



Arkansas Comprehensive Testing, Assessment, and Accountability Program

RELEASED ITEM
BOOKLET
Algebra I
End-of-Course Examinations
2011–2012 Administrations

This document is the property of the Arkansas Department of Education, and all rights of this document are reserved by the Arkansas Department of Education. Arkansas public schools may reproduce this document in full or in part for use with teachers, students, and parents. All other uses of this document are forbidden without written permission from the Arkansas Department of Education. All inquiries should be sent to the Office of Student Assessment at the Arkansas Department of Education, 501-682-4558.

Arkansas Department of Education

PART II RETEST RELEASED ALGEBRA I ITEMS

1. Which expression has the factors $(x + 5)$ and $(x - 5)$?
- * A. $x^2 - 25$
 - B. $x^2 + 25$
 - C. $x^2 - 10x + 25$
 - D. $x^2 + 10x + 25$
2. The formula $C = WTR$ is sometimes used to calculate the cost of running an electrical appliance. Which shows this formula **correctly** solved for T ?
- * A. $T = \frac{C}{WR}$
 - B. $T = CWR$
 - C. $T = \frac{C}{W} - R$
 - D. $T = \frac{C}{R} - W$
3. Ming likes to ride her bike on the weekends. Sometimes she rides to raise money for charity. The distance she rides is equal to her speed multiplied by the amount of time she rides. Which represents the dependent variable?
- A. time
 - B. speed
 - C. money
 - * D. distance
4. Kelly is building a scale model of her house. The width of her house is 42 feet. The width of the model is 4 feet. If the width of the door to her house is 3 feet wide, how many feet wide should the door be on the model?
- * A. $\frac{2}{7}$
 - B. $\frac{3}{4}$
 - C. $31\frac{1}{2}$
 - D. 41

PART II RETEST RELEASED ALGEBRA I ITEMS

5. Which table shows a linear relationship?

A.

x	y
1	2
2	4
3	8
4	16
5	32

* B.

x	y
1	2
2	4
3	6
4	8
5	10

C.

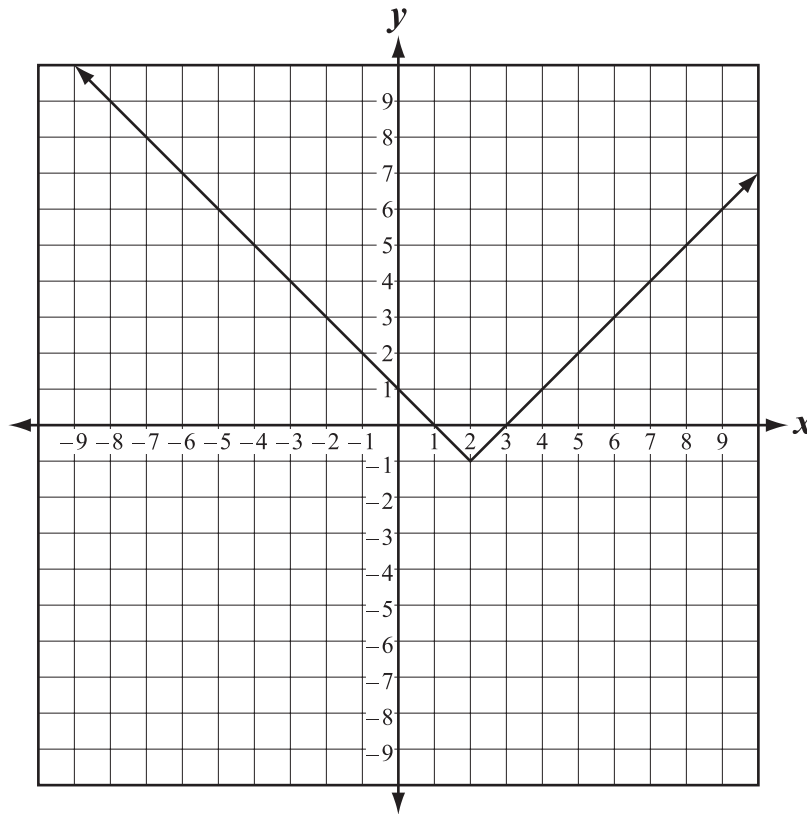
x	y
1	2
2	3
3	5
4	8
5	12

D.

x	y
1	1
2	4
3	9
4	16
5	25

PART II RETEST RELEASED ALGEBRA I ITEMS

6. The equation $y = |x| + 1$ is graphed and then transformed. The transformation is shown on the graph below.



Which of the following describes this transformation?

- A. up 1 unit
- B. down 1 unit
- C. right 2 units, down 1 unit
- * D. right 2 units, down 2 units

PART II RETEST RELEASED ALGEBRA I ITEMS

7. Fourteen less than three times a number is thirty-seven.

Which equation could be used to find the number that would satisfy the condition above?

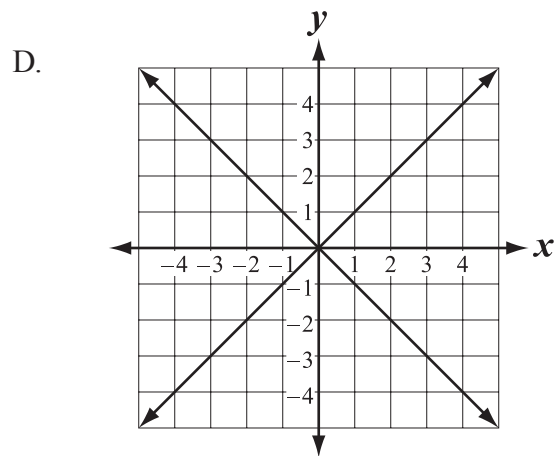
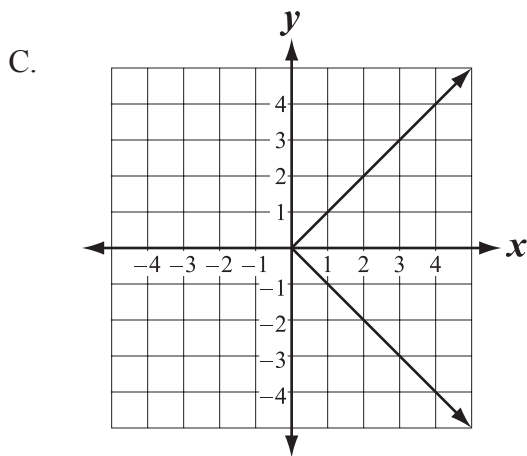
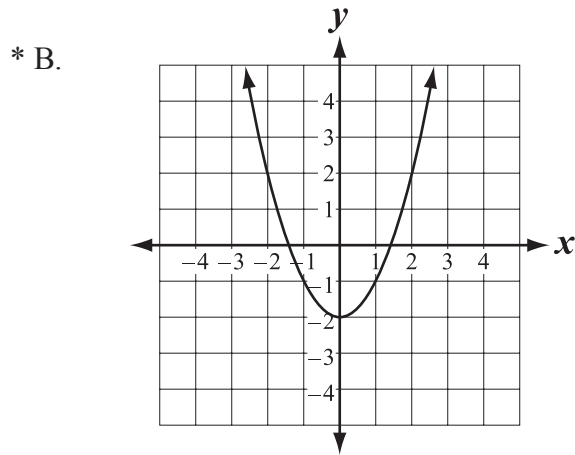
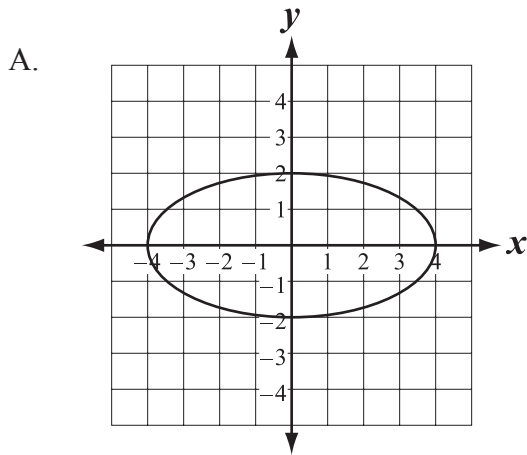
- A. $3(x-14) = 37$
 - B. $14-3x = 37$
 - * C. $3x-14 = 37$
 - D. $37-3x = 14$
8. A jug contains 4 quarts or 3.78 liters of milk. How many liters are in 9 quarts, to the nearest hundredth of a liter?
- A. 0.60 liters
 - B. 1.68 liters
 - * C. 8.51 liters
 - D. 9.52 liters

9. Lori deposits \$9000 into an account that has a 5% annual simple interest rate. How many years will it take for the account to earn \$3150 in interest?

- A. 0.35
- B. 0.7
- C. 2.9
- * D. 7.0

PART II RETEST RELEASED ALGEBRA I ITEMS

10. Which of the following is a graph of a function?



11. Kaya has a sock drawer with 10 white socks and 6 black socks. What is the probability that Kaya will pick two black socks in a row if she selects at random and does **not** replace the first sock?

