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Algebra I

Practice Test

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DIRECTIONS: Read each question or problem carefully. Then, answer the question or work the problem. Be sure to mark your response in this test book.

1. Which expression is equivalent to $3x^2 + 7x - (x + 4)^2 - 9$?

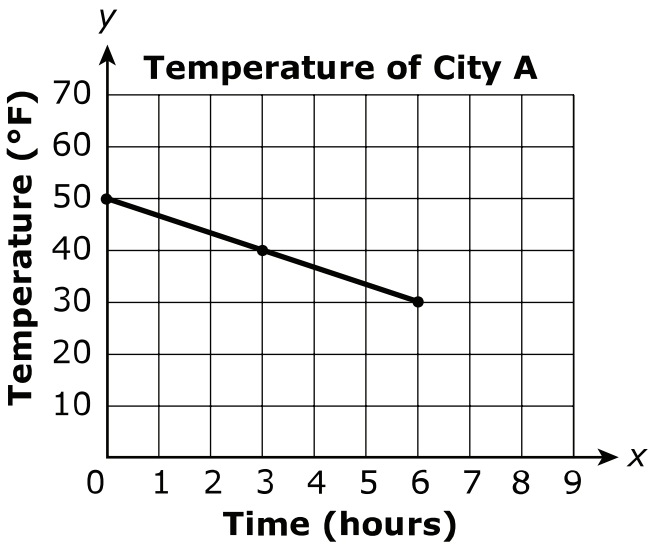
Ⓐ $2x^2 + 7x - 25$

Ⓑ $2x^2 + 7x + 7$

Ⓒ $2x^2 + 6x + 7$

Ⓓ $2x^2 - x - 25$

2. The graph represents the temperature change over a period of time on a single day.



Which unit would be appropriate for the rate of change in the graph?

Ⓐ $\frac{\text{degrees}}{\text{day}}$

Ⓑ $\frac{\text{days}}{\text{degree}}$

Ⓒ $\frac{\text{degrees}}{\text{hour}}$

Ⓓ $\frac{\text{hours}}{\text{degree}}$

3. The function $g(x)$ can be represented as $g(x) = -x^2 - 6x - 2$.

Some of the values of the quadratic function $h(x)$ are shown in the table.

x	$h(x)$
−2	−8
−1	−2
0	2
1	4
2	4
3	2
4	−2
5	−8

Which statement is a true comparison of the properties of $g(x)$ and $h(x)$?

Ⓐ The graph of function $g(x)$ has a higher maximum value but a lower y-intercept value than the graph of function $h(x)$.

Ⓑ The graph of function $g(x)$ has a lower maximum value and a lower y-intercept value than the graph of function $h(x)$.

Ⓒ The graph of function $g(x)$ has a lower maximum value but a higher y-intercept value than the graph of function $h(x)$.

Ⓓ The graph of function $g(x)$ has a higher maximum value and a higher y-intercept value than the graph of function $h(x)$.

4. Select the box that correctly identifies the **only** solution or the **best** description of how many solutions there are for each equation.

	$x = -4$	$x = 0$	Infinite Solutions	No Solution
$-7x - 12 = -7x + 3(-4 - x)$	○	○	○	○
$4(2x + 3) = 5x + 3x - 6$	○	○	○	○
$-3 + \frac{1}{2}(-6x - 4) = -\frac{1}{4}(8x + 4)$	○	○	○	○
$3(x - 7) + 12 = \frac{1}{4}(12x - 8) - 7$	○	○	○	○

5. An object is launched at an upward velocity of 96 feet per second from the top of a building 160 feet above the ground. Use the vertical motion model $h = -16t^2 + vt + c$, where h is the ending height of the object, c is the initial height, in feet, of the object, t is the time, in seconds, and v is the velocity of the object.

How long will it take the object to reach the maximum height, and what is the maximum height?

Fill in the blanks with the appropriate values.

At ☐ seconds, the object's maximum height will be ☐ feet.

6. There are three different basketball teams that have played five games each. Liz wants to join the team that is scoring the most points per game so far.

