



THE B.E.S.T. STANDARDS

Benchmarks for Excellent Student Thinking

Algebra 1 EOC Assessment

Spring 2024 Released Test Items

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Introduction

[Section 1008.22\(8\)](#), Florida Statutes (F.S.), requires the Department to publish each statewide, standardized assessment administered, excluding retakes, at least once on a triennial basis, with the initial publication occurring after the Spring 2024 test administration. The initial publication of assessments must include, at a minimum, the grade 3 Mathematics and English Language Arts (ELA) Reading assessments, the grade 10 ELA Reading assessment and the Algebra 1 End-of-Course (EOC) Assessment. Per statute, released content must have appeared on tests in the administration year immediately preceding release. Based on those requirements, below is a proposed timeline for the release of operational tests beginning with the 2023–24 school year.

June 2024	June 2025	June 2026
Grade 3 Mathematics & ELA Reading	Grade 5 Mathematics & ELA Reading	Grade 4 Mathematics & ELA Reading
Grade 6 Mathematics & ELA Reading	Grade 8 Mathematics & ELA Reading	Grade 7 Mathematics & ELA Reading
Grade 8 Science	Grade 5 Science	Biology 1 EOC
Grade 10 ELA Reading	Grade 9 ELA Reading	
Algebra 1 EOC	Geometry EOC	
Civics EOC	U.S. History EOC	
Annually: Grades 4–10 Writing prompts and individual student responses		

The purpose of the released tests is to promote transparency in the statewide, standardized assessment program and to increase the comfort level of students and parents with the state assessments. Students, parents, and teachers should use the released tests to better understand the types of items on Florida’s K–12 statewide assessments.

This released test includes the content that represents its operational test blueprint. The items are presented as they appeared on the computer-based test platform.

Students, parents/guardians, and educators should review the 2024 Test Release Support Document located on the [Florida Statewide Assessments Portal](#). The Test Release Support Document includes an answer key, the percentage of students who answered that item correctly, the reporting category that the item fits in, and the item benchmark information.

For more information about K–12 assessments, please visit <https://www.fldoe.org/accountability/assessments/k-12-student-assessment/>.

For questions related to this document or released tests in general, please contact Assessment@fldoe.org.

B.E.S.T. Algebra 1 EOC Mathematics Reference Sheet

Customary Conversions

1 foot = 12 inches
 1 yard = 3 feet
 1 mile = 5,280 feet
 1 mile = 1,760 yards

1 cup = 8 fluid ounces
 1 pint = 2 cups
 1 quart = 2 pints
 1 gallon = 4 quarts

1 pound = 16 ounces
 1 ton = 2,000 pounds

Metric Conversions

1 meter = 100 centimeters
 1 meter = 1000 millimeters
 1 kilometer = 1000 meters
 1 liter = 1000 milliliters

1 gram = 1000 milligrams
 1 kilogram = 1000 grams

Time Conversions

1 minute = 60 seconds
 1 hour = 60 minutes
 1 day = 24 hours
 1 year = 365 days
 1 year = 52 weeks

Formulas

Forms of Linear Equations	Forms of Quadratic Functions	Forms of Exponential Functions
$y = mx + b$ $Ax + By = C$ $y - y_1 = m(x - x_1)$	$f(x) = ax^2 + bx + c$ $f(x) = a(x - h)^2 + k$ $f(x) = a(x - p)(x - q)$	$f(x) = ab^x$ $f(x) = a(1 \pm r)^x$

Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

where $ax^2 + bx + c = 0$ and $a \neq 0$

Final Amounts under Simple Interest	Final Amounts under Compound Interest
$A = P(1 + rt)$ where P = principal, r = rate, and t = time	$A = P\left(1 + \frac{r}{n}\right)^{nt}$ where P = principal, r = rate, n = number of times compounded, and t = time

DO NOT REMOVE THIS SHEET

B.E.S.T. Algebra 1 EOC

1. In baseball, a pitcher's earned run average is used to measure how effective the pitcher is. The earned run average, A , is calculated using the formula shown, where E is the number of earned runs and N is the number of innings the pitcher pitched.

$$A = \frac{9E}{N}$$

Which equation correctly solves the formula for the variable E ?

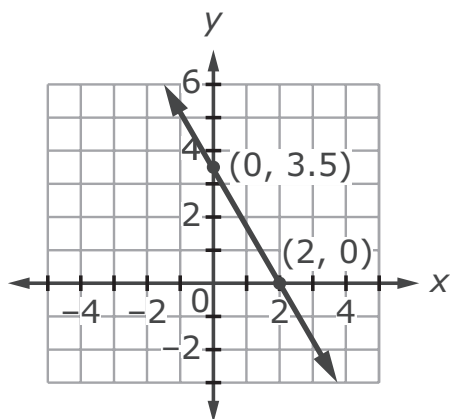
- Ⓐ $E = \frac{A}{9N}$
- Ⓑ $E = \frac{AN}{9}$
- Ⓒ $E = \frac{9A}{N}$
- Ⓓ $E = 9AN$

2. A function is shown.

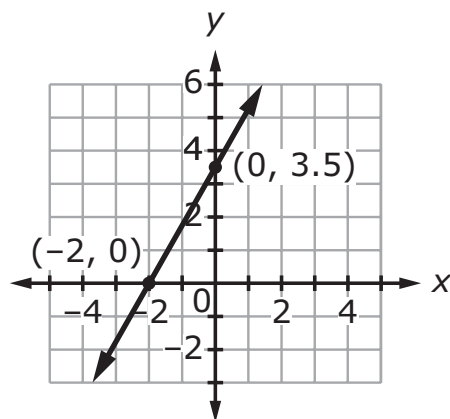
$$7x + 4y = 14$$

Which graph represents the function?

