Do NOT Affix Student ID Label Here

A

Student Name _____

School Name _____

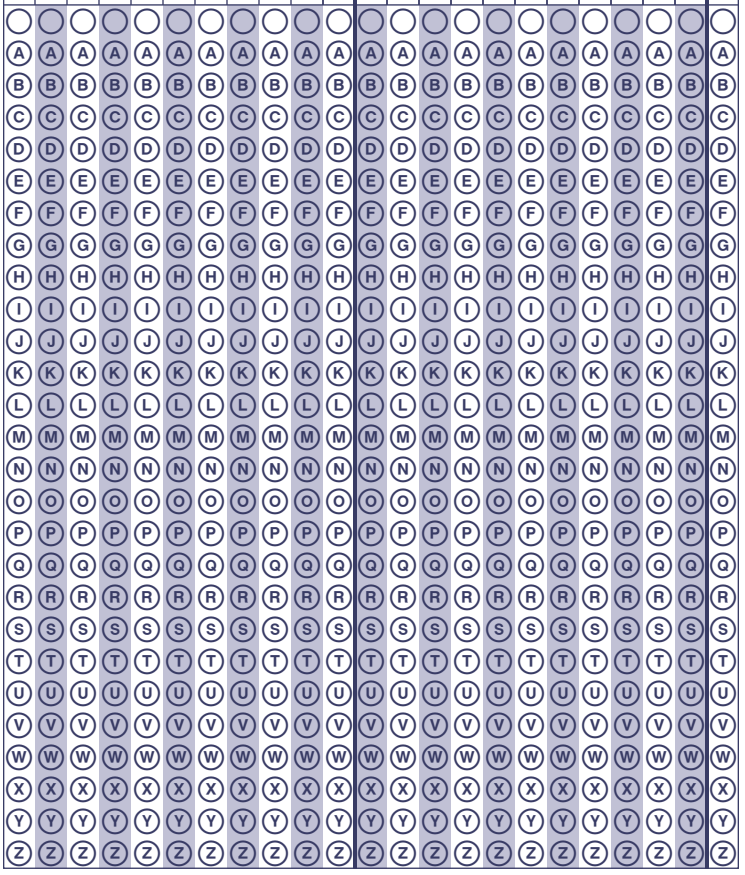
District Name/LEA _____

PARCC

Algebra I

End-of-Year Assessment Practice Test

B Last Name | First Name | MI



C

Place the Student ID Label Here

D Gender

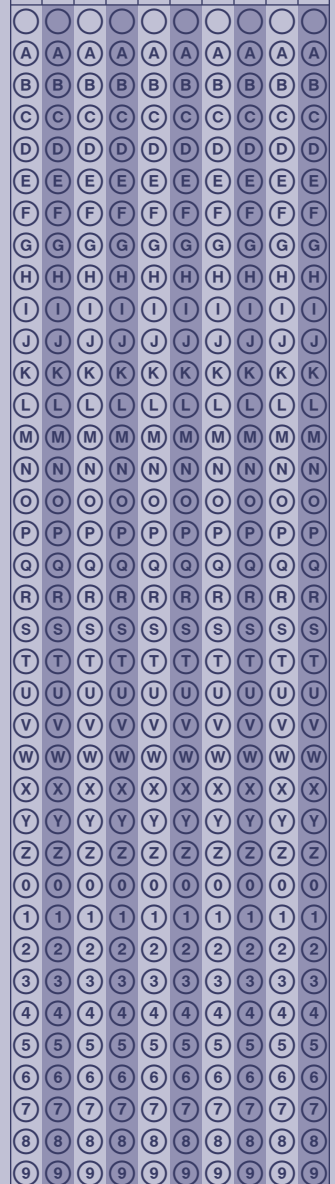
○ Female ○ Male

E Date of Birth

Day		Month	Year			
0	0	○ Jan		0	0	0
1	1	○ Feb	1		1	1
2	2	○ Mar	2		2	2
3	3	○ Apr			3	3
	4	○ May			4	4
	5	○ Jun			5	5
	6	○ Jul			6	6
	7	○ Aug			7	7
	8	○ Sep			8	8
	9	○ Oct		9	9	9
		○ Nov				
		○ Dec				

School Use Only

F State Student Identifier



Unit 1

Directions:

Today, you will be taking Unit 1 of the Algebra I End-of-Year Assessment Practice Test.

Read each question carefully. Some questions will ask you to choose one correct answer, while others will ask you to choose more than one correct answer. Mark your answers by filling in the circles in your test booklet for the answers you choose.

Do not make any stray marks in your test booklet. If you need to change an answer in your test booklet, be sure to erase your first answer completely.

Calculator Directions:

In the first section of this unit, you may not use a calculator. You will not be allowed to return to the non-calculator section of the test after you have started the calculator section of the test.

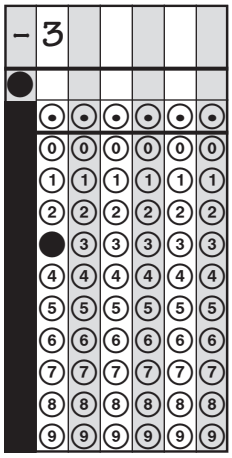
If you do not know the answer to a question, skip it and go on. If you finish the non-calculator section of Unit 1 early, you may review your answers and any questions you may have skipped in the non-calculator section ONLY.

Do NOT go on to the calculator section in Unit 1 until directed to do so.

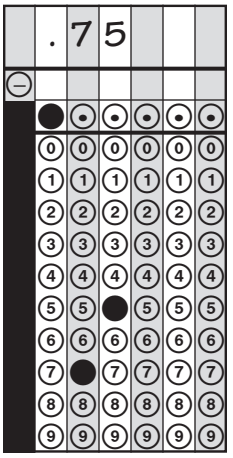
Directions for Completing the Answer Grids

1. Work the problem and find an answer.
2. Write your answer in the boxes at the top of the grid.
   - Print only one digit or symbol in each box. You may not need all the boxes to enter an answer, but do not leave a blank box in the middle of an answer.
3. Under each box in which you wrote your answer, fill in the bubble that matches the number or symbol you wrote above.
   - Fill in one and ONLY one bubble for each box. Do not fill in a bubble under an unused box.
   - Fill in each bubble by making a solid mark that completely fills the circle.
   - Fractions cannot be entered into an Answer Grid and will not be scored. Enter fractions as decimals.
4. See below for examples on how to correctly complete an answer grid.

To answer −3 in a question, fill in the answer grid as follows:



To answer .75 in a question, fill in the answer grid as follows:



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Unit 1 - Section 1 (Non-Calculator)

This unit has two sections: a non-calculator and a calculator section.

You will now take the first section of this unit in which you may not use a calculator. You will not be allowed to return to the non-calculator section of the test after you have started the calculator section. You will need to finish both sections within the allotted testing time.

Once you finish the non-calculator section, read the directions in your test booklet on how to continue.

1. The cost to manufacture x pairs of sunglasses can be represented by a function, $C(x)$. If it costs \$398 to manufacture 4 pairs of sunglasses, which of the following is true?

Select the correct equation.