	Team 1	**Team 2**	**Team 3**
Game 1	65	89	33
Game 2	82	82	100
Game 3	53	41	62
Game 4	90	86	83
Game 5	70	40	56

If she ranks each team by its mean score, which team would she join?

Ⓐ She would join Team 1, because its mean score is 72.

Ⓑ She would join Team 1, because its mean score is 90.

Ⓒ She would join Team 2, because its mean score is 67.6.

Ⓓ She would join Team 3, because its mean score is 100.

7. Sam ran a distance represented by the expression $2x + 12$. Lee ran a distance represented by the expression $6x + 36$. Which describes how the distance that Lee ran compares to the distance that Sam ran?

Ⓐ The distance that Lee ran is 2 times the distance that Sam ran.

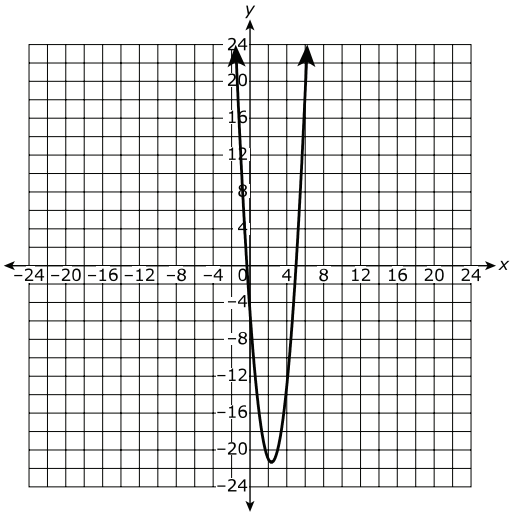
Ⓑ The distance that Lee ran is 3 times the distance that Sam ran.

Ⓒ The distance that Lee ran is 4 times the distance that Sam ran.

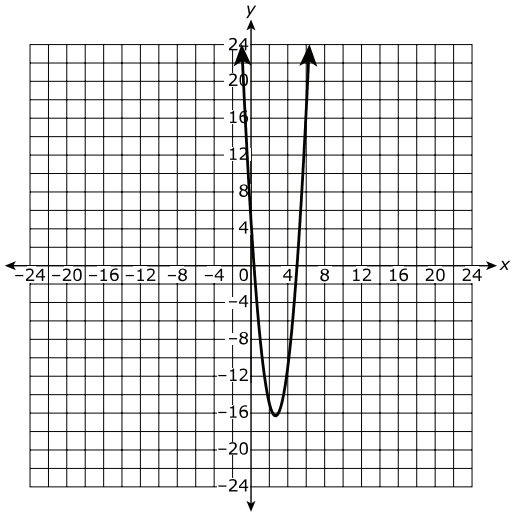
Ⓓ The distance that Lee ran is 6 times the distance that Sam ran.