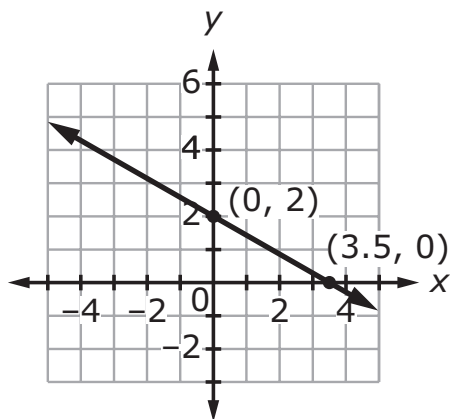
Ⓐ



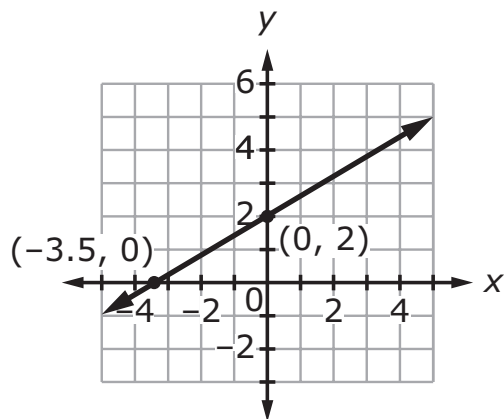
Ⓒ



Ⓑ



Ⓓ

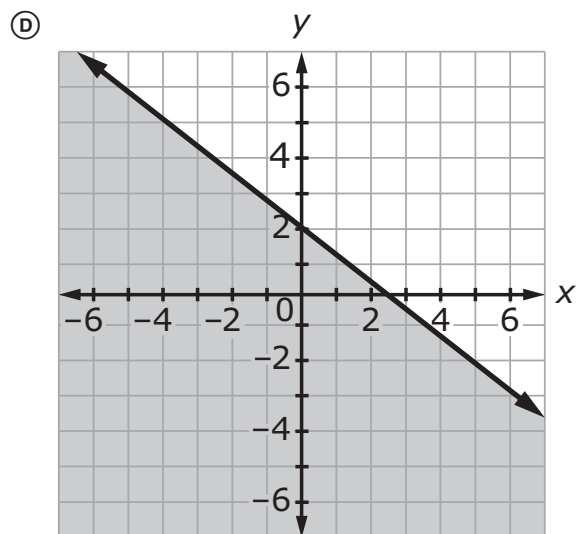
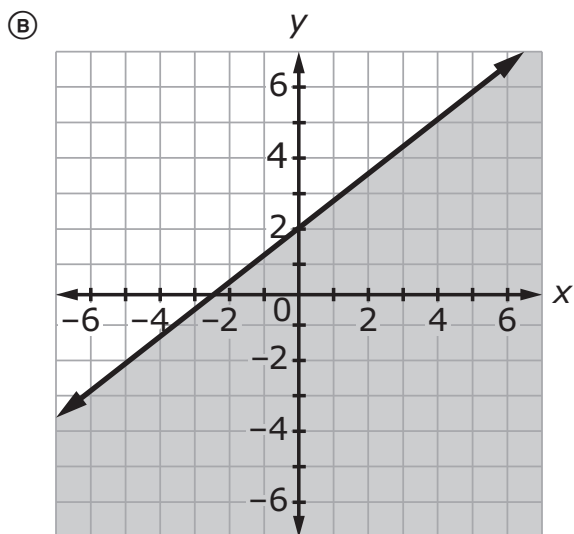
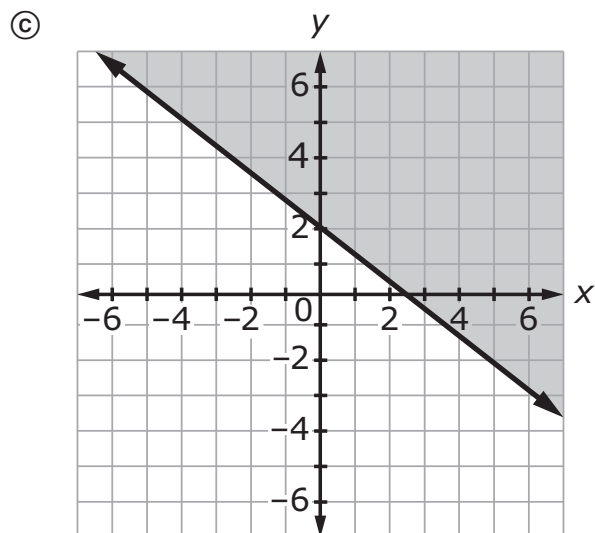
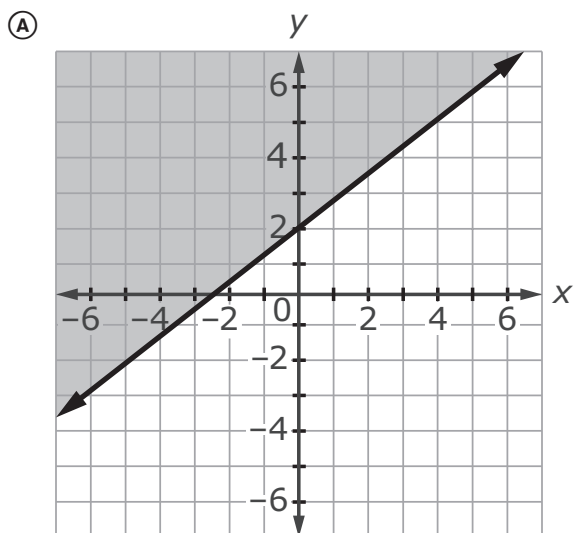


B.E.S.T. Algebra 1 EOC

3. An inequality is shown.

$$4x + 5y \geq 10$$

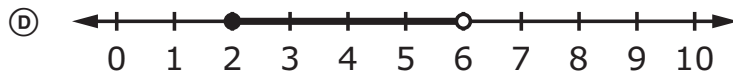
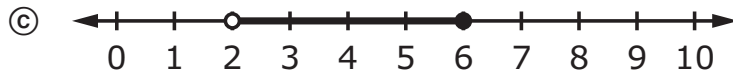
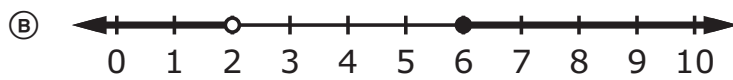
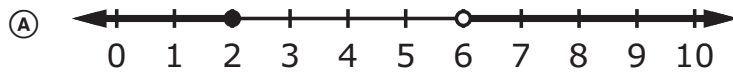
Which graph represents the solution set of the inequality?



4. A compound inequality is shown.

$$2x - 1 \leq 3 \text{ or } \frac{1}{2}x + 4 > 7$$

Which graph represents the solution set of the compound inequality?



5. An inequality is shown.

$$-3x + 7 \geq -x - 5$$

What is the solution set for x ?

- Ⓐ $\{x \mid x \leq 6\}$
- Ⓑ $\{x \mid x \geq 6\}$
- Ⓒ $\{x \mid x \leq -6\}$
- Ⓓ $\{x \mid x \geq -6\}$

6. What is the sum of $(2x^3 + 4x)$ and $(3x^3 + 5x)$?

- Ⓐ $14x^6$
- Ⓑ $14x^8$
- Ⓒ $5x^3 + 9x$
- Ⓓ $5x^6 + 9x^2$

B.E.S.T. Algebra 1 EOC

7. A system of equations is shown.

$$\begin{aligned}y &= 2x + 2 \\ 2x + 5y &= 19\end{aligned}$$

What is the solution to the system?