- * A. $\frac{1}{8}$
- B. $\frac{9}{64}$
- C. $\frac{15}{128}$
- D. $\frac{17}{24}$

12. Consider the expression below.

$$a + 6(b + 4) \div a - 2$$

What is the value of this expression when $a = 3$ and $b = 5$?

- A. 17
- * B. 19
- C. 25
- D. 57

PART II RETEST RELEASED ALGEBRA I ITEMS

13. If $f(c) = 2c - 4$, what is $f(-2)$?

- * A. -8
- B. -4
- C. 0
- D. 16

14. Which expression is equivalent to $2x^3y^2(x^2 + 3y^3)$?

- A. $2x^5y^2 + 3y^3$
- B. $2x^6y^2 + 3y^3$
- * C. $2x^5y^2 + 6x^3y^5$
- D. $2x^6y^2 + 6x^3y^6$

15. Which of the following is a solution to $|x - 3| = 8$?

- A. -11
- * B. -5
- C. $\frac{8}{3}$
- D. 5

16. What is the factored form of the polynomial below?

$$y^2 + 8y + 12$$

- A. $(y - 6)(y - 2)$
- B. $(y + 3)(y + 4)$
- C. $(y + 4)(y + 2)$
- * D. $(y + 6)(y + 2)$

17. Which expression is undefined when $x = 0$?

- * A. $\frac{12}{x}$
- B. 25^x
- C. $\frac{7x}{x - 5}$
- D. $\frac{-20}{10 + x}$

18. Which equation produces the same line as the equation $y = \frac{1}{2}x$?

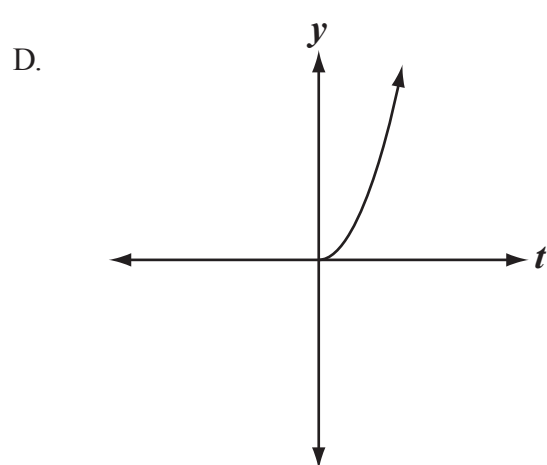
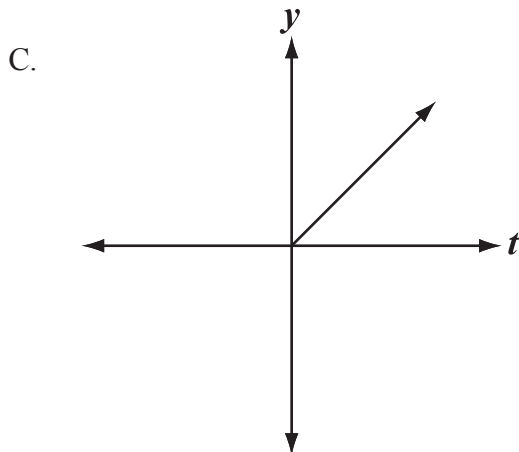
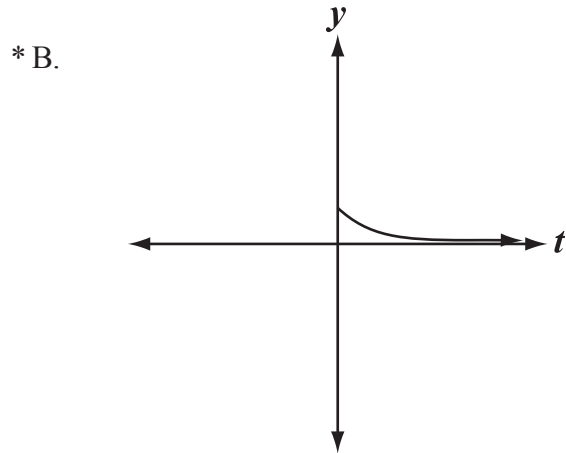
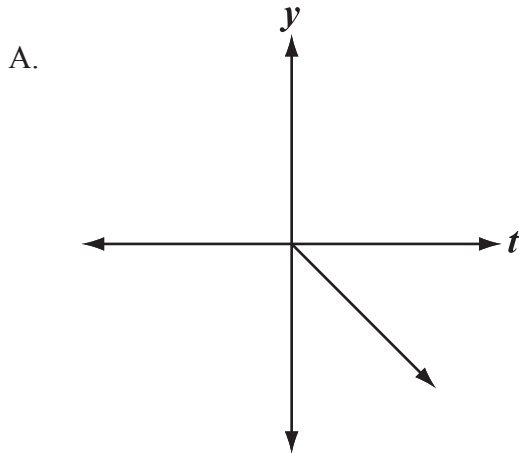
- A. $y = 2x$
- * B. $y = \frac{2}{4}x$
- C. $y = -2x$
- D. $y = -\frac{1}{2}x$

19. Which expression is equivalent to $4\sqrt{8} + 5\sqrt{8}$?

- A. 13
- * B. $18\sqrt{2}$
- C. 36
- D. $36\sqrt{2}$

PART II RETEST RELEASED ALGEBRA I ITEMS

20. The half-life of a radioactive substance is the amount of time it takes for half of the substance to decay. If y is the amount of a radioactive substance, which graph represents the amount of the radioactive substance over time?



21. A sandwich shop charges \$4.95 for a sandwich, plus \$0.65 for each topping. If the total charge for a sandwich is on the y -axis and the number of toppings is on the x -axis of a graph, what would be the y -intercept of the graph of the line representing this situation?

- A. \$0.65
- B. \$4.30
- * C. \$4.95
- D. \$5.60

22. What values of x satisfy the equation $0 = x^2 - 5x - 24$?

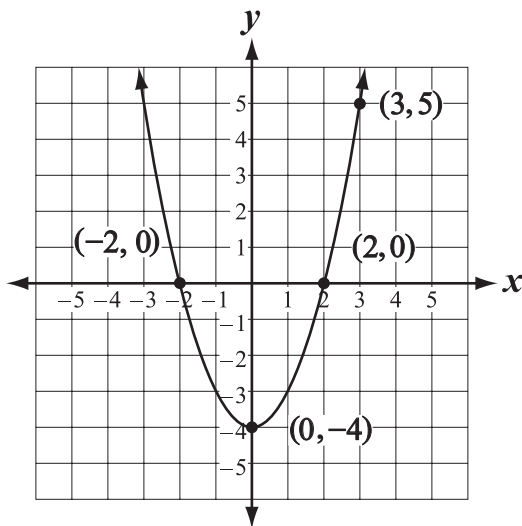
- A. $x = 3$ and $x = 8$
- B. $x = -3$ and $x = -8$
- * C. $x = -3$ and $x = 8$
- D. $x = 3$ and $x = -8$

PART II RETEST RELEASED ALGEBRA I ITEMS

23. What is the slope of a line that passes through the points $(-2, 4)$ and $(1, 5)$?

- * A. $\frac{1}{3}$
- B. $\frac{2}{3}$
- C. $\frac{3}{2}$
- D. $\frac{3}{1}$

24. The function $f(x)$ is graphed below.



Which point is the vertex of the graph of $f(x)$?

- A. $(-4, 0)$
- B. $(-2, 2)$
- * C. $(0, -4)$
- D. $(0, 0)$

25. Students at a new school must choose the school colors. The principal wants to find out which school colors students would prefer. Which survey question is **most** appropriate for the principal to ask?

- A. What are your favorite colors?
- * B. What two colors should be our school colors?
- C. Don't you think red and gold would be good school colors?
- D. Don't you think three school colors are better than two colors?

26. Simplify the expression below in scientific notation.

$$\frac{8.761 \times 10^7}{0.0002}$$

- A. 4.3805×10^3
- B. 4.3805×10^7
- C. 4.3805×10^{10}
- * D. 4.3805×10^{11}

27. Which of the following is **best** represented using a cumulative frequency histogram?

- A. The median score for a final exam.
- B. The rate of growth of two types of plants.
- * C. The total amount of precipitation fallen over a period of months.
- D. The percentage of people that like cats, dogs, birds, or fish as pets.

PART II RETEST RELEASED ALGEBRA I ITEMS

28. A T-shirt shop carries short-sleeved and long-sleeved shirts in sizes small (S), medium (M), large (L), and extra large (XL). The shop receives a shipment that includes 10 long-sleeved shirts in each size, 5 short-sleeved smalls, and 7 short-sleeved larges. Which matrix represents the shipment?

* A.

