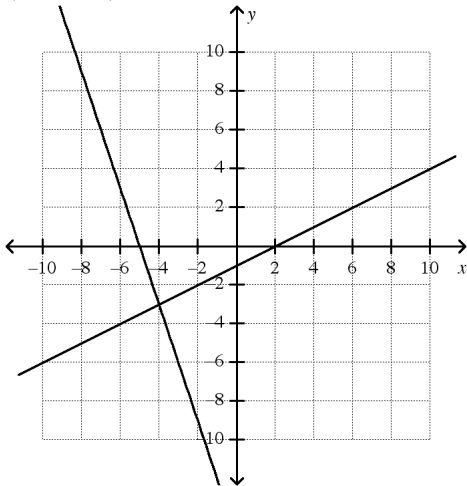
A. $(4, -3)$



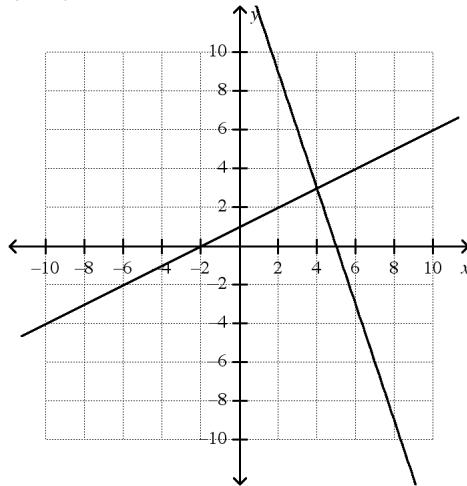
C. $(-4, 3)$



B. $(-4, -3)$

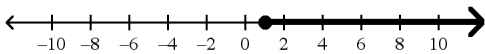


D. $(4, 3)$

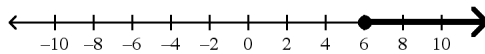


12. (1 point) Solve the inequality $-2c - 5 \geq -7$ and graph the solutions.

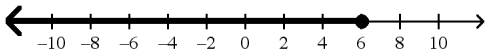
A. $c \geq 1$



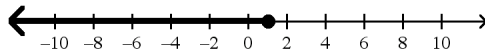
C. $c \geq 6$



B. $c \leq 6$

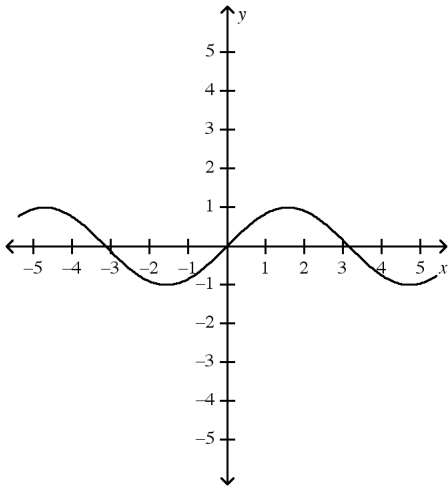


D. $c \leq 1$

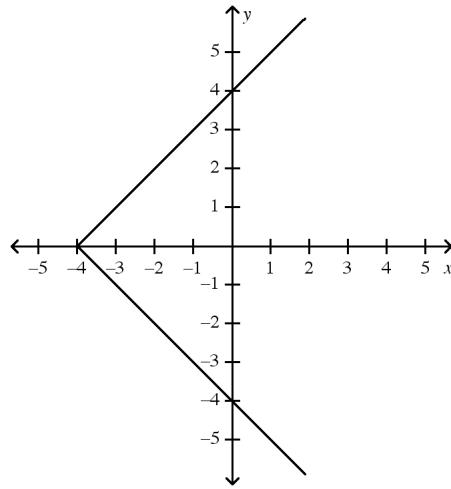


13. (1 point) Which graph represents a function?

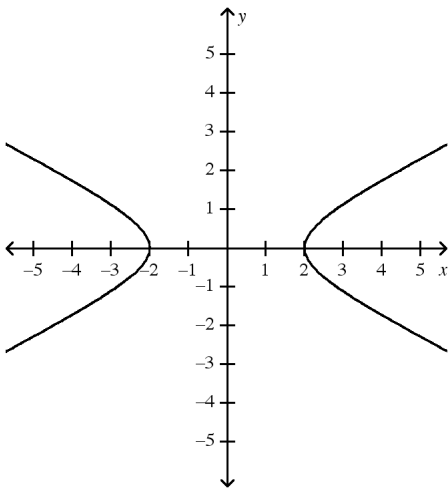
A.