Ⓐ $\left(\frac{3}{4}, 3\frac{1}{2}\right)$

Ⓑ $\left(1\frac{1}{8}, 4\frac{1}{4}\right)$

Ⓒ $\left(1\frac{2}{3}, 5\frac{1}{3}\right)$

Ⓓ $\left(3\frac{1}{4}, 2\frac{1}{2}\right)$

8. Which expression is equivalent to $\sqrt{3}$?

Ⓐ $2^{\frac{1}{3}}$

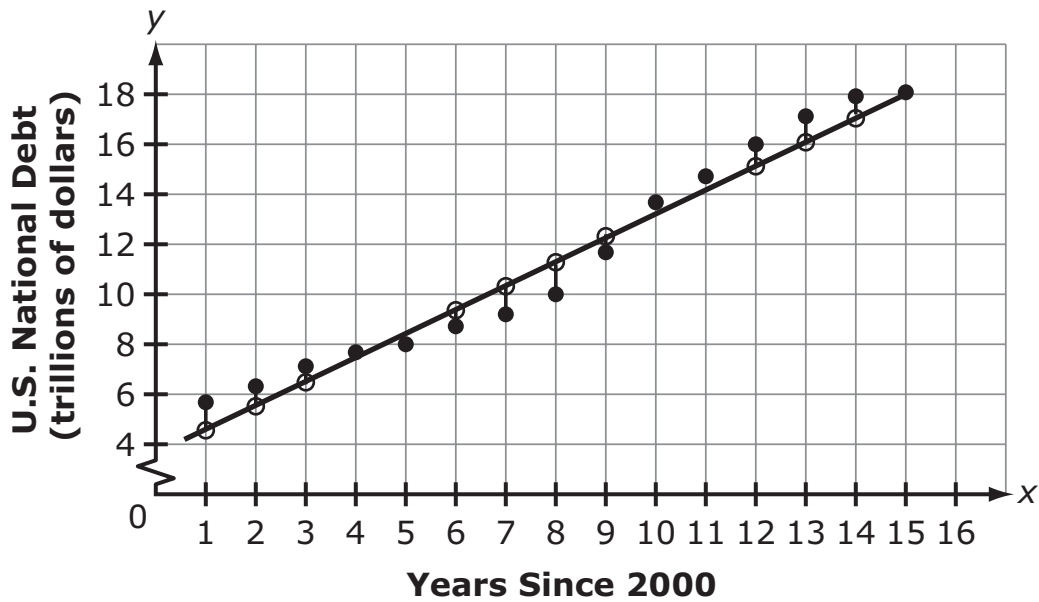
Ⓑ $3^{\frac{1}{2}}$

Ⓒ $\left(\frac{1}{2}\right)^3$

Ⓓ $\left(\frac{1}{3}\right)^2$

B.E.S.T. Algebra 1 EOC

9. A scatter plot of the U.S. national debt from 2001 to 2016, including a linear equation and its residuals modeling the data, is shown.



Which statement correctly interprets the scatter plot?

- (A) The scatter plot shows a weak positive correlation.
- (B) The scatter plot shows a weak negative correlation.
- (C) The scatter plot shows a strong positive correlation.
- (D) The scatter plot shows a strong negative correlation.

10. An equation is shown.

$$3x^2 - 21 = 222$$

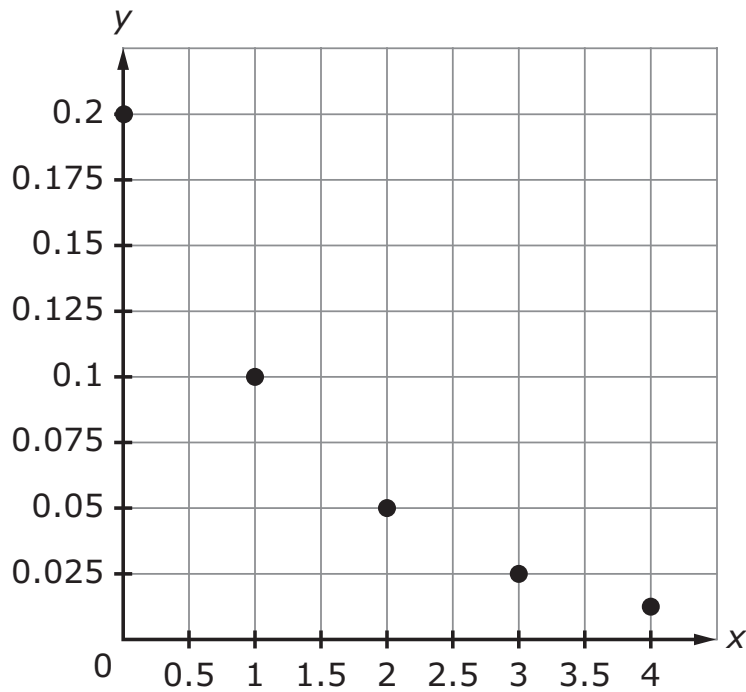
What is one exact solution to the equation?

$x =$

← → ↶ ↷ ✕											
1	2	3	+	-	•	÷					
4	5	6	<	≤	=	≥	>				
7	8	9	\square^\square	\square_\square	()		$\sqrt{\square}$	$\sqrt[\square]{\square}$	π	i	
	0		sin	cos	tan	arcsin	arccos	arctan			
.	-	$\frac{\square}{\square}$									

B.E.S.T. Algebra 1 EOC

11. Five points from a function, f , are plotted in the first quadrant of the coordinate plane, as shown.



Which equation could represent the function?

- Ⓐ $f(x) = 0.2(1 - 0.1)^x$
- Ⓑ $f(x) = 0.2(1 - 0.5)^x$
- Ⓒ $f(x) = 0.1(1 - 0.05)^x$
- Ⓓ $f(x) = 0.1(1 - 0.25)^x$