		T-Shirt Shipment			
		S	M	L	XL
Long-Sleeved	10	10	10	10	10
Short-Sleeved	5	0	7	0	0

B.

		T-Shirt Shipment			
		S	M	L	XL
Long-Sleeved	10	0	0	0	0
Short-Sleeved	5	0	7	0	0

C.

		T-Shirt Shipment			
		S	M	L	XL
Long-Sleeved	10	5	7	0	0
Short-Sleeved	0	0	0	0	0

D.

		T-Shirt Shipment			
		S	M	L	XL
Long-Sleeved	10	10	10	10	10
Short-Sleeved	15	10	17	10	10

29. A bicycle shop sells 32 bicycles per month at an average price of \$178. The owner decides to lower prices. He discovers that for every \$8 decrease in the average price, the shop sells 3 more bicycles per month. If this trend continues, how many bicycles **per month** will be sold at \$146?

- A. 4
 B. 12
 C. 36
 * D. 44

30. What is the value of x in the equation below?

$$10 = \frac{3}{5}x - 5$$

- A. $x = \frac{25}{3}$
 B. $x = 9$
 C. $x = 11$
 * D. $x = 25$

PART II RETEST RELEASED ALGEBRA I ITEMS

31. Omar scores 3 points for every field goal he makes. What is the dependent variable in this situation?

- * A. the number of points Omar scores
- B. the number of games Omar plays
- C. the number of field goals Omar tries
- D. the number of field goals Omar makes

32. Which expression is equivalent to $\left(\frac{x^5 y^4}{(xy)^3}\right)^2$?

- A. $x^2 y$
- * B. $x^4 y^2$
- C. $x^7 y^5$
- D. $x^8 y^6$

33. Use the information below to answer the question.

- Rob and Tom are paid different hourly wages.
- Tom receives a \$10 bonus at the end of a 40-hour work week.
- Rob also works 40 hours but receives a larger salary at the end of the week.

Which inequality represents possible values of Tom's hourly wage, t , compared to Rob's hourly wage, r ?

- * A. $40t + 10 < 40r$
- B. $40t - 10 > 40r$
- C. $40t < 40r + 10$
- D. $40t > 40r - 10$

34. A train leaves its home station at 6:00 A.M. It passes a station 75 miles away at 7:30 A.M. If it continues to travel at the same average rate, how far will it have traveled by noon?

- A. 112.50 miles
- * B. 300 miles
- C. 450 miles
- D. 675 miles

PART II RETEST RELEASED ALGEBRA I ITEMS

35. Which table represents a linear function?

A.

x	1	2	3	4	5	6
$f(x)$	1	4	9	16	25	36

B.

x	1	2	3	4	5	6
$f(x)$	2	1	$\frac{2}{3}$	$\frac{2}{4}$	$\frac{2}{5}$	$\frac{2}{6}$

* C.

x	1	2	3	4	5	6
$f(x)$	2	4	6	8	10	12

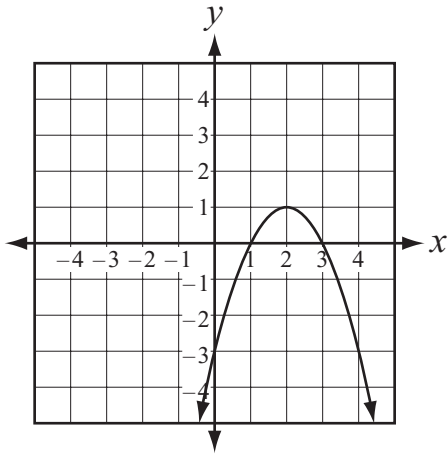
D.

x	1	2	3	4	5	6
$f(x)$	2	4	8	16	32	64

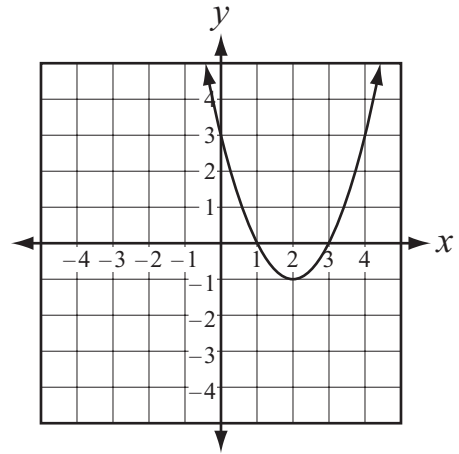
PART II RETEST RELEASED ALGEBRA I ITEMS

36. Which graph has a maximum of 3?

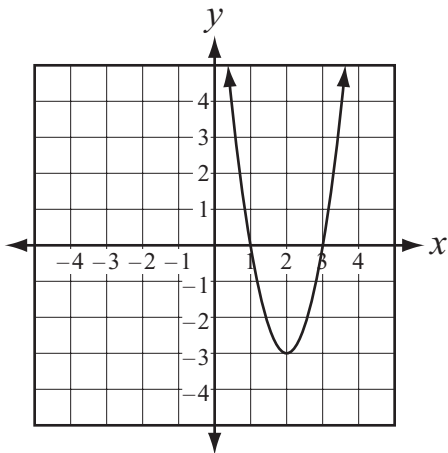
A.



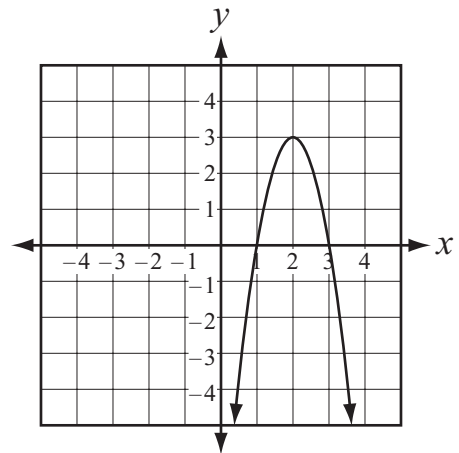
B.



C.



*D.



PART II RETEST RELEASED ALGEBRA I ITEMS

37. A box of cookies must have 3 peanut butter cookies for every 5 shortbread cookies. If Leah puts 12 peanut butter cookies in a box, which proportion could she use to find x , the number of shortbread cookies to put in the box?

* A. $\frac{3}{5} = \frac{12}{x}$

B. $\frac{3}{5} = \frac{x}{12}$

C. $\frac{3}{17} = \frac{5}{x}$

D. $\frac{3}{17} = \frac{x}{5}$

38. What is the simplified form of $\frac{35}{\sqrt{7}}$?

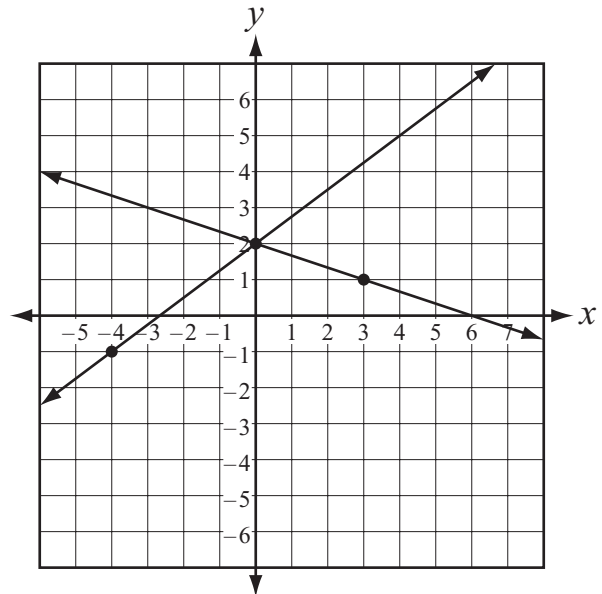
A. 5

* B. $5\sqrt{7}$

C. $35\sqrt{7}$

D. 175

39. The system of equations $\begin{cases} 3y = -x + 6 \\ 4y = 3x + 8 \end{cases}$ is shown on the graph below.



What is the solution to this system of equations?