8. Which graph shows the zeros of the function $f(x) = 3x^2 + 14x - 5$?

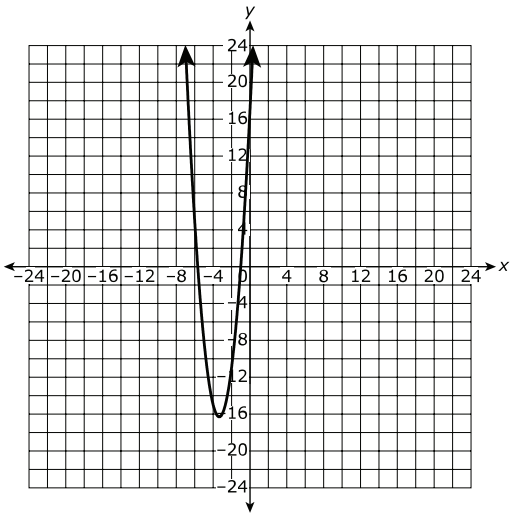
Ⓐ



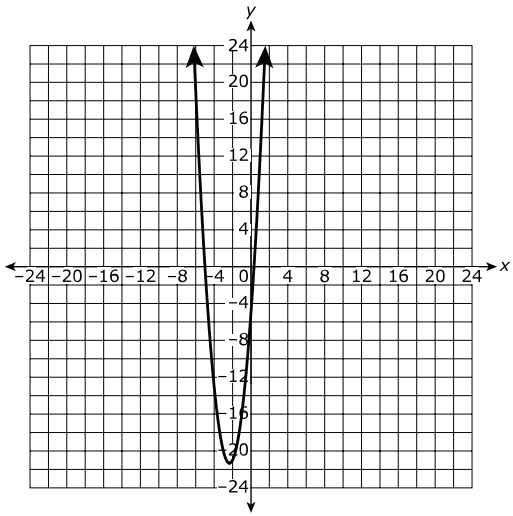
Ⓑ



Ⓒ



Ⓓ



9. Which numerical expression provides the solution to the equation $7x^2 + 4x - 8 = 14$?

Ⓐ $\dfrac{-7 \pm \sqrt{240}}{2}$

Ⓑ $\dfrac{-7 \pm \sqrt{632}}{7}$

Ⓒ $\dfrac{-4 \pm \sqrt{632}}{14}$

Ⓓ $\dfrac{-4 \pm \sqrt{240}}{14}$

10. Lisa sends an email to five friends. The next day, each of Lisa's friends forwards the email to five more people. The process continues for a few days. Which function represents the number of people who will receive the email on the nth day?

Ⓐ $a_n = 5n$

Ⓑ $a_n = 5^n$

Ⓒ $a_n = n + 5$

Ⓓ $a_n = n^5 + 5$

11. A recording studio charges musicians an initial fee of $\$60$ to record an album. Studio time costs an additional $\$75$ per hour.

Which function represents the total cost, in dollars, $C(t)$, of recording an album as a function of studio time in t hours?

Ⓐ $C(t) = 60t - 75$

Ⓑ $C(t) = 75t - 60$

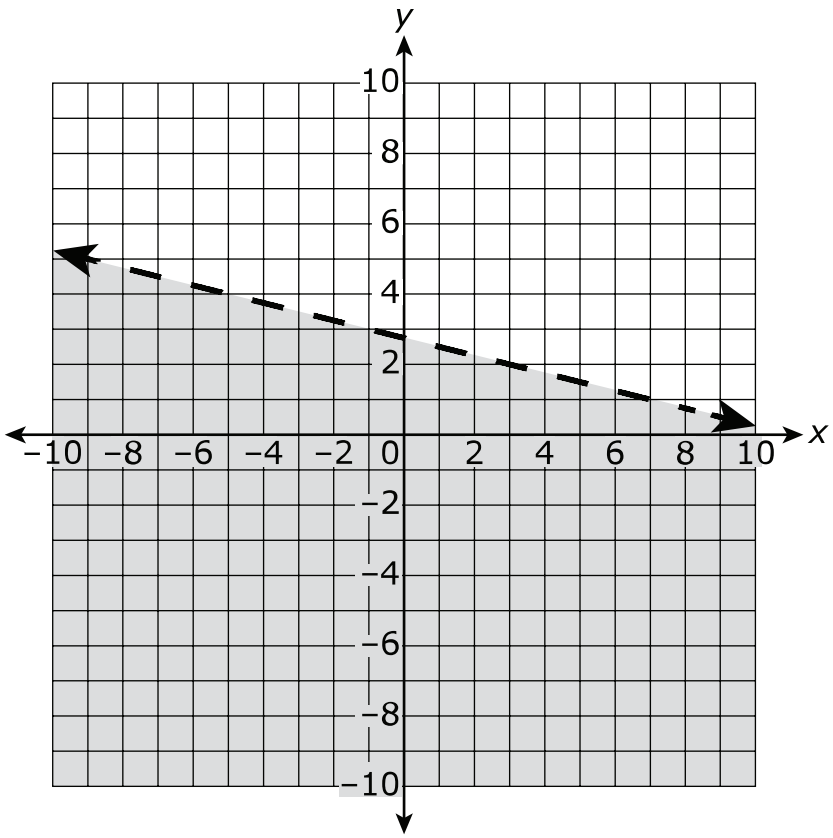
Ⓒ $C(t) = 60t + 75$

Ⓓ $C(t) = 75t + 60$

12. Select the box or boxes that represent the transformation of each function from the parent function $f(x) = x^2$.

	Vertical Reflection	Vertical Translation	Horizontal Translation
$f(x) = x^2 - \frac{9}{7}$	○	○	○
$f(x) = -x^2$	○	○	○
$f(x) = (x + 3)^2$	○	○	○
$f(x) = (x + 1)^2 + 13$	○	○	○

13. Which ordered pairs are solutions to the inequality graphed in the coordinate plane?



Select **two** answer choices.