12. Which expression is equivalent to $(7k + 2)(5k - 9)$?

- Ⓐ $35k^2 - 18$
- Ⓑ $-18k - 18$
- Ⓒ $35k^2 - 53k - 18$
- Ⓓ $35k^2 - 73k - 18$

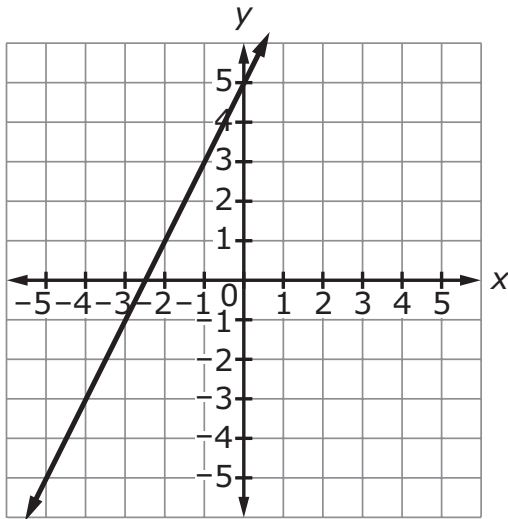
B.E.S.T. Algebra 1 EOC

13. A function is shown.

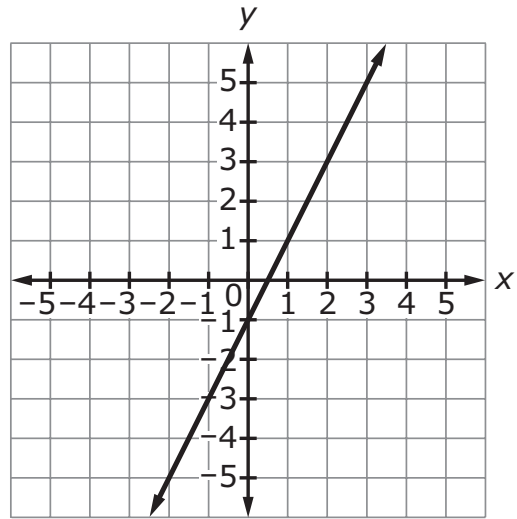
$$y + 1 = 2(x + 3)$$

Which graph represents the function?

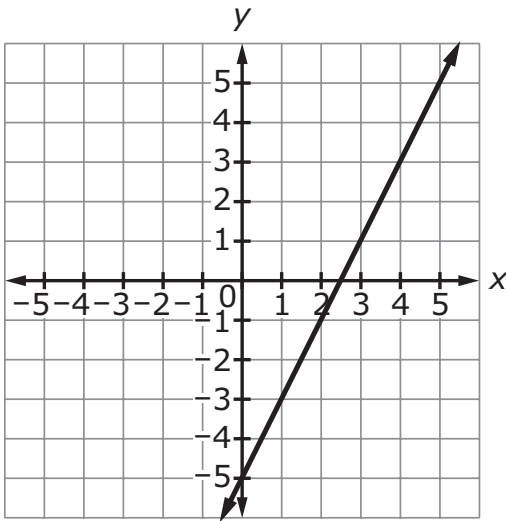
(A)



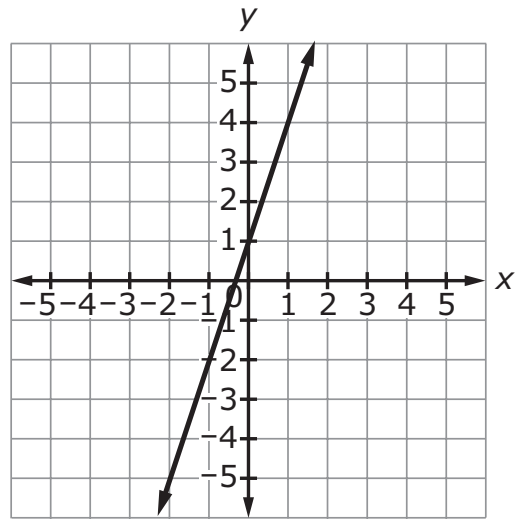
(C)



(B)



(D)



- 14.** Garrett buys a large bag of dog food. He feeds his dog 2 cups of dog food each day.

Which statement describes the type of function that represents the amount of dog food in the bag after x days?

- Ⓐ positive linear
- Ⓑ negative linear
- Ⓒ exponential
- Ⓓ quadratic

15. Which table could represent a quadratic function?

Ⓐ

x	$f(x)$
0	3
1	9
2	27
3	81

Ⓒ

x	$h(x)$
-1	6
0	5
1	6
2	9

Ⓑ

x	$g(x)$
0	-2
1	-4
2	-6
3	-8

Ⓓ

x	$j(x)$
-3	7
-2	7
-1	7
0	7

16. Which function has the greatest slope?

Ⓐ $y = \frac{5}{3}x + 1$

Ⓑ $y = -x + 8$

Ⓒ $y = \frac{3}{4}x - \frac{5}{4}$

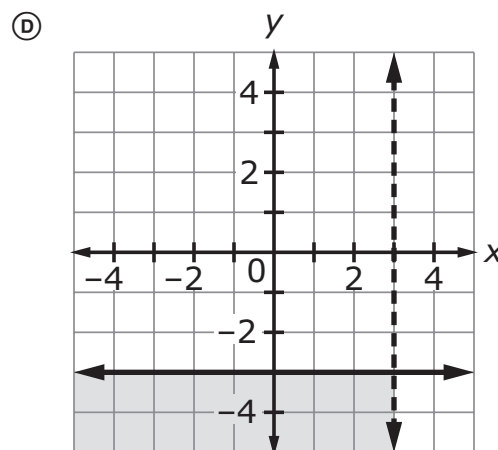
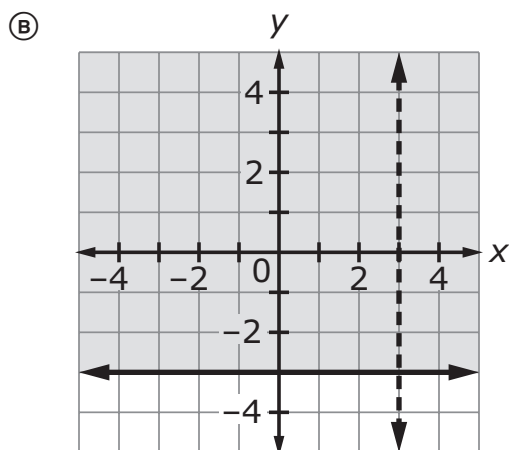
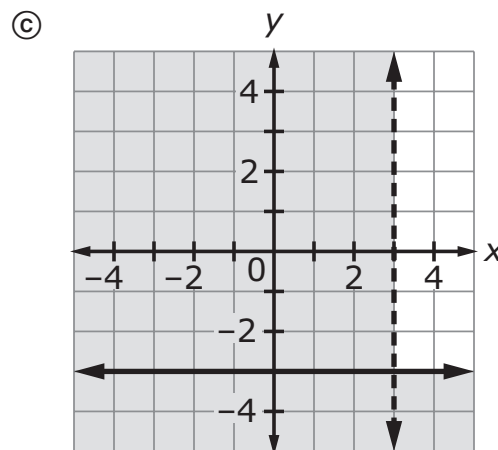
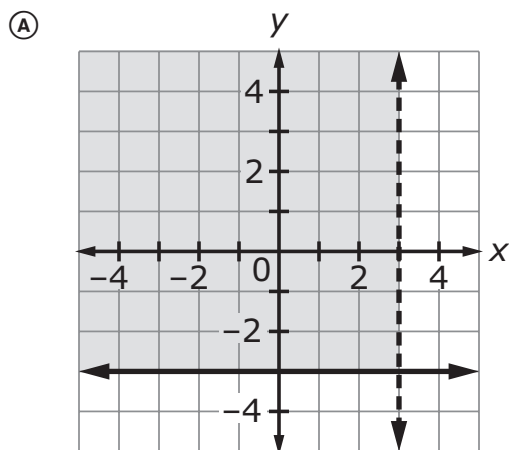
Ⓓ $y = \frac{3}{2}x + 3$

B.E.S.T. Algebra 1 EOC

17. A system of inequalities is shown.

$$\begin{aligned}x &< 3 \\y &\geq -3\end{aligned}$$

Which graph represents the solution set?