- * A. (0, 2)
 B. (3, 1)
 C. (6, 0)
 D. (-4, -1)
40. Which equation represents a line that is steeper than the line represented by the equation $y = 2x + 1$?
- A. $y = -2x + 1$
 B. $y = \frac{1}{2}x + 1$
 C. $y = 1x + 1$
 * D. $y = 3x + 1$

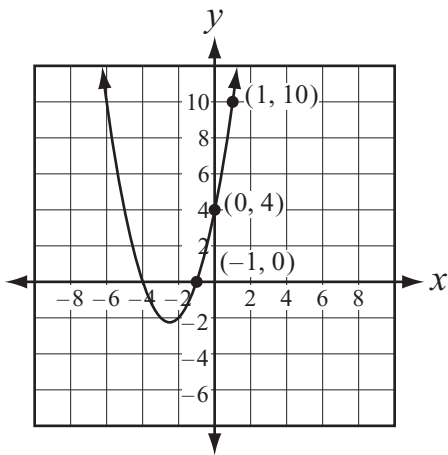
PART II RETEST RELEASED ALGEBRA I ITEMS

41. If $f(x) = 3x + 2$, what is $f(5)$?

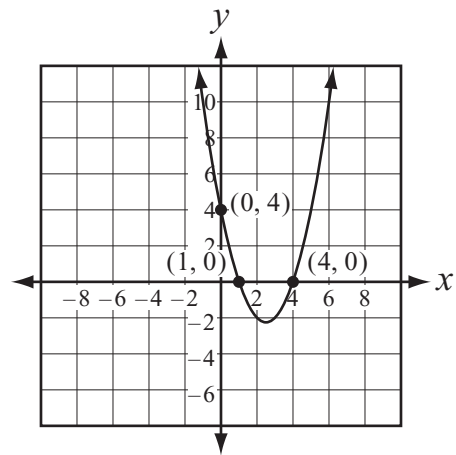
- A. -13
- B. 1
- C. 3
- * D. 17

42. Which function has zeros of 1 and 4?

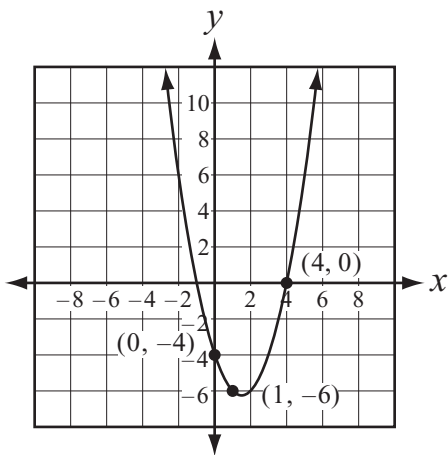
A.



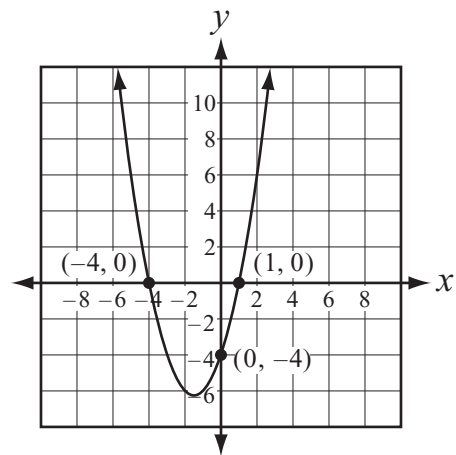
* B.



C.

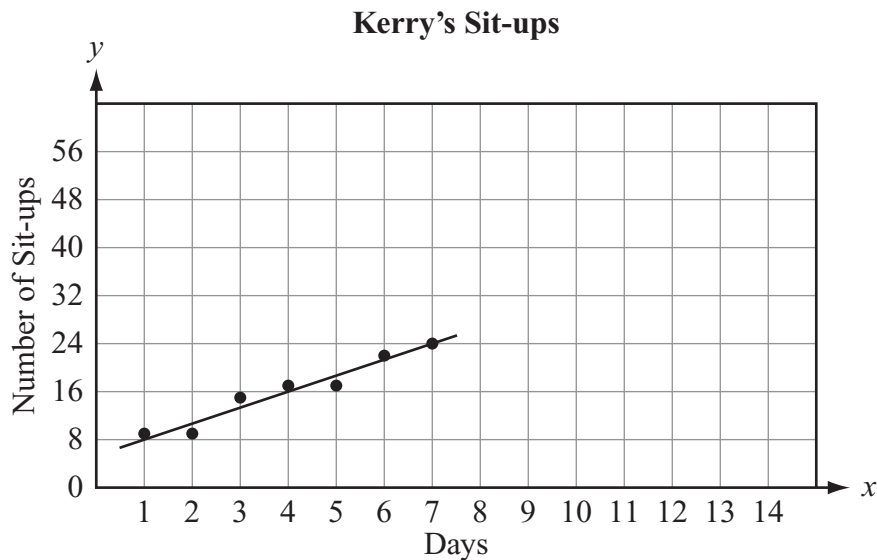


D.



PART II RETEST RELEASED ALGEBRA I ITEMS

43. Kerry plots the number of sit-ups she does every day for a week on the graph below.



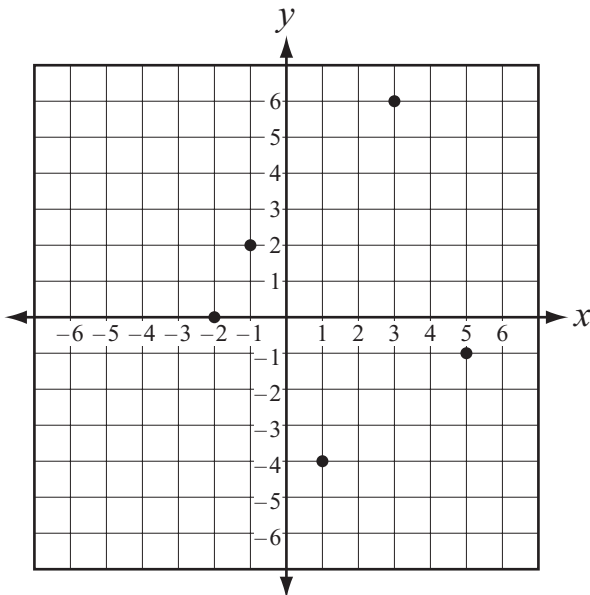
Based on the line of best fit, **approximately** how many sit-ups will Kerry do on Day 14 if she continues at the same rate?

- A. 16
 - B. 24
 - C. 27
 - * D. 42
-
44. Terry can do 5 more math problems per minute than Erin. Erin can do twice as many math problems per minute as Julie. If Julie can do x math problems per minute, which expression shows how many math problems per minute Terry can do?

- A. $x + 5$
- * B. $2x + 5$
- C. $2(x + 5)$
- D. $\frac{x + 5}{2}$

PART II RETEST RELEASED ALGEBRA I ITEMS

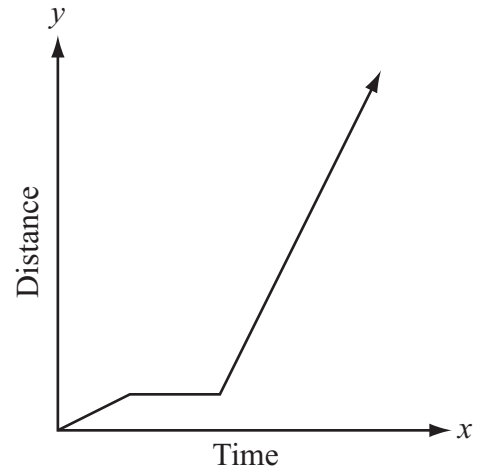
45. Look at the graph below.



What is the domain of the relation shown in the graph above?

- A. {1, 2, 3, 5}
 - B. {0, 1, 2, 3, 5, 6}
 - * C. {-2, -1, 1, 3, 5}
 - D. {-4, -1, 0, 2, 6}
46. Which expression is equivalent to $2x^2 - 3x - 35$?
- * A. $(2x + 7)(x - 5)$
 - B. $(2x - 7)(x + 5)$
 - C. $(2x - 5)(x + 7)$
 - D. $(2x + 5)(x - 7)$

47. The graph below represents the distance Mrs. Shaw walks on a treadmill over time.



This graph is **best** represented by which of the following statements?

- A. Mrs. Shaw took two rest breaks during the session.
 - B. Mrs. Shaw walked at a constant rate the entire time.
 - C. Mrs. Shaw walked quickly, took a rest break, and then walked slowly.
 - * D. Mrs. Shaw walked for a period, stopped to stretch and then walked faster.
48. One of the largest known ant colonies is estimated to contain 3.06×10^8 worker ants in an area of 2.70×10^6 square meters. If the ants were spread out evenly within this area, about how many worker ants would be in 1 square meter?
- A. 8.82×10^{-3}
 - B. 3.60×10^1
 - * C. 1.13×10^2
 - D. 3.03×10^8

PART II RETEST RELEASED ALGEBRA I ITEMS

49. What are the solutions to the equation

$$0 = 2x^2 - 7x - 15?$$

- A. 5 or -3
B. -5 or $\frac{3}{2}$
C. 15 or 11
* D. 5 or $-\frac{3}{2}$
-

50. Greg, Tina, and Jeff all have jobs in their neighborhood doing yard work. Below are the amounts they have made in the first three weeks this month.

- Greg earned \$40 in week 1, \$30 in week 2, and \$25 in week 3.
- Tina earned \$45 in week 1, \$50 in week 2, and \$20 in week 3.
- Jeff earned \$60 in week 1, \$30 in week 2, and \$45 in week 3.

Which matrix **best** displays this data?

A.

	G	T	J
W1	25	20	30
W2	30	45	45
W3	40	50	60

*B.