Ⓐ $(-3, -8)$

Ⓑ $\left(0, \frac{11}{4}\right)$

Ⓒ $(2, 10)$

Ⓓ $(3, 2)$

Ⓔ $\left(4, \frac{3}{2}\right)$

14. Which represents the function used to find any term, x, of the sequence $2, 8, 32, 128, 512, \ldots$?

Ⓐ $f(x) = 2(4)^{x-1}$

Ⓑ $f(x) = 2(4)^{x}$

Ⓒ $f(x) = 4(2)^{x-1}$

Ⓓ $f(x) = 4(2)^{x}$

15. The formula for the volume of a cone is given.

$$V = \frac{1}{3}\pi r^2 h$$

Which equation is solved for r, the radius of the base of a cone?

Ⓐ $r = \dfrac{3V}{2\pi h}$

Ⓑ $r = \dfrac{9V}{\pi h}$

Ⓒ $r = \sqrt{\dfrac{V}{3\pi h}}$

Ⓓ $r = \sqrt{\dfrac{3V}{\pi h}}$

16. Which expression is equivalent to $(x - 6)(2x^2 - 3x + 4)$?

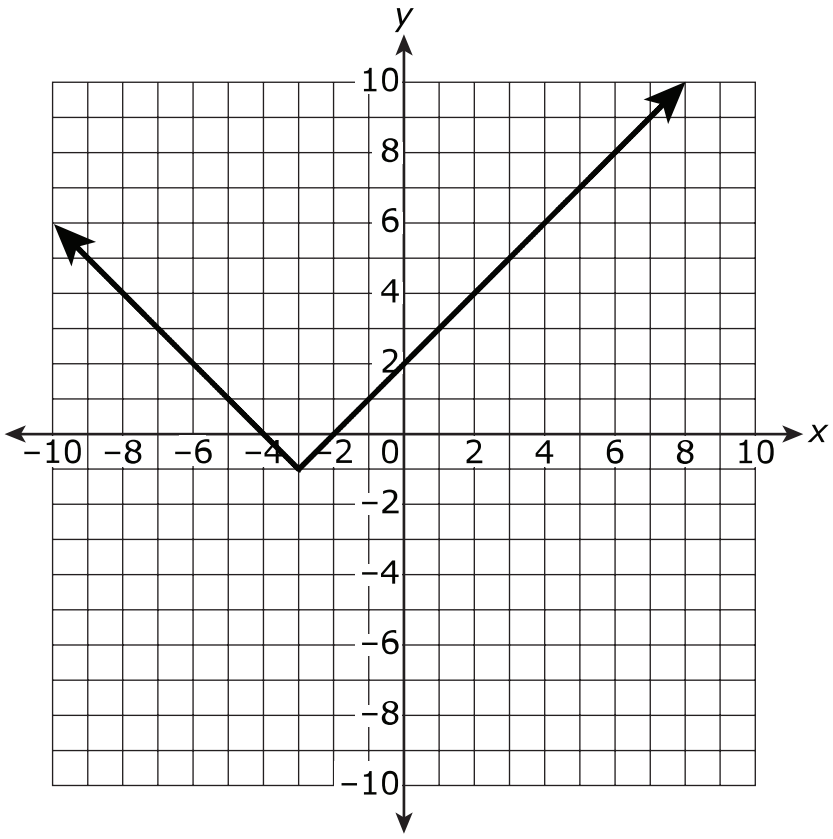
Ⓐ $2x^2 - 2x - 2$

Ⓑ $2x^2 - 2x + 4$

Ⓒ $2x^3 - 3x^2 + 4x - 6$

Ⓓ $2x^3 - 15x^2 + 22x - 24$

17. Which function is shown on the graph?



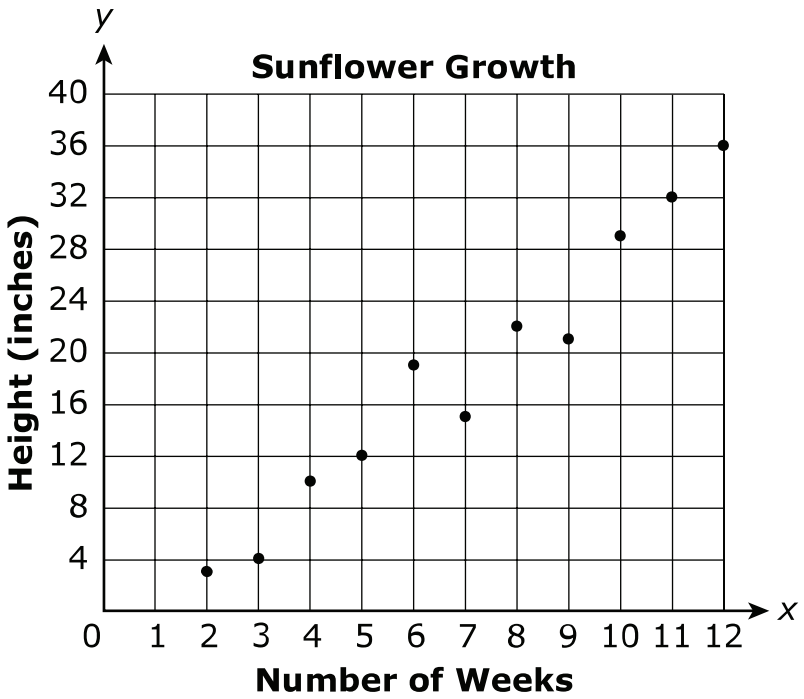
Ⓐ $f(x) = |x - 4| + 2$

Ⓑ $f(x) = |x - 3| + 1$

Ⓒ $f(x) = |x + 3| - 1$

Ⓓ $f(x) = |x + 4| - 2$

18. Evan's science class planted sunflower seeds as part of a research project. A student was sent out each week to measure the height of a flower of their choice. The data in the scatter plot shows their findings from week 2 to week 12.