- 18.** A ball was dropped from a balcony at a height of 20 feet above level ground. The height, in feet, of the ball after t seconds is modeled by the function shown.

$$y = -16t^2 + 20$$

What is the range of the function in terms of the situation described?

- Ⓐ $0 \leq t$
- Ⓑ $0 \leq y$
- Ⓒ $0 \leq t \leq 20$
- Ⓓ $0 \leq y \leq 20$

19. Which equation models exponential growth?

Ⓐ $y = 2\left(\frac{1}{5}\right)^x$

Ⓑ $y = 2(5.0)^x$

Ⓒ $y = 2\left(1 - \frac{1}{5}\right)^x$

Ⓓ $y = 2(1 - 0.5)^x$

20. Which function decays exponentially?

Ⓐ $f(x) = \frac{1}{5}x$

Ⓑ $g(x) = 5x$

Ⓒ $h(x) = 5^x$

Ⓓ $j(x) = \left(\frac{1}{5}\right)^x$

B.E.S.T. Algebra 1 EOC

21. A line with a slope of -0.2 passes through the point $(11, 5)$.

Select numbers to complete the equation of the line in point-slope form.

$$y - [\textcircled{A} -0.2 \textcircled{B} 0 \textcircled{C} 5 \textcircled{D} 11] = [\textcircled{A} -0.2 \textcircled{B} 0 \textcircled{C} 5 \textcircled{D} 11]$$
$$(x - [\textcircled{A} -0.2 \textcircled{B} 0 \textcircled{C} 5 \textcircled{D} 11])$$

22. An expression is given, where $x \neq 0$.

$$\frac{4x^2 - 18x + 6}{2x}$$

Which expression is equivalent?

- Ⓐ $2x - 9 + \frac{3}{x}$
- Ⓑ $2x^2 - 16x + 4$
- Ⓒ $2x^3 - 9x^2 + 3x$
- Ⓓ $\frac{2}{x^3} - \frac{9}{x^2} + \frac{3}{x}$

23. An equation is given.

$$y = (x - 3)^2 + 1$$

Which type of function does the equation represent?

- Ⓐ cubic
- Ⓑ quadratic
- Ⓒ exponential
- Ⓓ square root

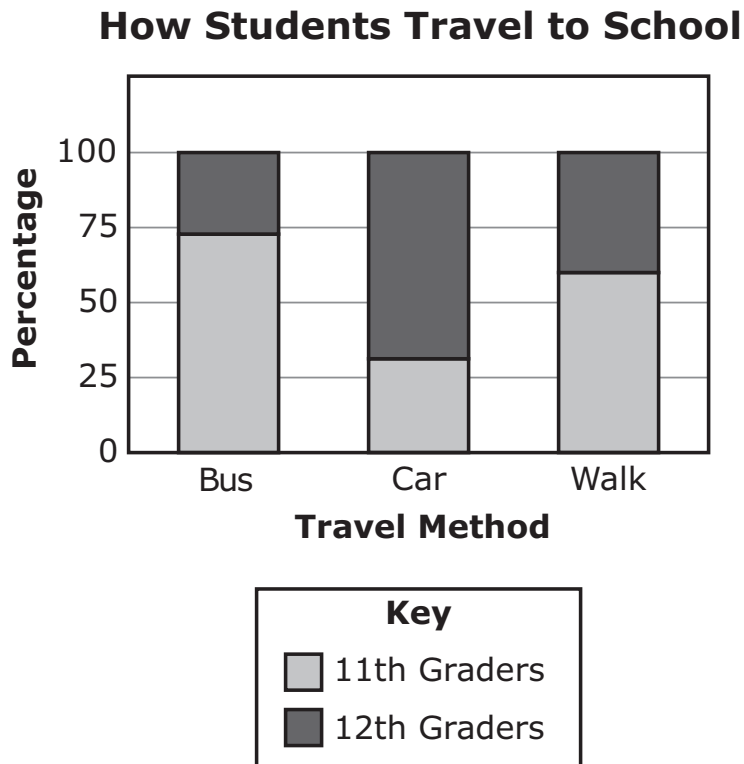
24. A function is given

$$h(x) = \frac{1}{5}x^2$$

How can be $h(15)$ evaluated?

- Ⓐ by multiplying $\frac{1}{5}$ by the square of 15
- Ⓑ by multiplying the square of $\frac{1}{5}$ by the square of 15
- Ⓒ by multiplying $\frac{1}{5}$ by the square of 15, then dividing by 15
- Ⓓ by multiplying the square of $\frac{1}{5}$ by the square of 15, then dividing by 15

25. Maribel asked a random group of upper-class students at her school which grade they are in and how they traveled to school in the morning. The data are shown in the segmented bar chart.



Which pair of terms describes the data?

- Ⓐ bivariate and numerical
- Ⓑ bivariate and categorical
- Ⓒ univariate and numerical
- Ⓓ univariate and categorical

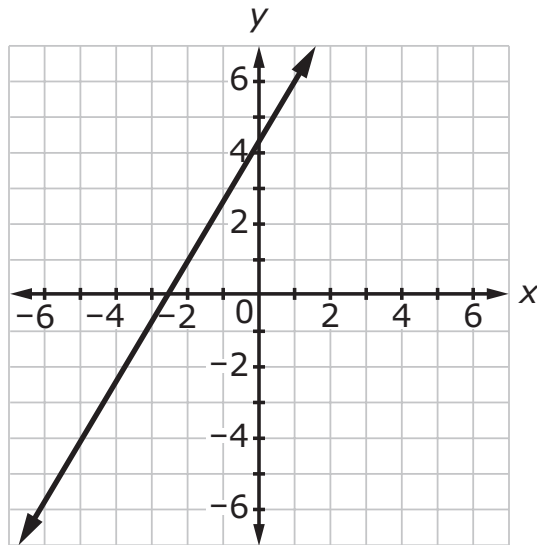
26. An expression is given.

$$42r^3s^2 - 35r^2s^3$$

Which expression is equivalent?