	G	T	J
W1	40	45	60
W2	30	50	30
W3	25	20	45

C.

W1	40
W2	50
W3	60

D.

G	T	J
60	50	45

PART II RETEST RELEASED ALGEBRA I ITEMS

51. Which expression is the sum of $5\sqrt{7} + \sqrt{7} - 2\sqrt{7}$?

- A. $\sqrt{7}$
- B. $2\sqrt{7}$
- C. $3\sqrt{7}$
- * D. $4\sqrt{7}$

52. Which shows the formula $S = \pi dh$ solved for d ?

- A. $d = S\pi h$
- B. $d = S - \pi h$
- * C. $d = \frac{S}{\pi h}$
- D. $d = \frac{\pi h}{S}$

53. Use the data set below to answer the question.

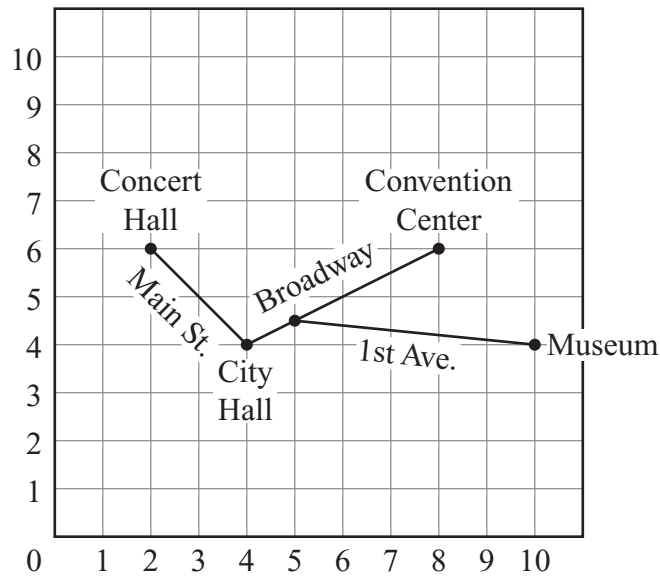
14, 18, 9, 12, 13, 11

Which of the following values, if added to the data set, will affect the mode?

- A. 8
- B. 10
- * C. 14
- D. 25

PART II RETEST RELEASED ALGEBRA I ITEMS

54. An architect is using the map below to help her plan the location of a new building.



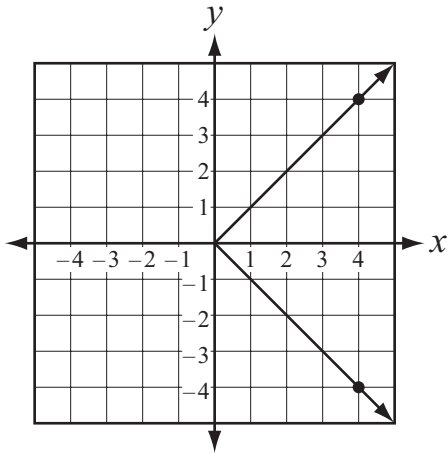
She wants to construct a hotel at the midpoint between City Hall and the Convention Center on Broadway. What will be the coordinates of the new hotel on the map?

- A. (3, 5)
B. (5, 5)
C. (5, 6)
* D. (6, 5)
-
55. Which equation represents a line parallel to the line given by the equation $y = \frac{2}{3}x + 1$?
- A. $y + \frac{3}{2}x = 3$
B. $y - 3x = -1$
* C. $y - \frac{2}{3}x = 5$
D. $y - \frac{1}{3}x = -2$

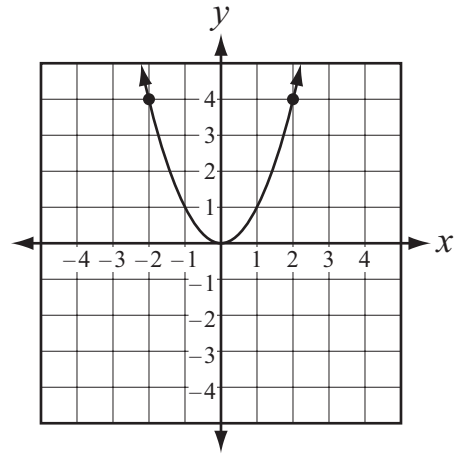
PART II RETEST RELEASED ALGEBRA I ITEMS

56. Which graph represents a function?

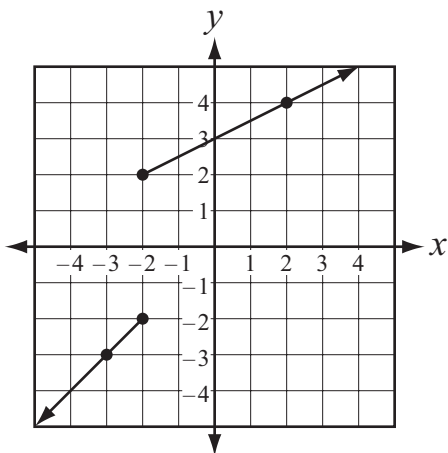
A.



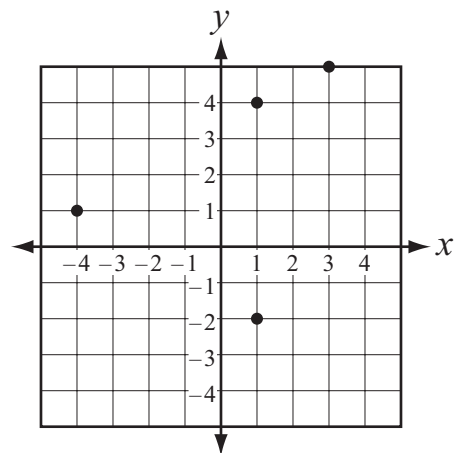
* B.



C.



D.



PART II RETEST RELEASED ALGEBRA I ITEMS

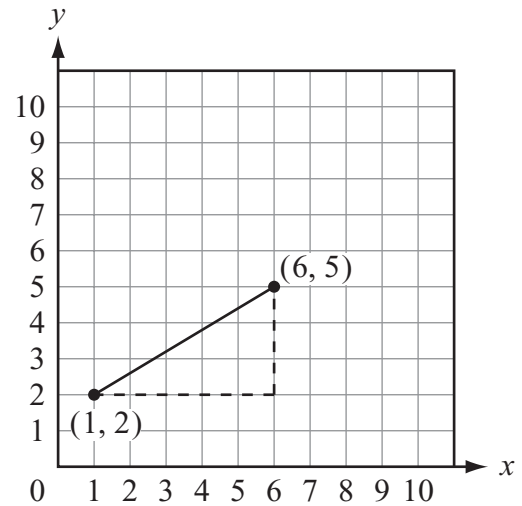
57. The cumulative frequency histogram below shows the number of tables served by waiters at Star Diner.



Based on the cumulative frequency histogram, how many waiters served more than 16 tables?

- * A. 3 waiters
 - B. 7 waiters
 - C. 10 waiters
 - D. 17 waiters
58. Which expression is equivalent to $3x(x-6) + 5(x-2)$?
- A. $3x^2 + 5x - 8$
 - B. $3x^2 - 13x + 10$
 - C. $3x^2 - 23x - 10$
 - * D. $3x^2 - 13x - 10$

59. Before building a skateboard ramp, Jeff drew a sketch of the ramp on a piece of graph paper, as shown below.



Based on the information in this graph, what is the slope of Jeff's ramp?

- * A. $\frac{3}{5}$
- B. 1
- C. $\frac{5}{3}$
- D. $\sqrt{34}$

PART II RETEST RELEASED ALGEBRA I ITEMS

60. The accumulated balance of a savings account that is compounded annually can be found using the formula $A = P(1+r)^t$ where A is the accumulated balance, P is the principal, r is the interest rate, and t is the time in years.

Jo puts \$250 in her savings account which earns 5% interest compounded annually. How much money will she have in the account after 4 years if she makes no other deposits or withdrawals?