Ⓐ $C(4) = 99.50$

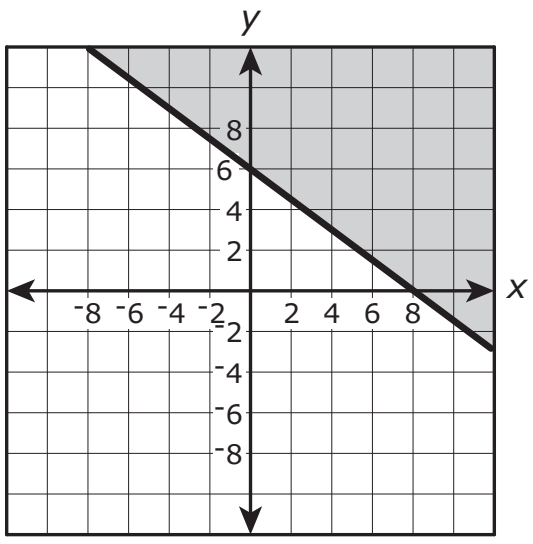
Ⓑ $C(398) = 4$

Ⓒ $C(4) = 398$

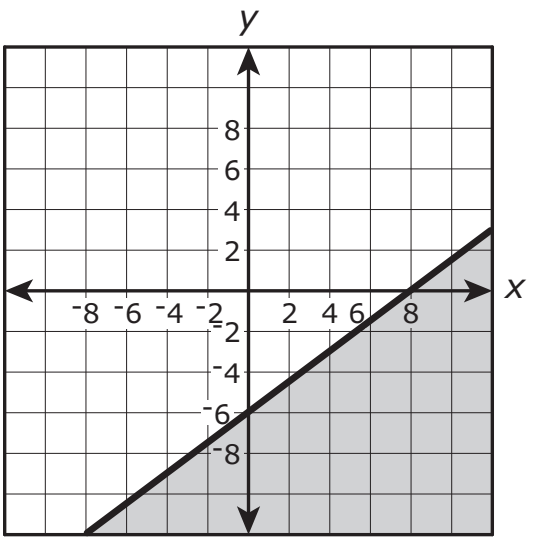
Ⓓ $C(99.50) = 1$

2. Which is a graph of the solution set of the inequality $3x - 4y \leq 24$?

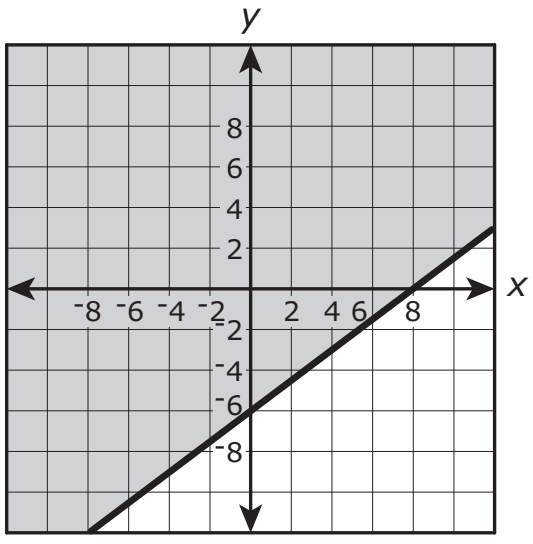
Ⓐ



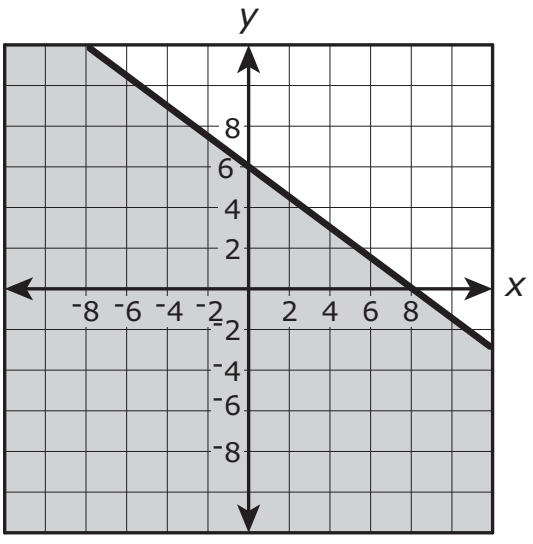
Ⓑ



Ⓒ

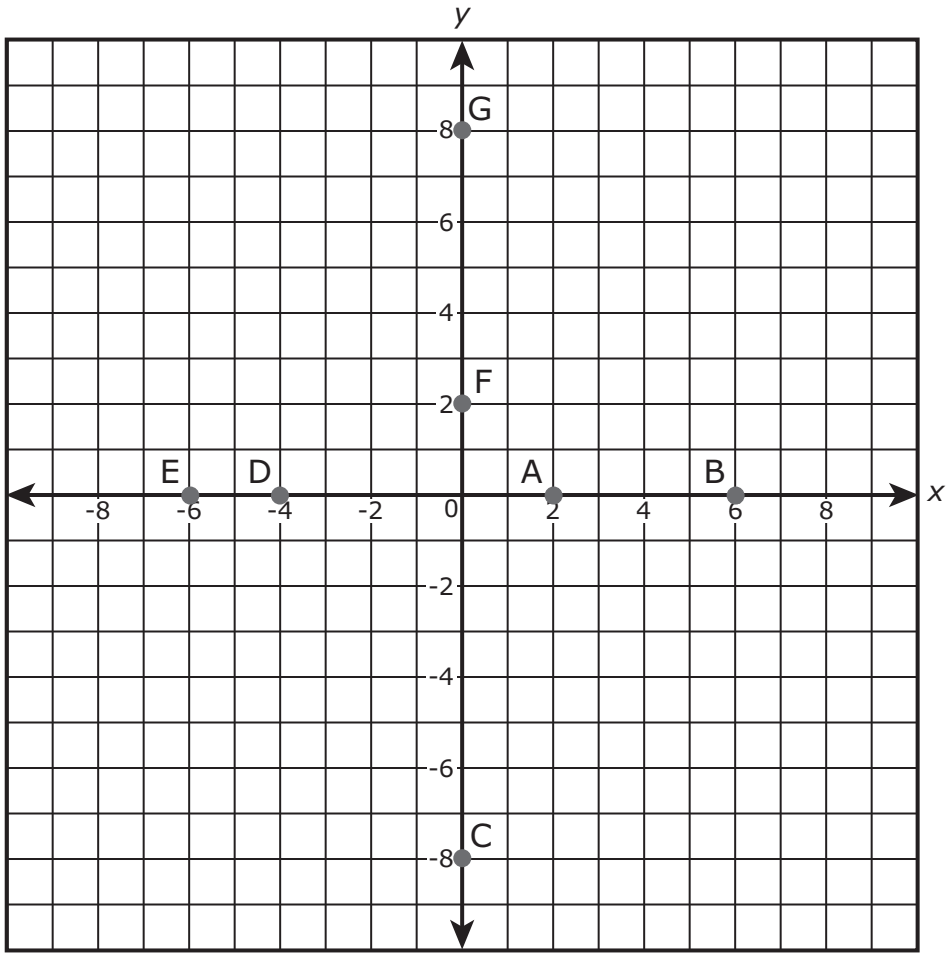


Ⓓ



GO ON ▶

3. Several points are plotted on the graph.



Which of the plotted points on the graph represent the zeros of the function $f(x) = (x^2 + 2x - 8)(x - 6)$? Select **all** that apply.

Ⓐ (2, 0)

Ⓑ (6, 0)

Ⓒ (0, −8)

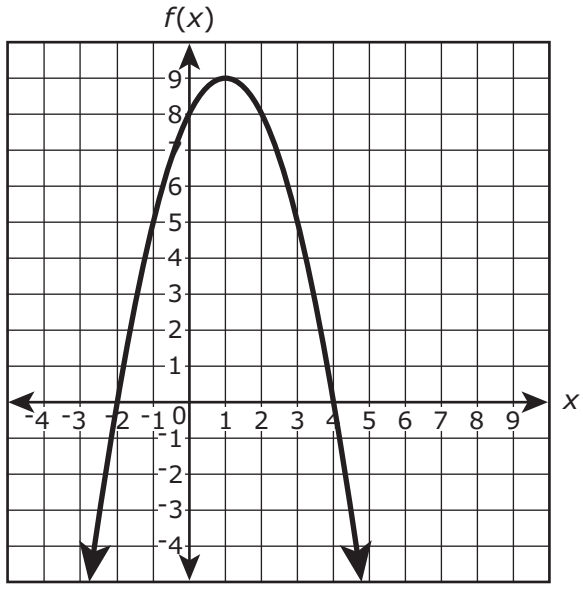
Ⓓ (−4, 0)

Ⓔ (−6, 0)

Ⓕ (0, 2)

Ⓖ (0, 8)

4. The figure shows a graph of the function of $f(x)$ in the xy-coordinate plane, with the vertex at $(1, 9)$ and the zeros at -2 and 4.