Which function, $h(w)$, **approximates** the height of the sunflowers after w weeks?

Ⓐ $h(w) = 0.30x - 1.09$

Ⓑ $h(w) = 0.30x + 1.52$

Ⓒ $h(w) = 3.18x + 3.78$

Ⓓ $h(w) = 3.23x - 4.14$

19. Kim wants to earn at least $\$65$ from her two jobs next week. At most, she can work 15 hours. Her first job pays $\$5$ per hour, and her second job pays $\$7$ per hour. Let x represent the number of hours worked at the first job and y represent the number of hours worked at the second job.

Which system of linear inequalities models Kim's situation?

Ⓐ $\begin{aligned} x + y &> 15 \\ 5x + 7y &< 65 \end{aligned}$

Ⓑ $\begin{aligned} x + y &\leq 15 \\ 5x + 7y &\geq 65 \end{aligned}$

Ⓒ $\begin{aligned} x + y &\leq 65 \\ 5x + 7y &\geq 15 \end{aligned}$

Ⓓ $\begin{aligned} x + y &> 65 \\ 5x + 7y &< 15 \end{aligned}$

20. Which function, $g(x)$, represents the function $f(x) = (x + 2)^2 - 1$ with a vertical shift 3 units down and a horizontal shift 5 units to the right?

Ⓐ $g(x) = (x - 3)^2 + 2$

Ⓑ $g(x) = (x - 3)^2 - 4$

Ⓒ $g(x) = (x + 7)^2 - 4$

Ⓓ $g(x) = (x + 7)^2 + 2$

21. What is the average rate of change for the function $f(x) = 3x^2 - 5$ on the interval $-3 \leq x \leq -1$?

Write the answer in the box.