- Ⓐ $7rs(6s - 5r)$
- Ⓑ $7rs(6rs - 5rs)$
- Ⓒ $7r^2s^2(6r - 5s)$
- Ⓓ $7r^2s^2(6s - 5r)$

27. The graph of a line is shown.



Which equation represents the line?

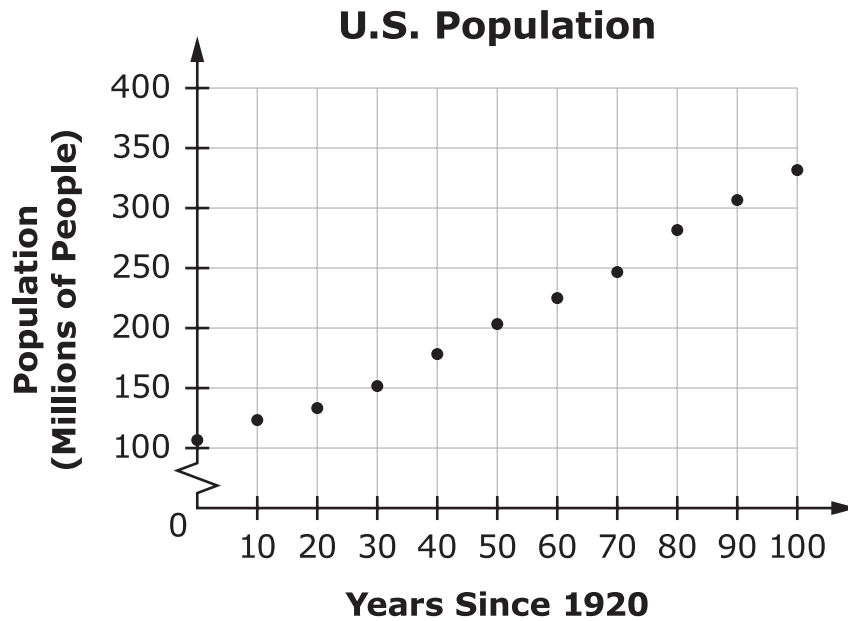
Ⓐ $y = \frac{3}{5}x - \frac{13}{5}$

Ⓑ $y = \frac{3}{5}x + \frac{13}{3}$

Ⓒ $y = \frac{5}{3}x - \frac{13}{5}$

Ⓓ $y = \frac{5}{3}x + \frac{13}{3}$

28. Darren collects data on the U.S. population from 1920 to 2020. He graphs the population and the number of years since 1920 in the scatter plot shown.



He determines the equation for the line of best fit to be $y = 2.33x + 92.05$ where y represents the population, in millions of people, and x represents the number of years since 1920.

Based on Darren’s model, what is the projected U.S. population, in millions of people, for 2040?

←
→
↶
↷
✖

1	2	3
4	5	6
7	8	9
	0	
.	-	$\frac{\square}{\square}$

B.E.S.T. Algebra 1 EOC

29. Bashir has \$3410 to invest in two different investment accounts, Account A and Account B. The accounts earn simple interest for one year.

- Account A earns 6% interest.
- Account B earns 2% interest.
- He wants to earn at least \$196 in interest.

Bashir puts x dollars in Account A and y dollars in Account B.

Which system of constraints represents the situation?

- Ⓐ $x + y = 3410$
 $0.02x + 0.06y \geq 196$
- Ⓑ $x + y = 3410$
 $0.06x + 0.02y \geq 196$
- Ⓒ $0.02x + 0.06y = 3410$
 $x + y \geq 196$
- Ⓓ $0.06x + 0.02y \geq 3410$
 $x + y \geq 196$

- 30.** A rental company charges \$2 per hour to rent a bicycle. A table showing the prices of renting one bicycle for different amounts of time is shown.

Time (hours)	Price (dollars)
1	2
2	4
3	6

Which type of function models the price for renting one bicycle as a function of time?

- Ⓐ increasing linear
- Ⓑ decreasing linear
- Ⓒ increasing exponential
- Ⓓ decreasing exponential

B.E.S.T. Algebra 1 EOC

- 31.** An artist earns a profit from selling y paintings. His profit, P , in dollars, is modeled with the given equation.

$$P = (200y + 23.25) - (10.53y)$$

His profit is the difference in the amount of money he earns from selling his paintings and the cost of making the paintings.

Which expression represents the cost of making y paintings?

- Ⓐ 23.25
- Ⓑ $10.53y$
- Ⓒ $200y + 23.25$
- Ⓓ $189.47y + 23.25$

32. Cardiac output, D , is the amount of blood that the heart pumps per minute. The value of D can be found using the formula shown, where V is the amount of blood that the heart pumps with each heartbeat and R is the number of heartbeats per minute.

$$D = V \cdot R$$

Complete the equation to represent V in terms of D and R .

$V =$

<div style="display: flex; justify-content: space-around; align-items: center;"> ← → ↶ ↷ ✖ </div>											
1	2	3	D	R							
4	5	6	+	-	•	÷					
7	8	9	<	≤	=	≥	>				
	0		\square^\square	\square_\square	()		$\sqrt{\square}$	$\sqrt[\square]{\square}$	π	i	
.	-	$\frac{\square}{\square}$	sin	cos	tan	arcsin	arccos	arctan			

B.E.S.T. Algebra 1 EOC

33. Two divers are underwater. One diver is at a depth of 32 meters, while the other diver is at a different depth. The given equation can be used to find the possible depths, x , in meters, of the other diver.

$$|x-32| = 11$$

Enter values to complete the sentence about the other diver's depth, in meters.

The other diver is at a depth of either

←	→	↶	↷	✖
1	2	3		
4	5	6		
7	8	9		
	0			
.	-	$\frac{\square}{\square}$		

or

←	→	↶	↷	✖
1	2	3		
4	5	6		
7	8	9		
	0			
.	-	$\frac{\square}{\square}$		

meters.

34. The equation of a linear function, q , and a table of values of a linear function, r , are shown.

$$q(x) = 2x - 1$$

x	$r(x)$
0	-2
1	4
2	10
3	16

Which statement correctly compares the slopes and y -intercepts of the two functions?