The function g is defined by $g(x) = -3x + 2$.

Which statements are true? Select **all** that apply.

Ⓐ $f(-2)$ is greater than $g(-2)$.

Ⓑ $f(-1)$ is less than $g(-1)$.

Ⓒ $f(0)$ is greater than $g(0)$.

Ⓓ $f(1)$ is less than $g(1)$.

Ⓔ $f(2)$ is greater than $g(2)$.

Use the information provided to answer Part A and Part B for question 5.

Consider the equation $(x^2 + 3)^2 + 21 = 10x^2 + 30$.

5. Part A

Let $u = x^2 + 3$. Which equation is equivalent to $(x^2 + 3)^2 + 21 = 10x^2 + 30$ in terms of u?

Ⓐ $u^2 + 10u + 51 = 0$

Ⓑ $u^2 - 10u + 51 = 0$

Ⓒ $u^2 + 10u + 21 = 0$

Ⓓ $u^2 - 10u + 21 = 0$

Part B

What are the solutions of the equation $(x^2 + 3)^2 + 21 = 10x^2 + 30$?

Select **all** that apply.

Ⓐ -4

Ⓑ -3

Ⓒ -2

Ⓓ 0

Ⓔ 2

Ⓕ 3

Ⓖ 4

6. In the xy-coordinate plane, the graph of the equation $y = 3x^2 - 12x - 36$ has zeros at $x = a$ and $x = b$, where $a < b$. The graph has a minimum at $(c, -48)$. What are the values of a, b, and c ?

Ⓐ $a = 2$, $b = 4$, $c = 2$

Ⓑ $a = -2$, $b = 6$, $c = 2$

Ⓒ $a = -3$, $b = 3$, $c = 0$

Ⓓ $a = 3$, $b = 6$, $c = 2$

Use the information provided to answer Part A and Part B for question 7.

Let a represent a non-zero rational number and let b represent an irrational number.

7. Part A

Which expression could represent a rational number?

Ⓐ $-b$

Ⓑ $a + b$

Ⓒ ab

Ⓓ b^2

Part B

Consider a quadratic equation with integer coefficients and two distinct zeros. If one zero is irrational, which statement is true about the other zero?

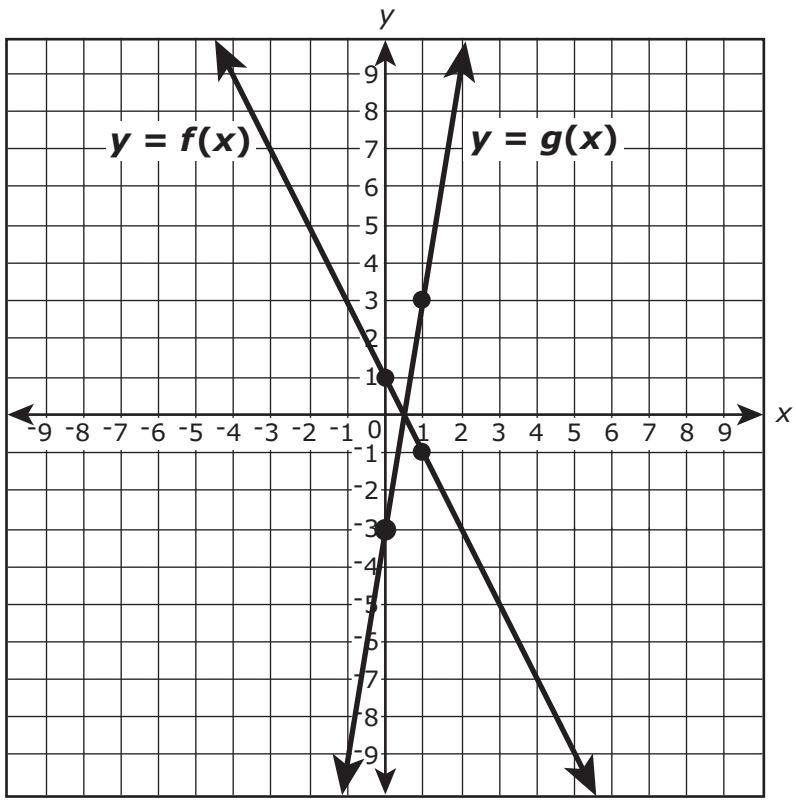
Ⓐ The other zero must be rational.

Ⓑ The other zero must be irrational.

Ⓒ The other zero can be either rational or irrational.

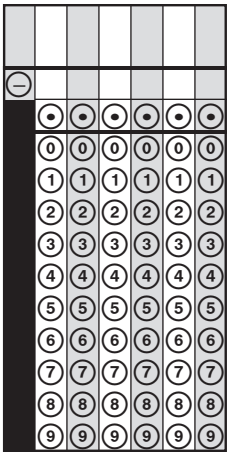
Ⓓ The other zero must be non-real.

8. The figure shows the graphs of the functions $y = f(x)$ and $y = g(x)$. The four indicated points all have integer coordinates.

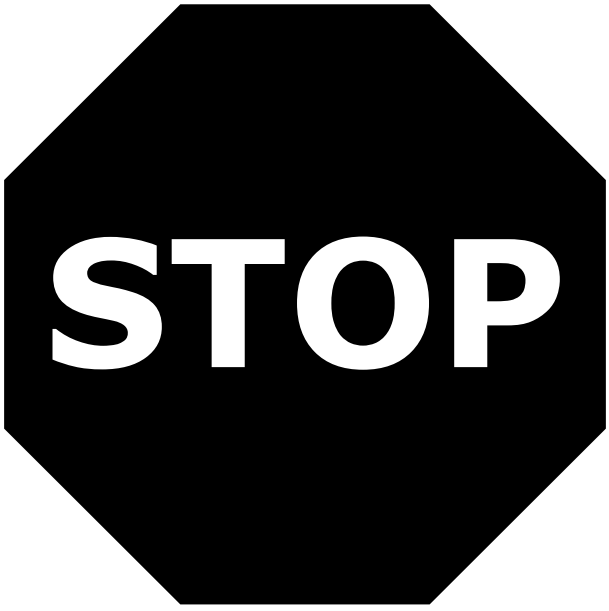


If $g(x) = k \cdot f(x)$, what is the value of k?

Enter your answer in the box.



STOP



You have come to the end of the non-calculator section in Unit 1 of the test.

- **If you have time, review your answers in the non-calculator section ONLY. You will not be allowed to return to the non-calculator section once you have received your calculator.**
- **Then, raise your hand to receive your calculator before going on to the calculator section.**

Unit 1 - Section 2 (Calculator)

Once you have received your calculator, continue with the calculator section.

GO ON ▶

9. Elephant Population Estimates—Namibia

Combined estimates for Etosha National Park and the Northwestern Population

Year	Base Year	Estimated Number of Elephants
1998	3	3,218
2000	5	3,628
2002	7	3,721
2004	9	3,571

The elephant population in northwestern Namibia and Etosha National Park can be predicted by the expression $2{,}649(1.045)^{b}$, where b is the number of years since 1995.

What does the value 2,649 represent?

Ⓐ the predicted increase in the number of elephants in the region each year

Ⓑ the predicted number of elephants in the region in 1995

Ⓒ the year when the elephant population is predicted to stop increasing

Ⓓ the percentage the elephant population is predicted to increase each year

10. Jerome is constructing a table of values that satisfies the definition of a function.

Input	–13	20	0	–4	11	–1	17	
Output	–15	–11	–9	–2	–1	5	5	13

Which number(s) can be placed in the empty cell so that the table of values satisfies the definition of a function?