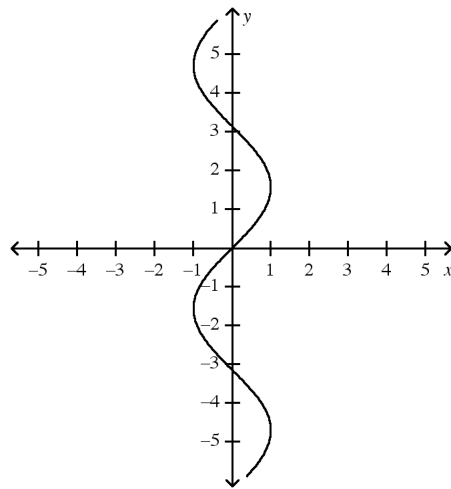
C.



B.



D.



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

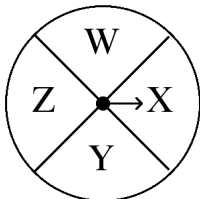
A. the quotient of 19 and p
19 divided by p

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

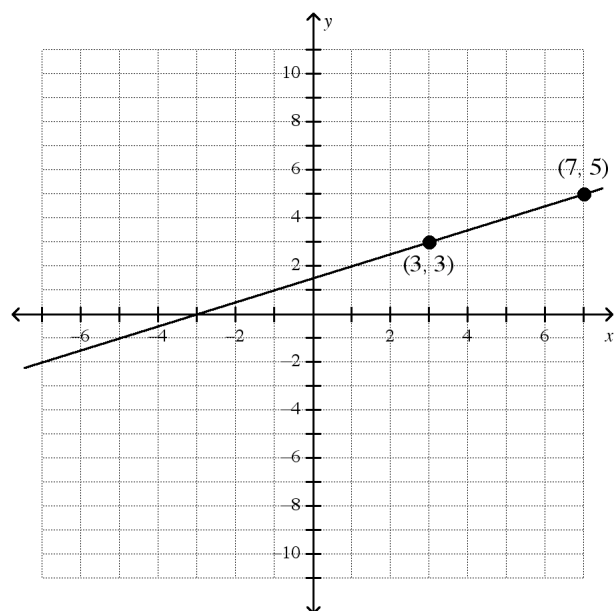
16. (1 point) An experiment consists of spinning a spinner. Use the results in the table to find the experimental probability that the spinner does not land on green. Express your answer as a fraction in simplest form.

Outcome	Frequency
red	4
blue	10
green	7

- A. $\frac{11}{21}$ C. $\frac{1}{3}$
B. $\frac{2}{3}$ D. $\frac{10}{21}$
17. (1 point) There are 8 singers competing at a talent show. In how many different orders can the singers appear?
- A. 5,040 C. 64
B. 56 D. 40,320

Short Answer: Show all steps and clearly indicate your final answer(s). Partial points will be given in this section. Each question is worth 2 or 4 points as marked.

18. (2 points) Find the slope of the line.



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.