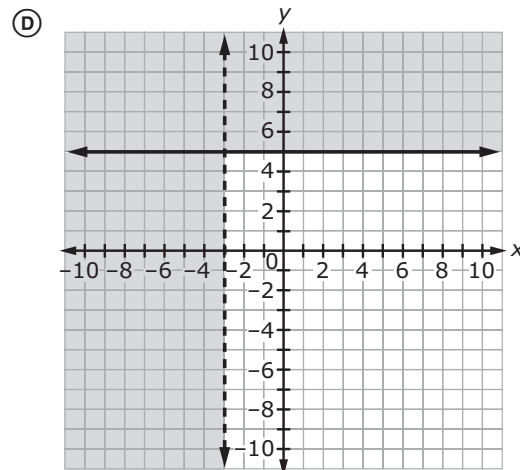
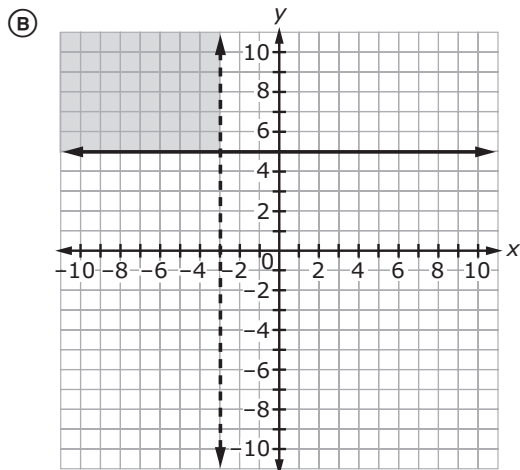
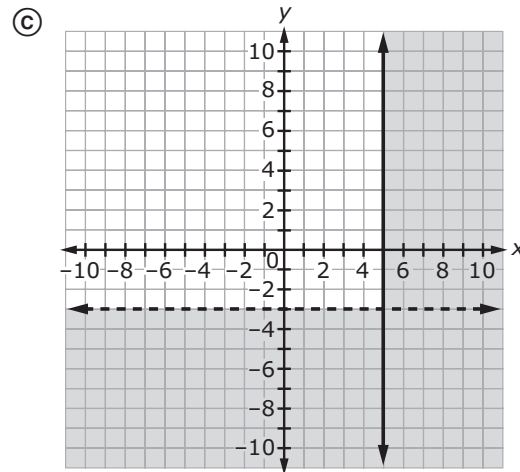
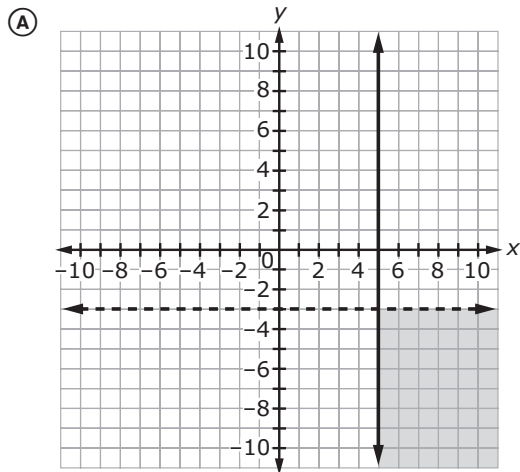
- Ⓐ Function r has a lesser y -intercept and a slope that is 2 times the slope of function q .
- Ⓑ Function r has a lesser y -intercept and a slope that is 3 times the slope of function q .
- Ⓒ Function r has a greater y -intercept and a slope that is 2 times the slope of function q .
- Ⓓ Function r has a greater y -intercept and a slope that is 3 times the slope of function q .

B.E.S.T. Algebra 1 EOC

35. A system of inequalities is given.

$$\begin{aligned}x &\geq 5 \\ y &< -3\end{aligned}$$

Which graph represents the solution set?



36. An equation is shown.

$$x^2 - 15x = -14$$

What are the two solutions to the equation?

x =

1	2	3		
4	5	6		
7	8	9		
	0			
.	-	$\frac{\square}{\square}$		

x =

1	2	3		
4	5	6		
7	8	9		
	0			
.	-	$\frac{\square}{\square}$		

B.E.S.T. Algebra 1 EOC

37. A function, f , is given.

$$f(x) = x^2 + 12x + 20$$

Select terms to describe the end behavior of the function.

As x approaches $-\infty$, $f(x)$ approaches [A $-\infty$ B ∞ C 0] .

As x approaches ∞ , $f(x)$ approaches [A $-\infty$ B ∞ C 0] .

38. The expression $\sqrt[3]{18} \cdot 5\sqrt[3]{6}$ is equivalent to $15\sqrt[3]{x}$.

What is the value of x ?

←
→
↶
↷
✖

1	2	3
4	5	6
7	8	9
	0	
.	-	$\frac{\square}{\square}$

39. Margo surveys 150 high school juniors and seniors about their favorite types of dipping sauce. She records the results in the table shown.

Favorite Dipping Sauce

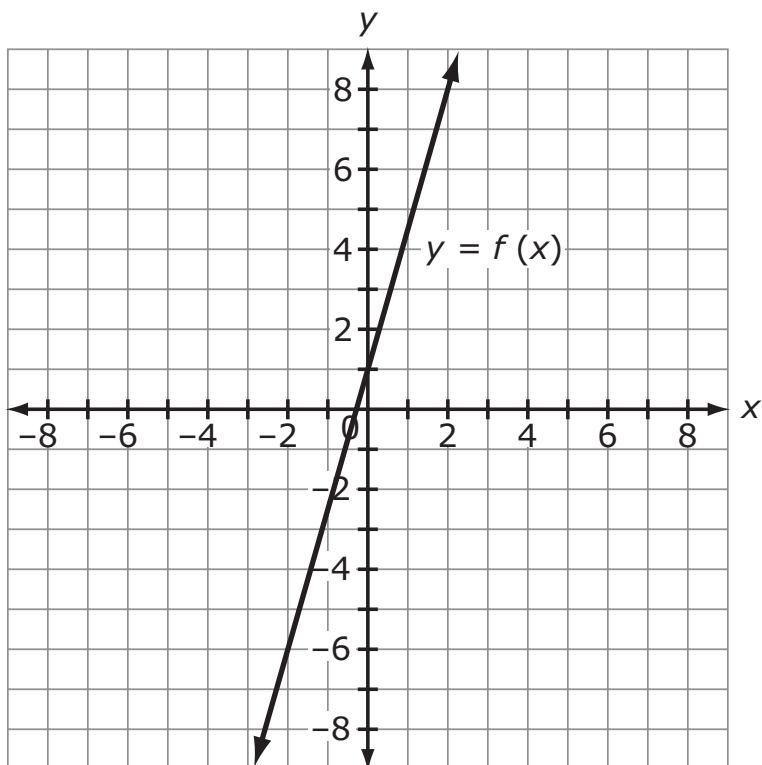
	Barbeque	Honey Mustard	Ranch	Sweet and Sour
Juniors	19	26	23	11
Seniors	7	22	30	12

How many more high school juniors and seniors chose honey mustard sauce than sweet and sour sauce?

←
→
↶
↷
✖

1	2	3
4	5	6
7	8	9
	0	
.	-	$\frac{\square}{\square}$

40. The graph of $y = f(x)$ and a table of values for an exponential function $y = g(x)$ are shown.



x	$g(x)$
-2	0.25
-1	0.5
0	1
1	2
2	4

Which statement correctly compares the graphs of the functions?