Select **all** that apply.

Ⓐ –5

Ⓑ –1

Ⓒ 0

Ⓓ 2

Ⓔ 11

Ⓕ 17

11. A random sample of 200 teenagers participated in a taste test. Each teenager sampled four choices of fruit drink (labeled A, B, C, and D), and then were asked to pick a favorite. The table shows the results of this taste test.

	A	B	C	D	Total
Boys	45	25	30	20	120
Girls	25	10	30	15	80
Total	70	35	60	35	200

Based on the information given, which of the given statements are true?

Select **all** that apply.

Ⓐ 40% of the participants were girls.

Ⓑ 70% of the participants preferred A.

Ⓒ $\frac{20}{120}$ of the boys preferred D.

Ⓓ $\frac{10}{35}$ of the participants who preferred B were girls.

Ⓔ The proportion of boys who preferred C is equal to the proportion of girls who preferred C.

12. The expression $3x^2 - 33x - 180$ can be factored into the form $a(x + b)(x + c)$, where a, b, and c are constants, to reveal the zeros of the function defined by the expression. What are the zeros of the function defined by $3x^2 - 33x - 180$?

Select **all** that apply.

Ⓐ -15

Ⓑ -10

Ⓒ -6

Ⓓ -4

Ⓔ 4

Ⓕ 6

Ⓖ 10

Ⓗ 15

13. Find the equation that is equivalent to the quadratic equation shown.

$$x^2 - 6x - 27 = 0$$

Ⓐ $x(x - 3) = 27$

Ⓑ $(x - 6)^2 = 63$

Ⓒ $(x - 3)^2 = 36$

Ⓓ $(x - 3)^2 = 28$

14. A ball was thrown upward into the air. The height, in feet, of the ball above the ground t seconds after being thrown can be determined by the expression $-16t^2 + 40t + 3$. What is the meaning of the 3 in the expression?

Ⓐ The ball took 3 seconds to reach its maximum height.

Ⓑ The ball took 3 seconds to reach the ground.

Ⓒ The ball was thrown from a height of 3 feet.

Ⓓ The ball reached a maximum height of 3 feet.

15. A local theater sells admission tickets for $9.00 on Thursday nights. At capacity, the theater holds 100 customers. The function $M(n) = 9n$ represents the amount of money the theater takes in on Thursday nights, where n is the number of customers. What is the domain of $M(n)$ in this context?

Ⓐ all whole numbers

Ⓑ all non-negative rational numbers

Ⓒ all non-negative integers that are multiples of 9

Ⓓ all non-negative integers less than or equal to 100

16. Caroline knows the height and the required volume of a cone-shaped vase she's designing. Which formula can she use to determine the radius of the vase?

Ⓐ $r = \sqrt{\frac{V}{3\pi h}}$

Ⓑ $r = \sqrt{\frac{3V}{\pi h}}$

Ⓒ $r = \frac{\sqrt{3V}}{\pi h}$

Ⓓ $r = \pm\sqrt{\frac{3V}{\pi h}}$

17. An expression is shown.

$$-3a(a + b - 5) + 4(-2a + 2b) + b(a + 3b - 7)$$

Which expression is equivalent to the expression shown?

Ⓐ $-11a^2 + 3b^2 - 2ab + 7a + b$

Ⓑ $-11a^2 + 3b^2 - 4ab + 7a + b$

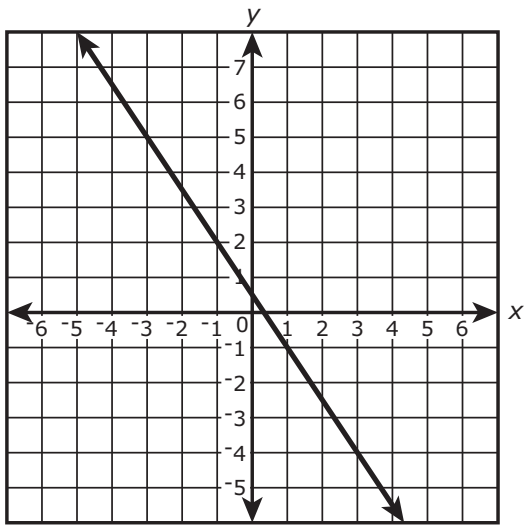
Ⓒ $-3a^2 + 3b^2 - 2ab + 7a + b$

Ⓓ $-3a^2 + 3b^2 - 4ab + 7a + b$

18. The ordered pairs (20, −29.5), (21, −31), and (22, −32.5) are points on the graph of a linear equation.

Which of the following graphs shows **all** of the ordered pairs in the solution set of this linear equation?

Ⓐ



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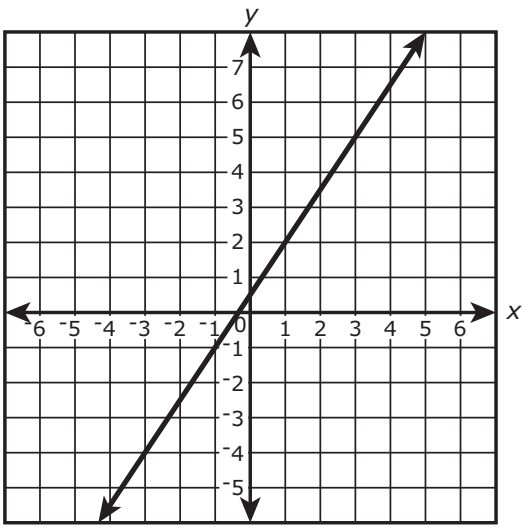
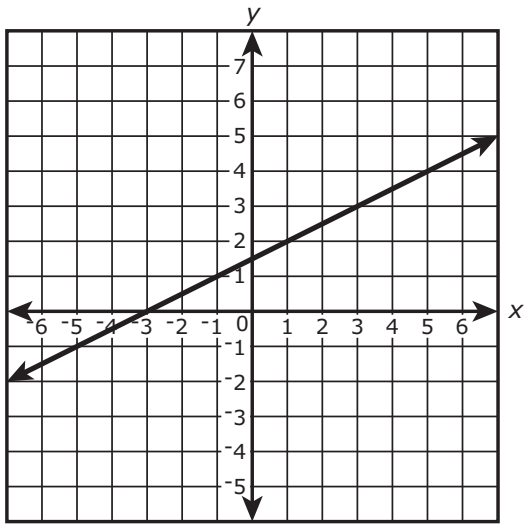
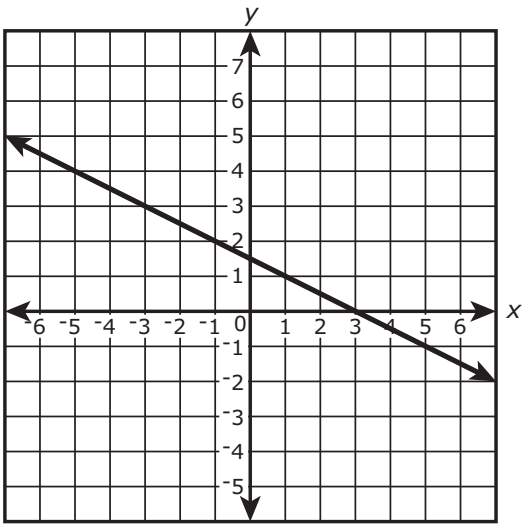


Ⓒ



Ⓓ



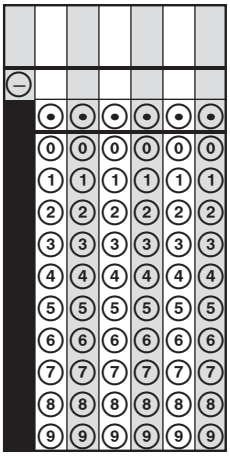
19.

$$y = x^2 - 2x - 5$$

$$y = x^3 - 2x^2 - 5x - 9$$

When the solutions to each of the two equations shown are graphed in the *xy*-coordinate plane, the graphs of the solutions intersect at a point. What is the *y*-coordinate of the point of intersection?