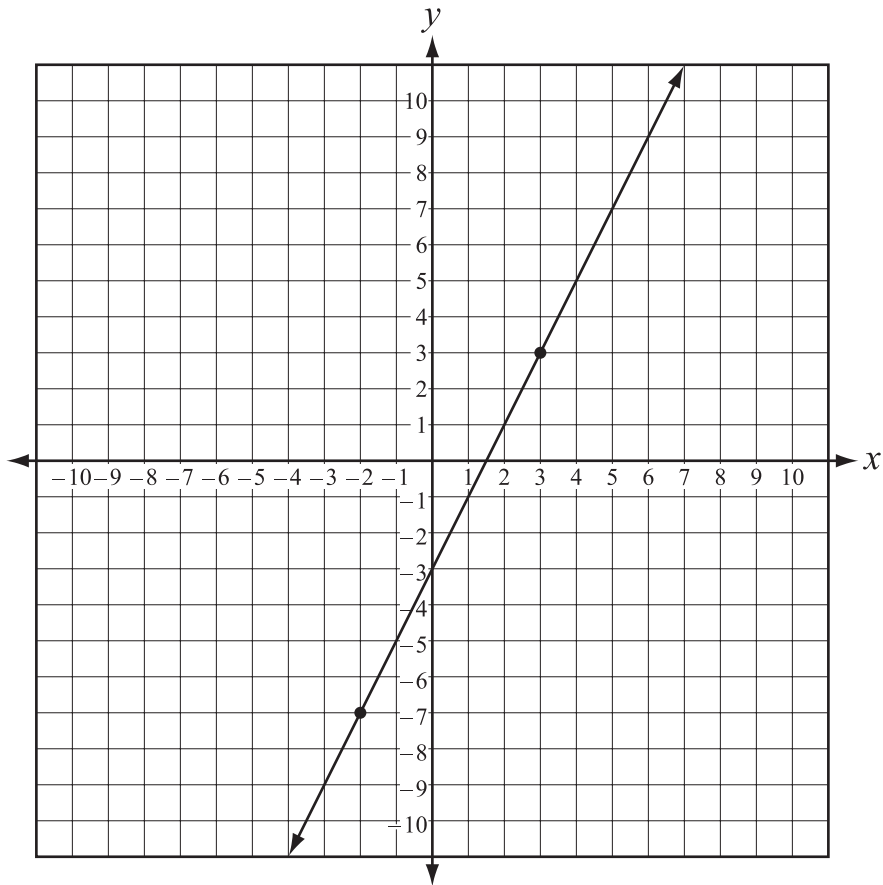
- A. \$ 205.68
- B. \$ 267.94
- * C. \$ 303.88
- D. \$1,265.63

61. The cheerleaders at Eastside High School sell spirit poms to raise money for charity. Each spirit pom sold raises \$2.50 for the charity. Which equation represents the amount of money raised (m) as a function of the number of spirit poms sold (p)?

- A. $m = \frac{2.50}{p}$
- B. $m = \frac{p}{2.50}$
- C. $p = 2.50m$
- * D. $m = 2.50p$

PART II RETEST RELEASED ALGEBRA I ITEMS

62. Consider the graph below.



Which of the following equations has a graph that is parallel to the line above?

- A. $y = x - 3$
- B. $y = -\frac{1}{2}x + 1$
- * C. $y = 2x + 1$
- D. $y = -2x + 3$

PART II RETEST RELEASED ALGEBRA I ITEMS

63. Which of the following represents the least biased sample?
- A. To find out which professional football team is most popular, you survey your high school football players.
 - B. To find out how many students are in favor of your school building a new gym, you survey the basketball team.
 - C. To find out which pizza topping is most popular in the city, you interview all the people eating at Pizza Barn.
 - * D. To find out what is the most popular Olympic event to watch on TV, you survey every 10th person entering the mall.

64. Use the table below to answer the following question.

x	y
1	-1
2	2
3	5
4	8
5	11
6	14

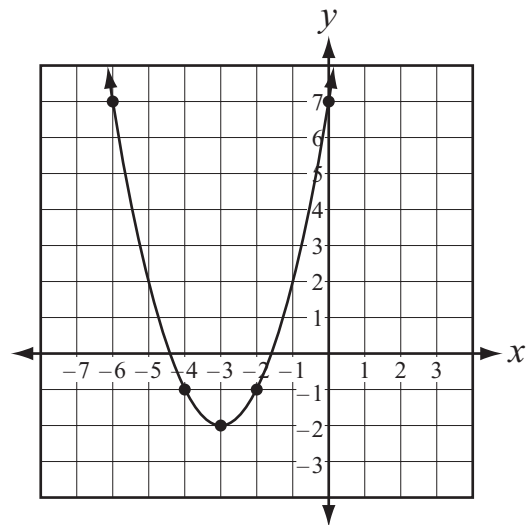
What type of function is represented by the data in the table?

- * A. linear
- B. quadratic
- C. exponential
- D. absolute value

65. Deb has a rectangular picture frame with an area of $42x^5y^3z^6$ square inches. If the frame's width is $7xyz^2$ inches, what is the length of the frame in inches?

- * A. $6x^4y^2z^4$
- B. $7x^4y^2z^4$
- C. $6x^5y^2z^3$
- D. $35x^4y^2z^4$

66. The graph of $f(x) = x^2 + 6x + 7$ is shown below.



What is the vertex of this function?

- A. (0, 7)
- B. $\left(-\frac{3}{2}, 0\right)$
- C. (-2, -3)
- * D. (-3, -2)

PART II RETEST RELEASED ALGEBRA I ITEMS

67. Given the function $f(x) = 3x - 7$, what is $f(-4)$?

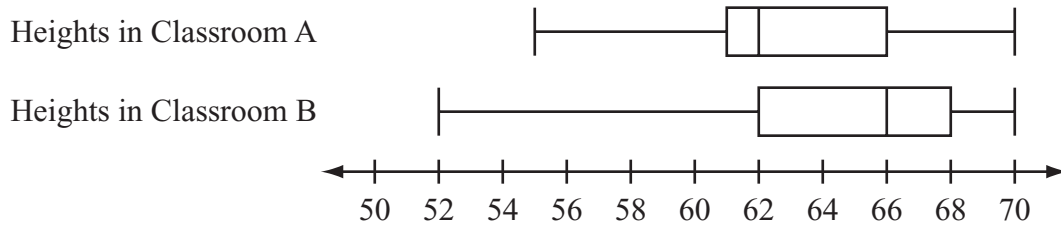
- * A. -19
- B. -9
- C. -8
- D. -5

68. Below are factored forms of the expression $12x^3 - 36x^2$. Which expression has the greatest common factor as the first term?

- A. $3x(4x^2 - 12x)$
- B. $4x^2(3x - 9)$
- * C. $12x^2(x - 3)$
- D. $12x(x^2 - 3x)$

PART II RETEST RELEASED ALGEBRA I ITEMS

69. The box-and-whisker plots below show the data for student heights in two classrooms.



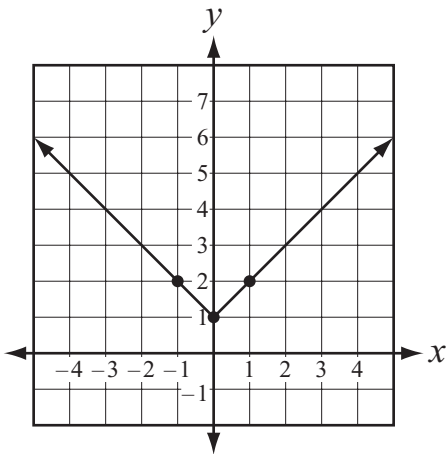
Which data value is the same for both sets of data?

- A. mean
- B. range
- C. median
- * D. maximum

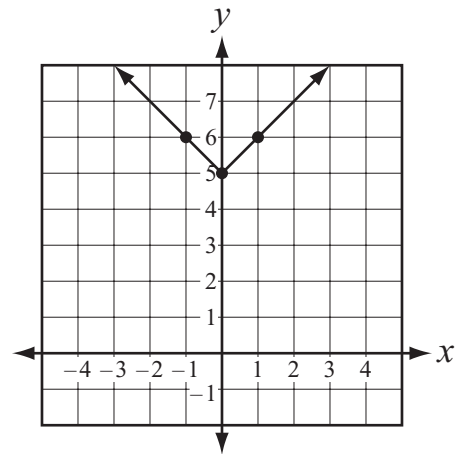
PART II RETEST RELEASED ALGEBRA I ITEMS

70. Which graph shows $y = |x| + 3$ after a downward vertical shift of 2 units?

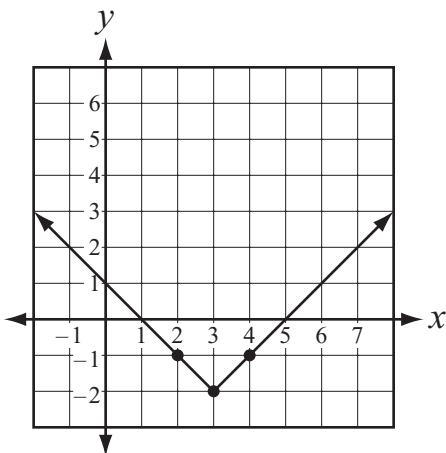
* A.



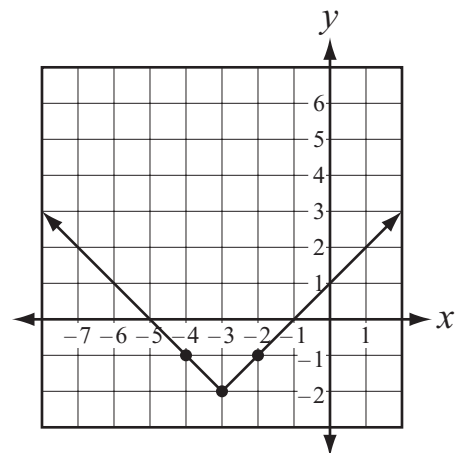
B.