22. A cell phone company is offering a plan for unlimited talk and text with an additional charge for data that can be represented by the function $C(g) = 14.99g + 32$, where C represents the cost, in dollars, and g represents the number of gigabytes of data.

According to this model, fill in the blanks with the values that complete the sentence.

The cost of the plan for unlimited talk and text is $\$$ ____ , with an additional cost of $\$$ ____ for each gigabyte of data.

23. The expression $3 + 2(x - 5)^2$ models the height of a ball after x seconds. The constant in the simplified form of the expression represents the initial height, in feet, of the ball. What is the initial height of the ball?

Ⓐ -30 feet

Ⓑ -5 feet

Ⓒ 3 feet

Ⓓ 53 feet

24. Jasmine needs to solve the equation $9x + 12 = 3(x - 8)$. Which equations represent a first step Jasmine could use to solve the original equation?

Select **two** answer choices.

Ⓐ Jasmine divides both sides of the equation by 3 to get $3x + 4 = x - 8$.

Ⓑ Jasmine divides both sides of the equation by 12 to get $9x + 1 = 4(x - 8)$.

Ⓒ Jasmine subtracts 3 from both sides of the equation to get $9x + 9 = x - 8$.

Ⓓ Jasmine subtracts 12 from both sides of the equation to get $9x = 3(x - 20)$.

Ⓔ Jasmine distributes 3 on the right side of the equation to get $9x + 12 = 3x - 24$.

25. Which is a zero of the polynomial expression $7x + 21$?

Ⓐ -21

Ⓑ -3

Ⓒ 3

Ⓓ 7

26. The table shows two sets of numbers: Set A and Set B.

Set A	Set B
−7	6
−3	1
2	−5
x	4
5	0

Which value(s) of x would result in Set B being a function of the values in Set A?

Select Function or Not a Function for each value of x.

	Function	Not a Function
-3	○	○
-2	○	○
1	○	○
2	○	○
3	○	○

27. Which expressions represent rational numbers?

Select **two** answer choices.

Ⓐ $(\sqrt{5})^2(\sqrt{16})^3$

Ⓑ $(\sqrt{32})^2(\sqrt{2})^3$

Ⓒ $(\sqrt{9})^2 + (\sqrt{8})^3$

Ⓓ $(\sqrt{0.65}) + \left(\frac{9}{4}\right)^{0.5}$

Ⓔ $(\sqrt{0.49}) + \left(\frac{1}{25}\right)^{0.5}$

28. The amount of a medicine in a patient's bloodstream is shown by the function $A(h) = 600(0.75)^h$, where h is the number of hours that have passed since the medicine was given.

What does 0.75 represent in this function?

Ⓐ The amount of medicine in the bloodstream increases by 25% each hour.

Ⓑ The amount of medicine in the bloodstream decreases by 25% each hour.

Ⓒ The amount of medicine in the bloodstream increases by 75% each hour.

Ⓓ The amount of medicine in the bloodstream decreases by 75% each hour.

29. A local store ordered a shipment of video game systems. The store sells 30 systems weekly to customers. As a result, the number of systems in stock decreased to 190 in the first week. Which statements correctly interpret the rate of change, or the y-intercept, of the given situation?

Select **<u>two</u>** answer choices.

Ⓐ There are 30 systems sold each week.

Ⓑ There are 160 systems in the shipment.

Ⓒ There are 190 systems in the shipment.

Ⓓ The situation can be modeled as $y = 30x - 190$.

Ⓔ The situation can be modeled as $y = -30x + 220$.

30. The function $h(t) = -5t^2 + 10t + 1$ represents the height, in meters, of a diver above the water t seconds after the diver leaves the diving board.

Which statements are true? Select **two** answer choices.

Ⓐ The diver's highest elevation is at 10 meters.

Ⓑ The diver's initial height is 5 meters above the water.

Ⓒ The diver enters the water after approximately 2.1 seconds.

Ⓓ The diver enters the water after approximately -0.1 seconds.

Ⓔ The diver is again at the same height as the diving board at 2 seconds.