Enter your answer in the box.



20. A certain type of lily plant is growing in a pond in such a way that the number of plants is growing exponentially. The number of plants, N, in the pond at time t is modeled by the function $N(t) = ab^t$, where a and b are constants and t is measured in months. The table shows two values of the function.

t	$N(t)$
0	150
1	450

Which equation can be used to find the number of plants in the pond at time t?

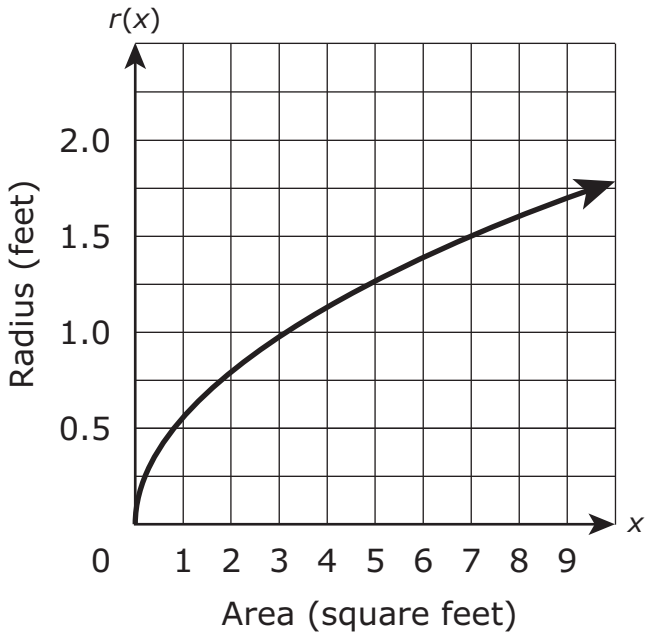
Ⓐ $N(t) = 150(1)^t$

Ⓑ $N(t) = 450(1)^t$

Ⓒ $N(t) = 150(3)^t$

Ⓓ $N(t) = 450(3)^t$

21. The function $r(x)$ represents the radius of a circle for a given area, x. A graph of the function is shown in the figure.



According to the graph, what is the approximate average rate of change in the radius of the circle as the area increases from 3 square feet to 7 square feet?

Ⓐ 0.125 foot per square foot

Ⓑ 0.25 foot per square foot

Ⓒ 0.5 foot per square foot

Ⓓ 8 feet per square foot

22. If $f(x) = 2x^2 - 8x + 9$, which statement regarding the vertex form of $f(x)$ is true?

Ⓐ In vertex form, $f(x) = 2(x - 2)^2 + 1$ and therefore has a minimum value of 1.

Ⓑ In vertex form, $f(x) = 2(x - 2)^2 + 1$ and therefore has a minimum value of -2.

Ⓒ In vertex form, $f(x) = 2(x - 2)^2 + 4.5$ and therefore has a minimum value of 4.5.

Ⓓ In vertex form, $f(x) = 2(x - 2)^2 + 4.5$ and therefore has a minimum value of -2.

23. In the equations listed, a, b, c, and d are real numbers. Which of the equations could have solutions that are non-real?

Select **all** that apply.

Ⓐ $ax^2 = b$

Ⓑ $ax^2 + bx = 0$

Ⓒ $ax^2 + bx + c = 0$

Ⓓ $(ax + b)(cx + d) = 0$

Ⓔ $a(bx + c)^2 = d$

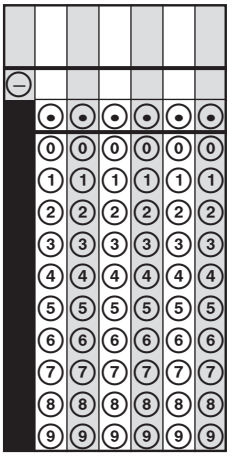
Use the information provided to answer Part A and Part B for question 24.

During the 1st day of a canned-goods drive, Jasmine's homeroom teacher collected 2 cans. During the 3rd day, the teacher collected 8 cans. Let *D* represent each collection day, and let *N* represent the number of canned goods collected on that day.

24. Part A

Based on the situation, Jasmine claims that the number of canned goods collected can be modeled by an exponential function. What is the number of canned goods collected on the 6th day based on an exponential model?

Enter your answer in the box.



Part B

Ramon disagrees with Jasmine and claims that the number of canned goods collected can be modeled by a linear function.

Which statement is true about the number of cans predicted to be collected on the 6th day based on the two models?

Ⓐ The number of cans predicted to be collected on the 6th day using a linear model is greater than that predicted using an exponential model.

Ⓑ The number of cans predicted to be collected on the 6th day using a linear model is less than that predicted using an exponential model.

Ⓒ The number of cans predicted to be collected on the 6th day using a linear model is equal to that predicted using an exponential model.

Ⓓ There is not enough information to determine the relationship between the number of cans predicted to be collected on the 6th day using a linear model and that predicted using an exponential model.

Use the information provided to answer Part A and Part B for question 25.

In a basketball game, Marlene made 16 field goals. Each of the field goals were worth either 2 points or 3 points, and Marlene scored a total of 39 points from field goals.

25. Part A

Let x represent the number of 2-point field goals and y represent the number of 3-point field goals. Which equations can be used as a system to model the situation?

Select **all** that apply.

Ⓐ $x + y = 16$

Ⓑ $x + y = 39$

Ⓒ $2x + 3y = 16$

Ⓓ $2x + 3y = 39$

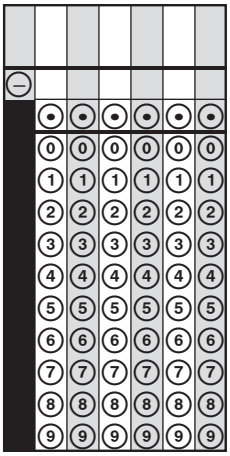
Ⓔ $3x + 2y = 16$

Ⓕ $3x + 2y = 39$

Part B

How many 3-point field goals did Marlene make in the game?

Enter your answer in the box.



Use the information provided to answer Part A and Part B for question 26.

Rachel manages a souvenir store. A popular item at the store is a small drum. The store typically sells 1,000 of these drums per month for $10 each. Rachel knows that for each $1 increase in the price of the drum, 20 fewer drums would be sold in a month.

26. Part A

What is a function for the monthly revenue, in dollars, from sales of the drum, $R(x)$, where x represents the number of price increases of $1? Monthly revenue equals the number of drums sold times the price of each drum.

Ⓐ $R(x) = (1{,}000 - x)(10 + 20x)$

Ⓑ $R(x) = (1{,}000 + 20x)(10 - x)$

Ⓒ $R(x) = (1{,}000 + x)(10 - 20x)$

Ⓓ $R(x) = (1{,}000 - 20x)(10 + x)$

Part B

Which statements are true about R, the monthly revenue from sales of the small drum?

Select **all** that apply.

Ⓐ To maximize revenue, the drum should be sold for $20.

Ⓑ To maximize revenue, the drum should be sold for $30.

Ⓒ To maximize revenue, the drum should have a price increase of $20.

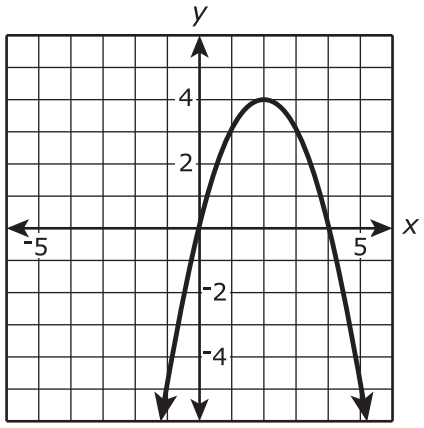
Ⓓ The revenue is the same for a price increase of $10 and a price increase of $30.