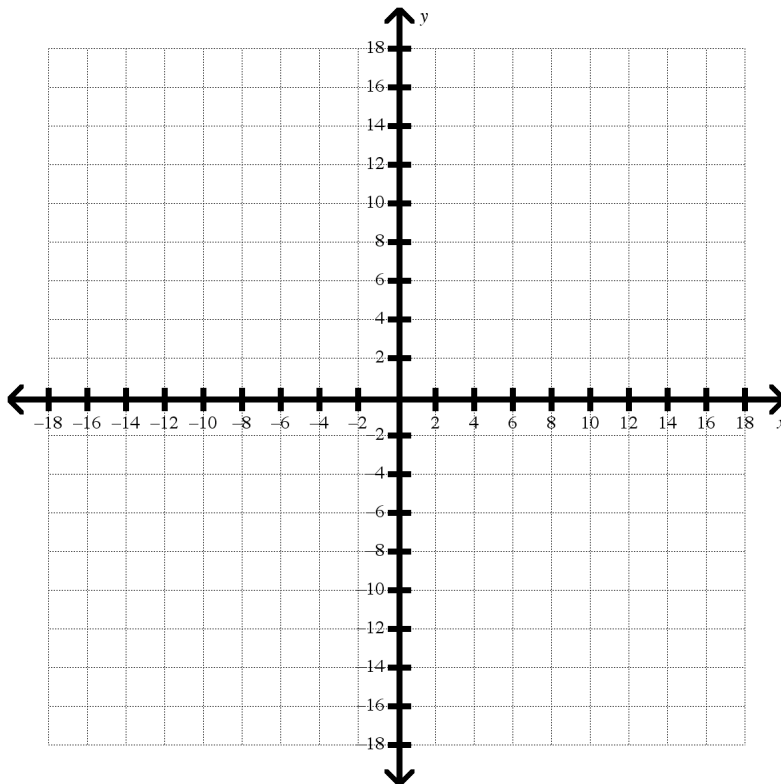
Express your answer as an ordered pair.

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)? _____

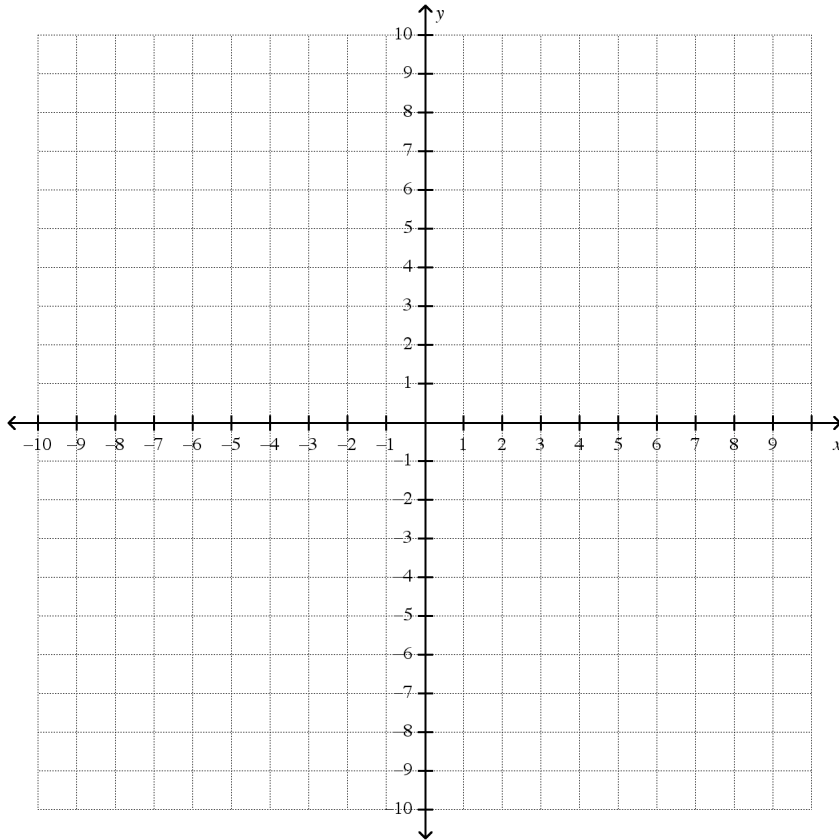
Name: _____

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 $y = mx + b$	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.

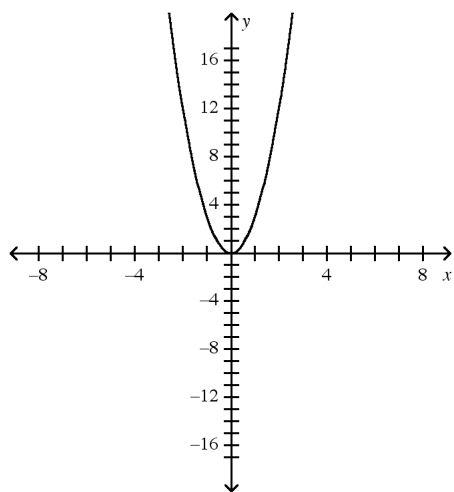
c. Which is more likely, (has a higher probability), taking out 2 football cards or 2 baseball cards? Show your work!

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