C.



D.



71. Which expression is equivalent to $\frac{2}{\sqrt{3}}$?

- A. $\sqrt{6}$
- B. $2\sqrt{3}$
- * C. $\frac{2\sqrt{3}}{3}$
- D. $\frac{\sqrt{6}}{3}$

72. What value of x satisfies the equation $6 + x(-4 + 2)^2 = -3(3 - x)$?

- * A. -15
- B. -5
- C. -3
- D. 3

PART II RETEST RELEASED ALGEBRA I ITEMS

73. Which is the equation of the line written in slope-intercept form that passes through the point $(0, 5)$ and has a slope of -2 ?

- A. $y = 2x + 5$
- * B. $y = -2x + 5$
- C. $y = -2x + 10$
- D. $y - 5 = -2(x - 0)$

74. The function $f(x) = 7.48x^3$ represents the approximate gallons of water needed to fill a cubical container that is x feet on a side. How many gallons of water, to the nearest gallon, will Rob need to fill a container that is 6 feet on a side?

- A. 135
- B. 269
- C. 419
- * D. 1616

PART II RETEST RELEASED ALGEBRA I ITEMS

75. The matrices below show the number of students with a particular eye color in two different math classes.

	First Period				
	Blue	Brown	Green		
Boys	[	4	6	2]
Girls	[	3	4	5]

	Second Period				
	Blue	Brown	Green		
Boys	[	2	7	2]
Girls	[	3	5	5]

Which matrix shows the sum of the two classes?

* A.

	Blue	Brown	Green		
Boys	[	6	13	4]
Girls	[	6	9	10]

B.

	Blue	Brown	Green		
Boys	[	8	42	4]
Girls	[	9	20	25]

C.

	Blue	Brown	Green		
Boys	[	12	24	10]
Girls	[	6	35	10]

D.

	Blue	Brown	Green		
Boys	[	7	10	7]
Girls	[	5	12	7]

76. If $f(x) = \frac{6x}{-x+2}$, what is $f(8)$?

- A. 6
- B. -6
- C. 8
- * D. -8

77. What values of x will satisfy the equation $x^2 - x - 20 = 0$?

- A. $x = 4$
 $x = -5$
- * B. $x = -4$
 $x = 5$
- C. $x = 10$
 $x = -8$
- D. $x = -10$
 $x = 8$

PART II RETEST RELEASED ALGEBRA I ITEMS

78. Bill is comparing the price rates of two airport shuttles. He wants to know which has the lowest total cost from his house to the airport. The two rates are listed below.

Sam's Vans: \$2.00 plus 50 cents per mile

Rick's Rides: \$1.00 plus 75 cents per mile

Which describes the rates of these two shuttle services?

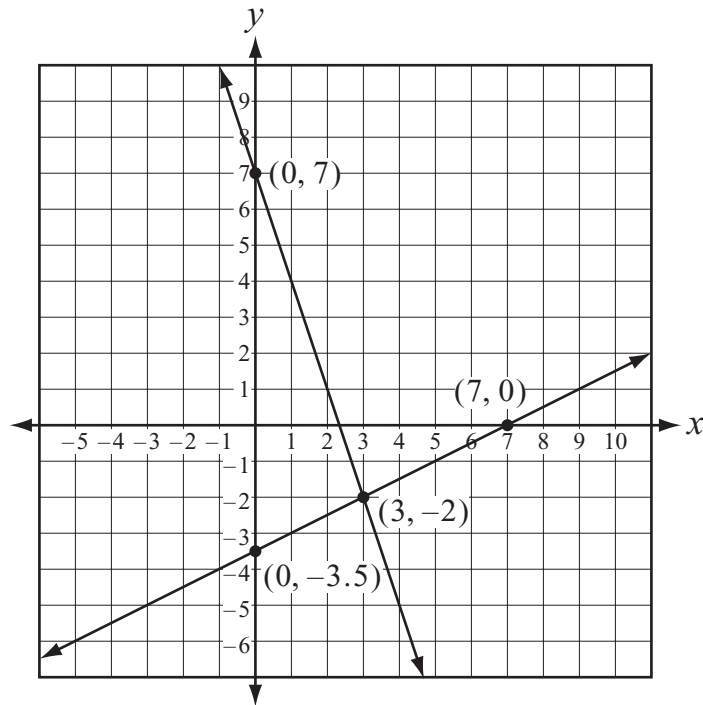
- A. Rick's Rides is always less expensive.
- B. Rick's Rides is always more expensive.
- C. Rick's Rides is more expensive when the distance is less than 4 miles.
- * D. Rick's Rides is more expensive when the distance is greater than 4 miles.

79. There are 400 boxes in a warehouse. For every hour, x , 120 boxes are delivered to the warehouse. The total number of boxes, y , is equal to $120x + 400$. Which of the statements below is true for the equation $y = 120x + 400$?

- A. x and y are both dependent variables
- B. x and y are both independent variables
- C. x is the dependent variable and y is the independent variable
- * D. x is the independent variable and y is the dependent variable

PART II RETEST RELEASED ALGEBRA I ITEMS

80. Two equations are graphed on the grid below.

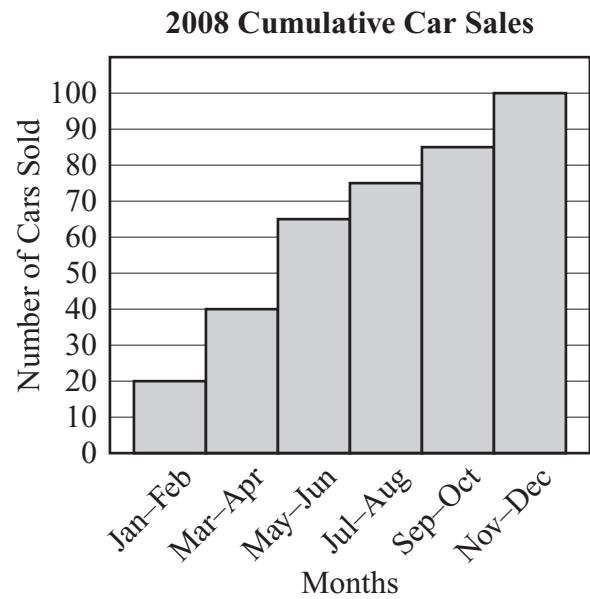
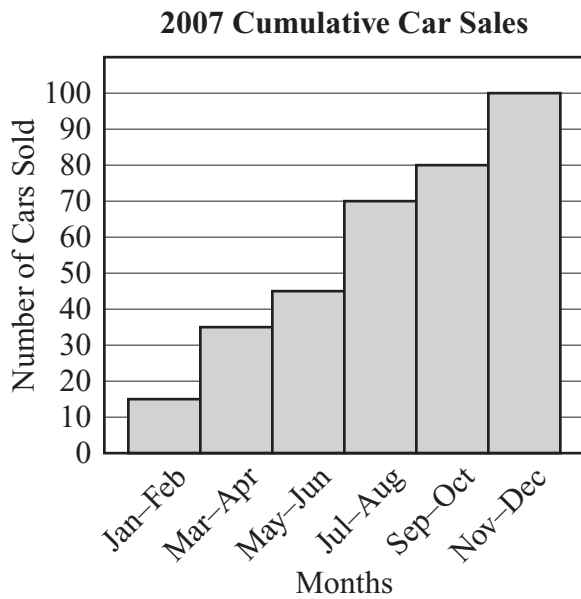


Which point represents the solution set to this system of equations?

- A. $(0, 3.5)$
- B. $(0, 7)$
- * C. $(3, -2)$
- D. $(7, 0)$

PART II RETEST RELEASED ALGEBRA I ITEMS

81. Use the cumulative frequency histograms shown below to answer the question.



Which statement accurately describes the car sales for the two years?

- A. More cars were sold in the months of May and June in 2007 than in 2008.
- B. More cars were sold in the months of July and August in 2008 than in 2007.
- * C. More cars were sold in the months of January through June in 2008 than in 2007.
- D. More cars were sold in the months of January through April in 2007 than in 2008.