Ⓔ The amount of revenue from the sales of the drum is 60% greater with a price increase of $5.

Ⓕ The maximum revenue is $8,000 more than the revenue from selling the drum with no price increase.

Use the information provided to answer Part A and Part B for question 27.

The function $f(x) = 4x - x^2$ is graphed in the xy-coordinate plane as shown.



27. Part A

Based on the graph of the function, which statements are true?

Select **all** that apply.

Ⓐ f is increasing on the interval $x < 0$.

Ⓑ f is decreasing on the interval $x < 0$.

Ⓒ f is increasing on the interval $0 < x < 2$.

Ⓓ f is decreasing on the interval $0 < x < 2$.

Ⓔ f is increasing on the interval $2 < x < 4$.

Ⓕ f is decreasing on the interval $2 < x < 4$.

Ⓖ f is increasing on the interval $x > 4$.

Ⓗ f is decreasing on the interval $x > 4$.

Part B

Based on the graph of the function, which statements are true?

Select **all** that apply.

Ⓐ $f(x) < 0$ on the interval $x < 0$.

Ⓑ $f(x) > 0$ on the interval $x < 0$.

Ⓒ $f(x) < 0$ on the interval $0 < x < 2$.

Ⓓ $f(x) > 0$ on the interval $0 < x < 2$.

Ⓔ $f(x) < 0$ on the interval $2 < x < 4$.

Ⓕ $f(x) > 0$ on the interval $2 < x < 4$.

Ⓖ $f(x) < 0$ on the interval $x > 4$.

Ⓗ $f(x) > 0$ on the interval $x > 4$.

Use the information provided to answer Part A and Part B for question 28.

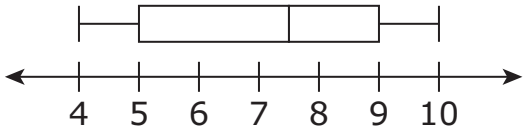
Members of two cross-country teams ran an obstacle course. The table shows the times, in minutes and seconds, for the members of team R to complete the course.

Team R Obstacle Course Times

5:32	6:48	4:25	8:05	7:23
5:37	5:12	6:26	5:31	4:43
6:08	7:16	5:52	5:21	6:53
4:49	5:02	6:33	5:54	6:20

The obstacle course times, in minutes and seconds, for team S are summarized in the box plot shown.

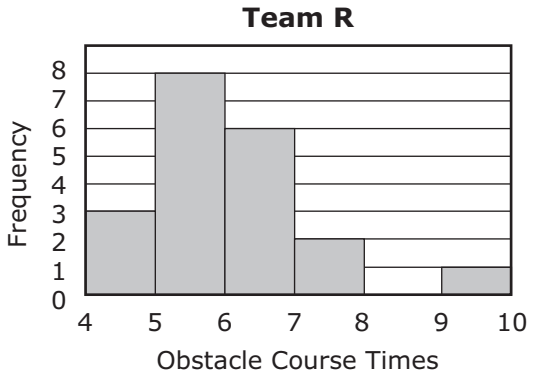
Team S Obstacle Course Times



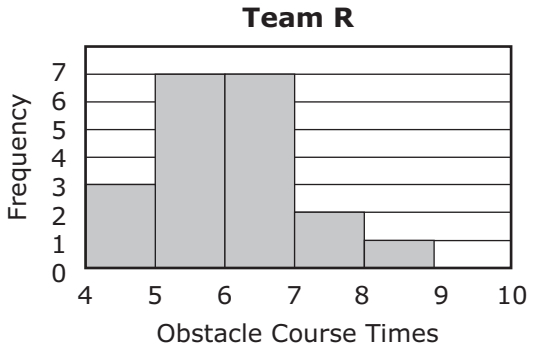
28. Part A

Which histogram represents the times from Team R on the obstacle course?

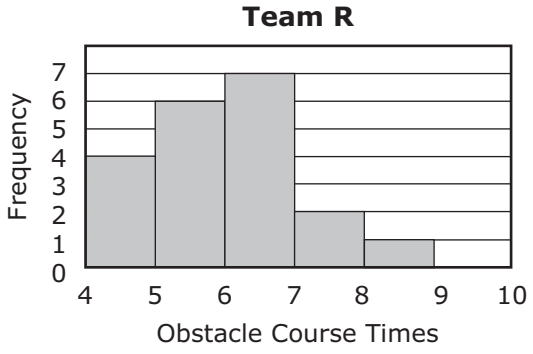
Ⓐ



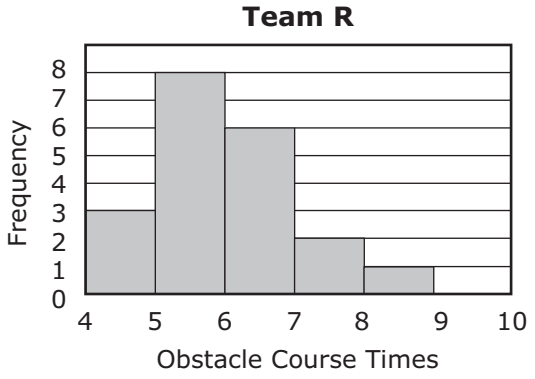
Ⓑ



Ⓒ



Ⓓ



Part B

Which statements are true about the data for team R and team S?

Select **all** that apply.

Ⓐ The median time of team R is less than the median time of team S.

Ⓑ The median time of team R is greater than the median time of team S.

Ⓒ The interquartile range of team R is less than the interquartile range of team S.

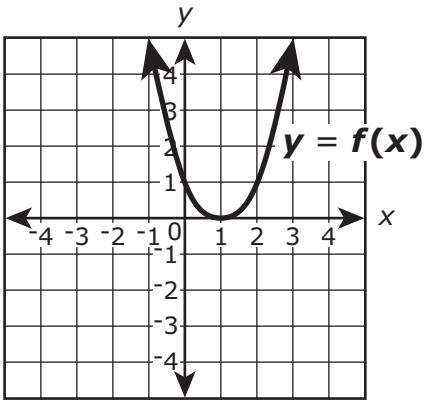
Ⓓ The interquartile range of team R is equal to the interquartile range of team S.

Ⓔ The data for team R is skewed to the left.

Ⓕ The data for team S includes an outlier.

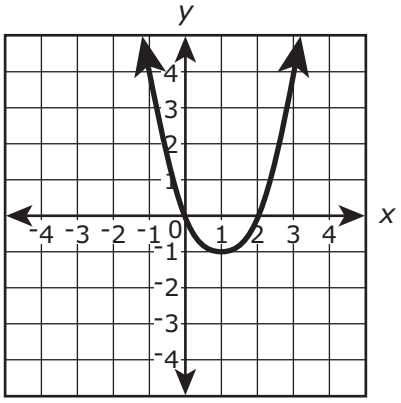
Use the information provided to answer Part A through Part D for question 29.

Consider the function $f(x)$, shown in the xy-coordinate plane, as the parent function.



29. Part A

The graph of a transformation of the function $f(x)$ is shown.



Which expression defines the transformation shown?

Ⓐ $f(x + 0) - 1$

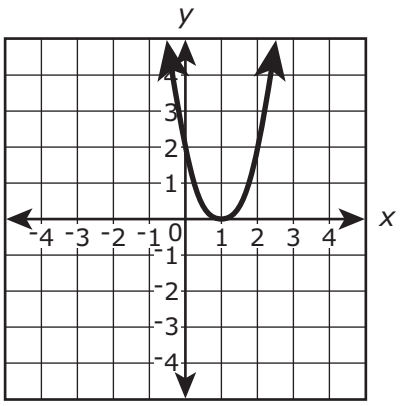
Ⓑ $f(x + 0) + 1$

Ⓒ $f(x - 1) + 0$

Ⓓ $f(x + 1) + 0$

Part B

The graph of a transformation of the function $f(x)$ is shown.



Which expression defines the transformation shown?