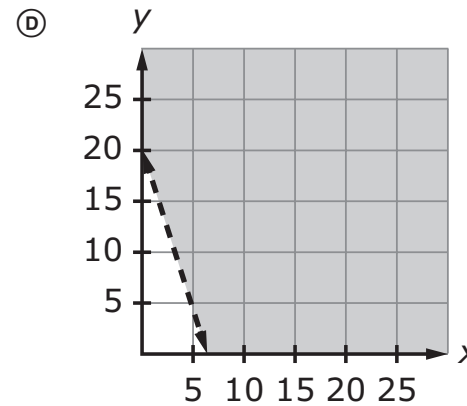
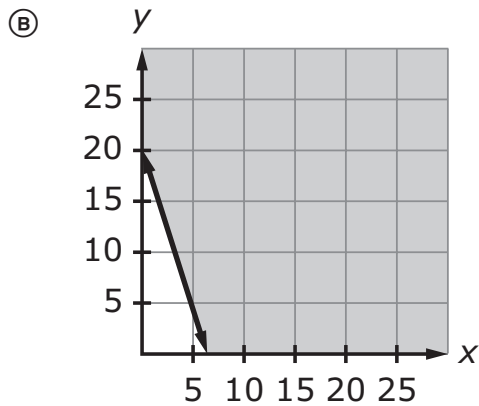
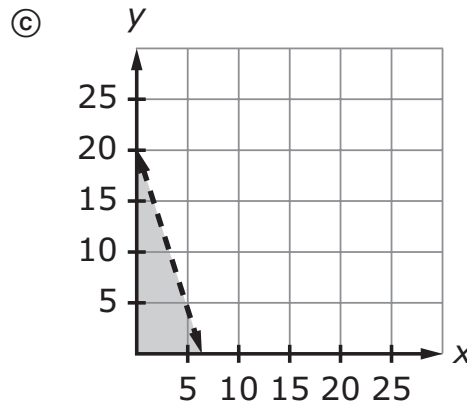
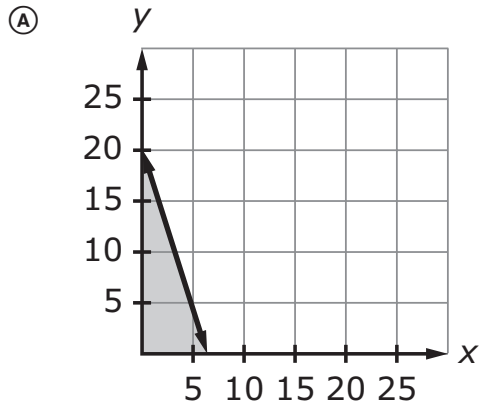
- Ⓐ As the values of x increase, $g(x)$ will eventually be greater than $f(x)$.
- Ⓑ As the values of x increase, $f(x)$ will eventually be greater than $g(x)$.
- Ⓒ The value of the y -intercept of $y = f(x)$ is greater than the value of the y -intercept of $y = g(x)$.
- Ⓓ The value of the y -intercept of $y = g(x)$ is greater than the value of the y -intercept of $y = f(x)$.

B.E.S.T. Algebra 1 EOC

41. Sanjay buys x boxes of hot wings and y bottles of soda for a party. The numbers of boxes of hot wings and bottles of soda he can buy with \$40 can be represented with the inequality shown.

$$40 \geq 6x + 2y$$

Which graph represents all possible solutions for x and y ?



42. Janelle buys blackberries and raspberries to make pies.

- Blackberries cost \$8 per pound.
- Raspberries cost \$9 per pound.
- Janelle can spend a maximum of \$40.

Create an inequality to represent how many pounds of blackberries, b , and raspberries, r , Janelle can buy.

← → ↶ ↷ ✖

1	2	3	b	r															
4	5	6	+	-	•	÷													
7	8	9	<	≤	=	≥	>												
	0		\square^\square	\square_\square	()		$\sqrt{\square}$	$\sqrt[\square]{\square}$	π	i									
.	-	$\frac{\square}{\square}$	sin	cos	tan	arcsin	arccos	arctan											

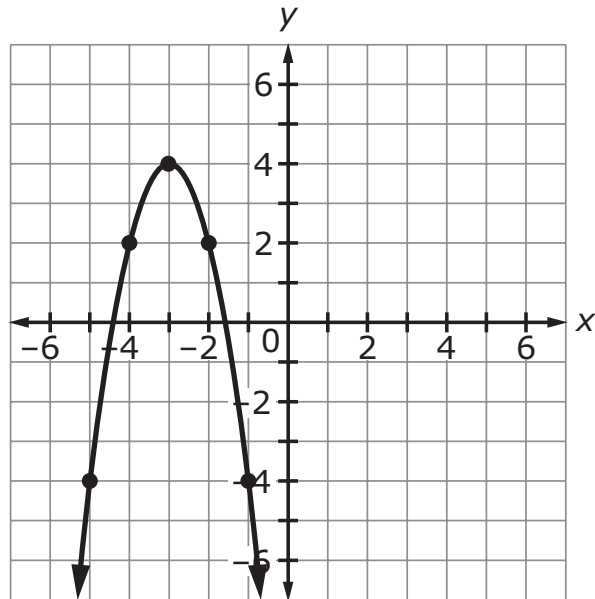
B.E.S.T. Algebra 1 EOC

- 43.** Cynthia buys some tools. She creates exponential function V to predict the value of her tools after t years. She predicts her tools will have a value of \$380 after 1 year and a value of \$361 after 2 years.

Which equation represents function V ?

- Ⓐ $V(t) = 400(1 - 0.05)^t$
- Ⓑ $V(t) = 399(1 - 0.19)^t$
- Ⓒ $V(t) = 380(1 - 0.05)^t$
- Ⓓ $V(t) = 380(1 - 0.19)^t$

44. The graph of a quadratic function is shown.



Which equation represents the function?

- Ⓐ $y = -2(x + 3)^2 + 4$
- Ⓑ $y = -(x - 3)^2 + 4$
- Ⓒ $y = (x + 3)^2 + 4$
- Ⓓ $y = 6(x + 3)^2 - 4$

45. Select all the values that are equivalent to $\frac{\sqrt{24}}{\sqrt{8}}$.

Ⓐ $\sqrt{3}$

Ⓑ $\frac{1}{\sqrt{3}}$

Ⓒ $\sqrt{16}$

Ⓓ $\frac{2\sqrt{6}}{2\sqrt{2}}$

Ⓔ $\frac{4\sqrt{6}}{\sqrt{8}}$



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