82. Avogadro's number is defined as 6.02×10^{23} .
What is 300.0 times Avogadro's number?

- A. 1.81×10^{23}
- * B. 1.81×10^{26}
- C. 18.1×10^{27}
- D. $1,810 \times 10^{29}$

83. Which value, when substituted for x , makes the inequality $|-4x| + 3 < 23$ true?

- A. -5
- * B. 1
- C. 5
- D. 6

PART II RETEST RELEASED ALGEBRA I ITEMS

84. What is the slope of the line that would pass through the points (4, 50) and (6, 75)?

- A. 0.08
- B. 2
- * C. 12.5
- D. 25

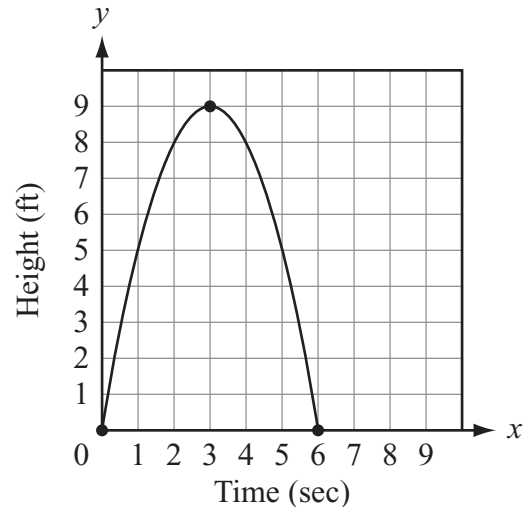
85. Tom has been travelling at a rate of 65 miles per hour for an hour and a half. **Approximately** what percent of his 800 mile trip has he completed?

- A. 2.5%
- * B. 12%
- C. 88%
- D. 97.5%

86. For which value of x is the expression $\frac{x-1}{\sqrt{x}}$ undefined?

- A. $\frac{1}{4}$
- * B. 0
- C. 1
- D. 3

87. The graph below models a ball being launched from the ground into the air.



Which of the following shifts models the ball being thrown into the air from a height of 5 feet?

- * A. up 5 units
- B. left 5 units
- C. right 5 units
- D. down 5 units

PART II RETEST RELEASED ALGEBRA I ITEMS

- 88.** Chris has a bag with 30 marbles. Ten marbles are blue, ten are red, and ten are green. Chris wants to use the red marbles to play a game. He reaches into the bag without looking and selects marbles. If he gets a red one, he keeps it out of the bag. If he selects a blue or green marble, he puts it back. On the first four tries, Chris selects a blue marble, a red marble, and then two green marbles.

Which expression represents the probability of selecting a red marble on the next try?

- A. $\frac{9}{26}$
- * B. $\frac{9}{29}$
- C. $\frac{10}{30}$
- D. $\frac{26}{30}$

- 89.** What is the domain (D) and the range (R) of the ordered pairs below?

$$\{(2, 3), (4, 9), (-1, -3)\}$$

- * A. $D = \{2, 4, -1\}, R = \{3, 9, -3\}$
- B. $D = \{-3, -1, 2\}, R = \{3, 4, 9\}$
- C. $D = \{3, 9, -3\}, R = \{2, 4, -1\}$
- D. $D = \{2, 3, 4\}, R = \{9, -1, -3\}$

- 90.** What is the product of $\sqrt{54}$ and $\sqrt{9}$?

- A. $\sqrt{6}$
- B. $3\sqrt{6}$
- * C. $9\sqrt{6}$
- D. $81\sqrt{6}$

PART II RETEST RELEASED ALGEBRA I ITEMS

- A. Dave has the following quiz grades in his math class:

Dave's Quiz Grades

Quiz #	1	2	3	4	5
Grade	84	74	82	90	80

Dave's teacher is allowing students to retake any one quiz to earn up to 5 more points. Dave can earn the full 5 points on any quiz.

1. Will an increase of 5 points on any of these grades have a greater effect on the mean than an increase of 5 points on one of the others? Explain your answer.
2. By how much will Dave's mean grade change if he earns 10 more points on one of the quizzes? Show your work or explain your answer.

BE SURE TO LABEL YOUR RESPONSES 1 AND 2.

Item A Scoring Rubric—2012 Algebra I

Score	Description
4	The student earns 4 points. The response contains no incorrect work.
3	The student earns 3 points.
2	The student earns 2 points.
1	The student earns 1 point, or some minimal understanding is shown.
0	The student earns 0 points. No understanding is shown.
B	Blank — No Response. A score of "B" will be reported as "NA." (No attempt to answer the item. Score of "0" is assigned for the item.)

PART II RETEST RELEASED ALGEBRA I ITEMS

B. Use the quadratic equation below to answer the following questions.

$$y = x^2 - 2x - 8$$

1. Express the equation in factored form.
2. For which values of x does the equation equal zero?
3. Copy the table below in your answer document. Complete the table.

x	y
-2	
-1	
0	
1	
2	

4. Using the grid provided, sketch a graph of this equation. Use all appropriate graphing techniques.

BE SURE TO LABEL YOUR RESPONSES 1, 2, 3, AND 4.

Item B Scoring Rubric—2012 Algebra I

Score	Description
4	The student earns 5 points. The response contains no incorrect work.
3	The student earns $3\frac{1}{2} - 4\frac{1}{2}$ points.
2	The student earns 2 – 3 points.
1	The student earns $\frac{1}{2} - 1\frac{1}{2}$ points, or some minimal understanding is shown.
0	The student earns 0 points. No understanding is shown.
B	Blank — No Response. A score of “B” will be reported as “NA.” (No attempt to answer the item. Score of “0” is assigned for the item.)

PART II RETEST RELEASED ALGEBRA I ITEMS

SOLUTION AND SCORING

5 points possible:

1	<p>1 point possible:</p> <p>1 point: Correct equation: $y = (x + 2)(x - 4)$</p> <p style="text-align: center;">OR</p> <p>½ point: 2 correct factors: $(x + 2)$ and $(x - 4)$ Give credit for expression '$(x+2)(x-4)$' or expression '$(x-4)(x+2)$'.</p>												
2	<p>1 point possible:</p> <p>1 point: 2 correct values: -2 and 4 (with no incorrect values included) (or correct values based on an incorrectly factored quadratic equation in Part 1)</p> <p style="text-align: center;">OR</p> <p>½ point: 1 correct value (with no incorrect values included)</p>												
3	<p>1 point possible:</p> <p>1 point: Correct and complete table, as shown below: (or correct values based on an incorrect quadratic equation in Part 1) (5 correct values for y.)</p> <div style="text-align: center; margin: 10px 0;"> <table style="margin: auto;"> <thead> <tr> <th style="border-bottom: 1px solid black; padding: 2px;">x</th> <th style="border-bottom: 1px solid black; padding: 2px;">y</th> </tr> </thead> <tbody> <tr><td style="padding: 2px;">-2</td><td style="padding: 2px;">0</td></tr> <tr><td style="padding: 2px;">-1</td><td style="padding: 2px;">-5</td></tr> <tr><td style="padding: 2px;">0</td><td style="padding: 2px;">-8</td></tr> <tr><td style="padding: 2px;">1</td><td style="padding: 2px;">-9</td></tr> <tr><td style="padding: 2px;">2</td><td style="padding: 2px;">-8</td></tr> </tbody> </table> </div> <p style="text-align: center;">OR</p> <p>½ point: Partially correct table with 4 correct values for y</p>	x	y	-2	0	-1	-5	0	-8	1	-9	2	-8
x	y												
-2	0												
-1	-5												
0	-8												
1	-9												
2	-8												

PART II RETEST RELEASED ALGEBRA I ITEMS

Part	Points
4	<p>2 points possible:</p> <p>2 points: Correct and complete parabolic graph, as shown below: Graph may be based on Parts 1,2,3.</p> <div style="text-align: center;"> </div> <p style="text-align: center;">OR</p> <p>1½ points: A partially correct parabolic graph with one error: Ex: Missing arrows on the parabola Ex: One point plotted incorrectly Ex: Inconsistent intervals on <u>one</u> axis</p> <p style="text-align: center;">OR</p> <p>1 point: A partially correct parabolic graph with two errors: Ex: One point plotted incorrectly and inconsistent intervals on one axis.</p> <p style="text-align: center;">or</p> <p>A non-parabolic graph with the Part 3 table points correctly plotted and with the points connected.</p>

PART II RETEST RELEASED ALGEBRA I ITEMS

C. Meg paid \$26.00 for 2 books and 2 games.

Meg's sister paid \$28.00 for 4 books and 1 game.

Each book cost the same amount. Each game cost the same amount.

1. Write two equations that represent the situation stated above. Remember to define your variables.
2. Solve your system of equations from Part 1 using elimination or substitution. Show all of your work or explain how you found your answer.
3. Tyrone wants to buy 3 books and 2 games. What would be the **total** cost? Show all of your work or explain how you found your answer.

BE SURE TO LABEL YOUR RESPONSES 1, 2, AND 3.

Item C Scoring Rubric—2012 Algebra I

Score	Description
4	The student earns 4 points. The response contains no incorrect work. The label of "\$" is included with Part 3 answer.
3	The student earns 3 – 3½ points.
2	The student earns 2 – 2½ points.
1	The student earns ½ – 1½ points, or some minimal understanding is shown.
0	The student earns 0 points. No understanding is shown.
B	Blank — No Response. A score of "B" will be reported as "NA." (No attempt to answer the item. Score of "0" is assigned for the item.)