Ⓐ $\frac{1}{2}f(x + 0) + 0$

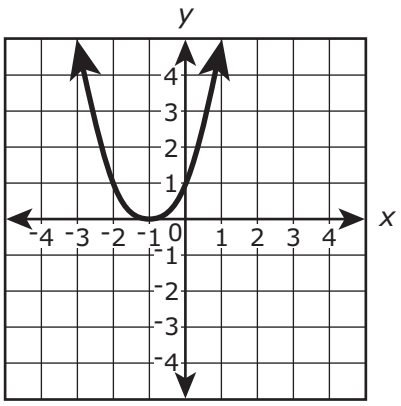
Ⓑ $2f(x + 0) + 0$

Ⓒ $\frac{1}{2}f(x - 1) - 1$

Ⓓ $2f(x + 1) - 0$

Part C

The graph of a transformation of the function $f(x)$ is shown.



Which expression defines the transformation shown?

Ⓐ $f(x) - 2$

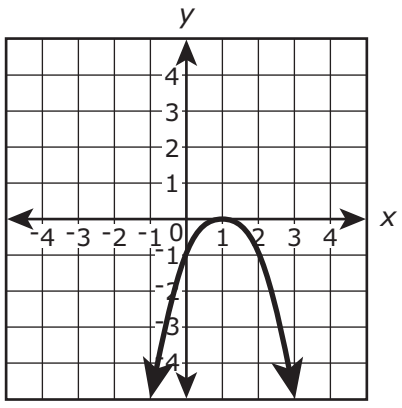
Ⓑ $f(x - 2) + 0$

Ⓒ $f(x) + 2$

Ⓓ $f(x + 2) + 0$

Part D

The graph of a transformation of the function $f(x)$ is shown.



The transformation shown can be expressed in the form $y = p\left[f(x + r)\right] + n$, where p, r, and n are constants. Which value must be less than 0?

Ⓐ p

Ⓑ r

Ⓒ x

Ⓓ n

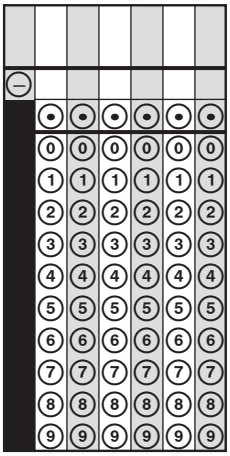
Use the information provided to answer Part A through Part D for question 30.

The population of a city in 2005 was 36,000. By 2010, the city's population had grown to 43,800 people.

30. Part A

Assuming that the population of the city has grown linearly since 2005 and continues to grow at the same rate, what will be the population in 2015?

Enter your answer in the box.



Part B

Which expression is an appropriate exponential model for the population of the city? Let t represent the time, in years, since 2005.

Ⓐ $36{,}000(1.04)^{t}$

Ⓑ $36{,}000(1.04)^{5t}$

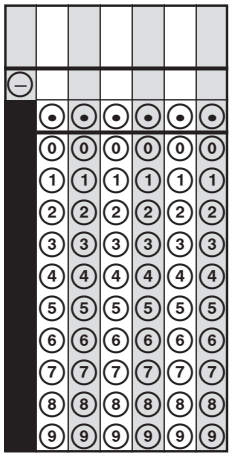
Ⓒ $36{,}000(1.217)^{t}$

Ⓓ $36{,}000(1.217)^{5t}$

Part C

Assuming that the population of the city has grown exponentially since 2005 and continues to grow at the same rate, what will be the population in 2015? Give your answer to the nearest whole number.

Enter your answer in the box.



Part D

Another town's population could be modeled by the function $P(t) = 27{,}400(1.66)^{\frac{t}{10}}$, where P represents the population and t represents the time, in years, since 2005. Based on the model, by approximately what percent does the population of this town increase each year?

Ⓐ 1

Ⓑ 3

Ⓒ 5

Ⓓ 7

Use the information provided to answer Part A and Part B for question 31.

The area, A, in square feet, of a rectangular storage bin in a warehouse is given by the function $A(x) = -2x^2 + 36x$, where x is the width, in feet, of the storage bin.

31. Part A

If the function is graphed in a coordinate plane, which statement would be true?

Ⓐ The x-intercepts of the function are 0 and 8, which are a lower bound and an upper bound for the possible values of the length of the storage bin.

Ⓑ The x-intercepts of the function are 0 and 8, which are a lower bound and an upper bound for the possible values of the width of the storage bin.

Ⓒ The x-intercepts of the function are 0 and 18, which are a lower bound and an upper bound for the possible values of the length of the storage bin.

Ⓓ The x-intercepts of the function are 0 and 18, which are a lower bound and an upper bound for the possible values of the width of the storage bin.

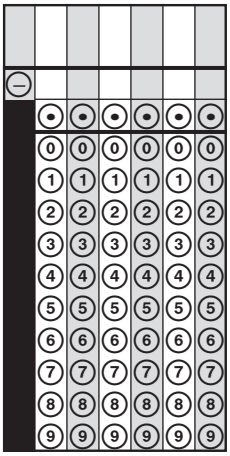
Part B

The process of completing the square can be used to calculate the width, in feet, of the storage bin that gives a maximum area. What is the missing value?

$A = -2x^2 + 36x$

$A = -2(x - 9)^2 + ?$

Enter your answer in the box.



Use the information provided to answer Part A and Part B for question 32.

Consider the function $f(x) = 2x^2 + 6x - 8$.

32. Part A

What is the vertex form of $f(x)$?

Ⓐ $f(x) = 2(x - 3)^2 - 4$

Ⓑ $f(x) = 2(x + 3)^2 - 4$

Ⓒ $f(x) = 2(x - 1.5)^2 - 12.5$

Ⓓ $f(x) = 2(x + 1.5)^2 - 12.5$

Part B

What is a factored form of $f(x)$?

Ⓐ $f(x) = (2x + 1)(x - 8)$

Ⓑ $f(x) = (2x - 1)(x + 8)$

Ⓒ $f(x) = 2(x + 4)(x - 1)$

Ⓓ $f(x) = 2(x - 4)(x + 1)$

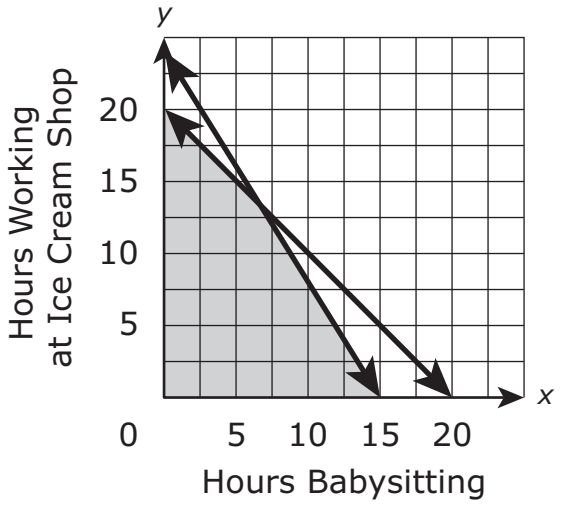
Use the information provided to answer Part A through Part D for question 33.

Leah would like to earn at least $120 per month. She babysits for $5 per hour and works at an ice cream shop for $8 per hour. Leah cannot work more than a total of 20 hours per month. Let x represent the number of hours Leah babysits and let y represent the number of hours Leah works at the ice cream shop.

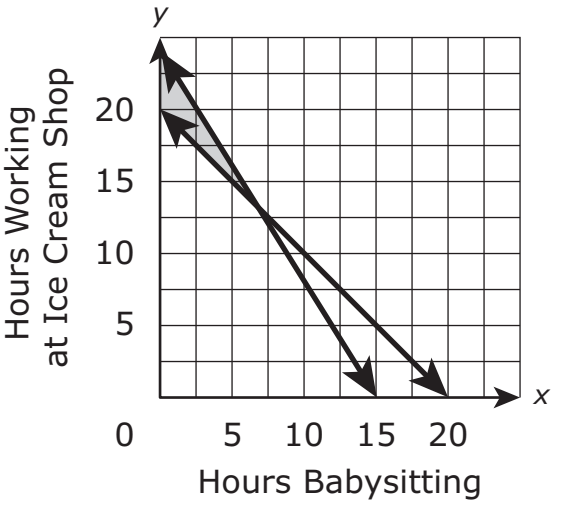
33. Part A

Which graph shows the set of points that represents the number of hours that Leah can work in order to earn at least $120 and not work more than 20 hours per month?

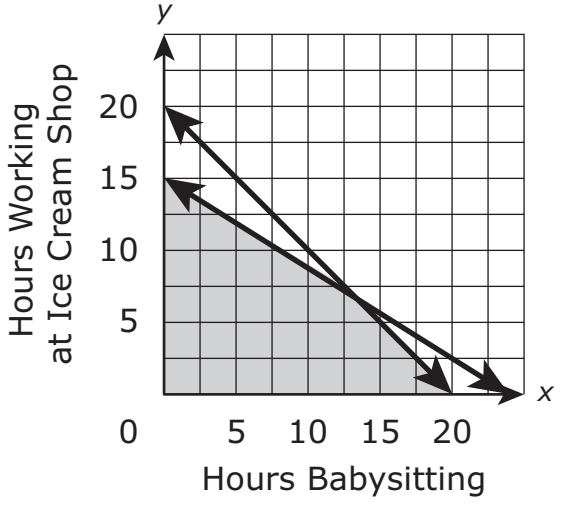
Ⓐ



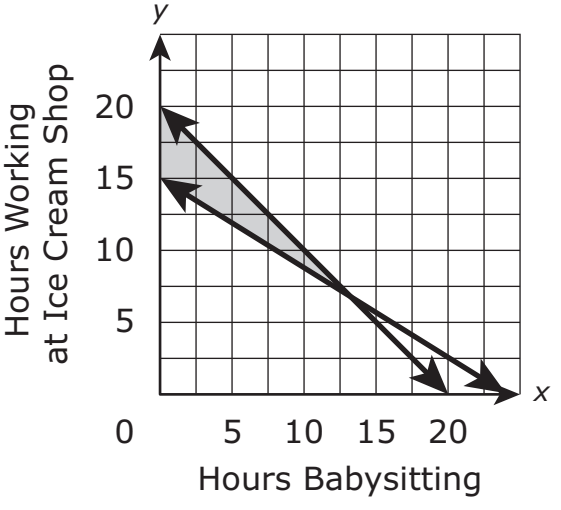
Ⓑ



Ⓒ



Ⓓ



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Part B

Which pairs (x, y) represent hours that Leah could work to meet the given conditions?

Select **all** that apply.

Ⓐ (4, 15)

Ⓑ (5, 12)

Ⓒ (10, 9)

Ⓓ (15, 5)

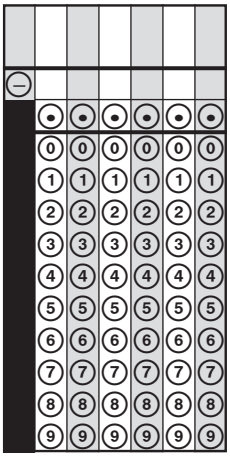
Ⓔ (19, 1)

Part C

If Leah babysits for 7 hours this month, what is the minimum number of hours she would have to work at the ice cream shop to earn at least $120?

Give your answer to the nearest whole hour.

Enter your answer in the box.

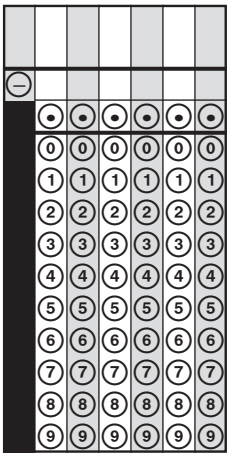


Part D

Leah prefers babysitting over working at the ice cream shop. Out of 20 total hours, what is the maximum number of hours she can babysit to be able to earn at least $120 per month?

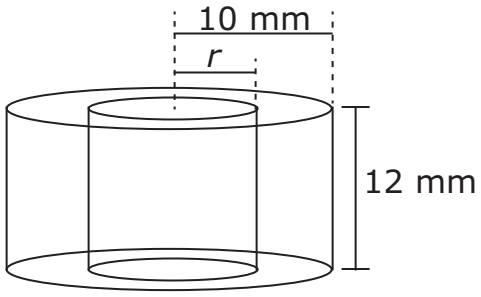
Give your answer to the nearest whole hour.

Enter your answer in the box.



Use the information provided to answer Part A and Part B for question 34.

The diagram shows two cylinders with bases that have the same center and heights of 12 millimeters.



34. Part A

Which is a function for the volume, V, that is inside the larger cylinder but outside the one with the smaller radius, r?

Ⓐ $V(r) = 1{,}200\pi - 12\pi r^2$

Ⓑ $V(r) = 120\pi - 12\pi r^2$

Ⓒ $V(r) = 12\pi r^2$

Ⓓ $V(r) = 12\pi(10 - r)^2$

Part B

Suppose that there is space between the inner and outer cylinders and the radius of the inner cylinder must be an integer greater than or equal to 3. What is the domain of V?

Ⓐ all integers greater than or equal to 3

Ⓑ 3, 4, 5, 6, 7, 8, 9, or 10

Ⓒ 3, 4, 5, 6, 7, 8, or 9

Ⓓ $3 \leq m \leq 9$

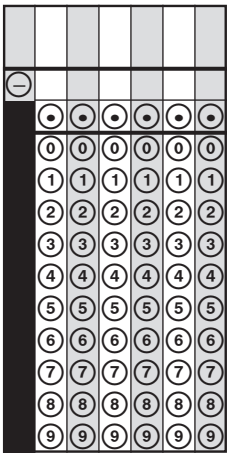
Use the information provided to answer Part A and Part B for question 35.

The function f is defined by $f(x) = x^2 - 2x - 24$.

35. Part A

If $f(x + 3) = x^2 + kx - 21$, what is the value of k?

Enter your answer in the box.



Part B

What are the zero(s) of $f(x + 3)$?

Select **all** that apply.

Ⓐ $x = -7$

Ⓑ $x = -4$

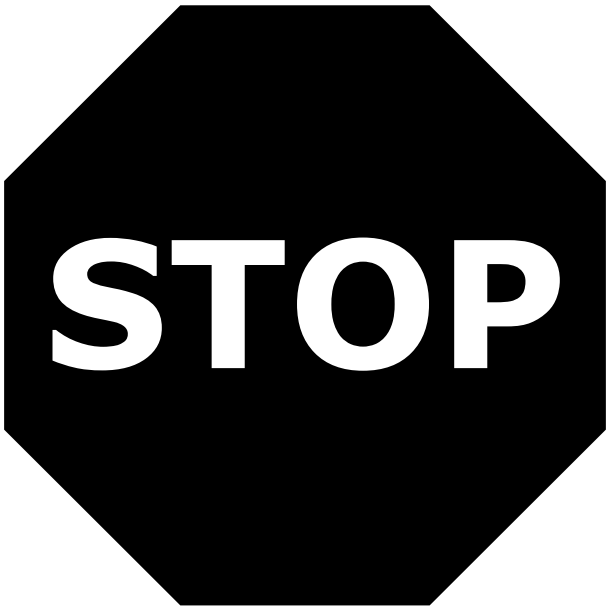
Ⓒ $x = -2$

Ⓓ $x = 0$

Ⓔ $x = 3$

Ⓕ $x = 6$

STOP



You have come to the end of the calculator section in Unit 1 of the test.

- **Review your answers in the calculator section of Unit 1 only.**
- **Then, close your test booklet and raise your hand to turn in your test materials.**

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