31. Select the box or boxes that correctly identify the zeros of each polynomial.

	-3	-2	-1	1	2
$x^2 + 5x + 6$	○	○	○	○	○
$x^2 + x - 6$	○	○	○	○	○
$2x^2 - 2x - 4$	○	○	○	○	○
$x^2 + 6x + 9$	○	○	○	○	○

32. Given $f(x) = x^2 + 1$ and $g(x) = |x + 3|$, which value of x is a solution to the equation $f(x) = g(x)$?

Ⓐ -3

Ⓑ -2

Ⓒ 1

Ⓓ 2

33. Cars 'R' Us car rental charges a flat fee of $\$24$ and an additional $\$0.35$ for every mile the car is driven.

Which function models the total cost, $C(x)$, of renting a car for x miles?

Ⓐ $C(x) = 0.35x - 24$

Ⓑ $C(x) = 0.35x + 24$

Ⓒ $C(x) = 24x - 0.35$

Ⓓ $C(x) = 24x + 0.35$

34. Select the boxes that show which expressions are equivalent.

	$(x+7)(x-9)$	$(x+8)^2-1$	$-x^2+16x-63$
$-(x-8)^2+1$	○	○	○
$(x-1)^2-64$	○	○	○
$x^2-2x-63$	○	○	○
$x^2+16x+63$	○	○	○
$(x+7)(x+9)$	○	○	○

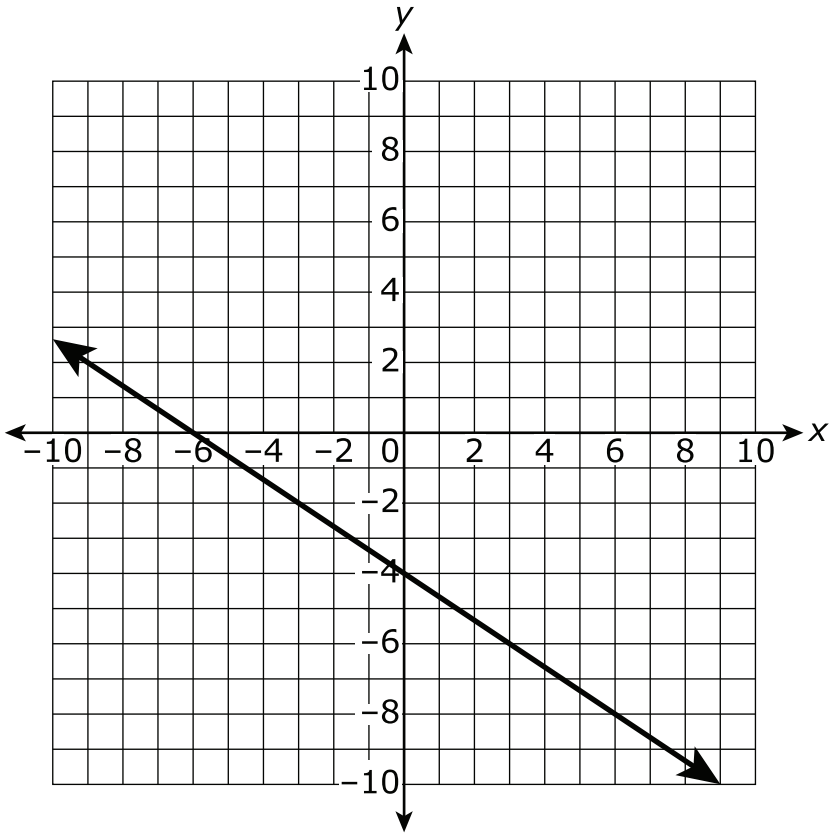
35. What is the simplified form of the polynomial expression shown?

$$-3x^2(x-y^2)-(y^3-5)-3y^2(x^2-4y)+4x^3$$

Fill in the blanks with the values.

x^3+ ☐ y^3+ ☐

36. Which statements are true about the line shown on the graph?



Select **two** answer choices.

Ⓐ The point $(-4, 0)$ is on the line.

Ⓑ The point $(0, -4)$ is on the line.

Ⓒ The point $(36, 28)$ is on the line.

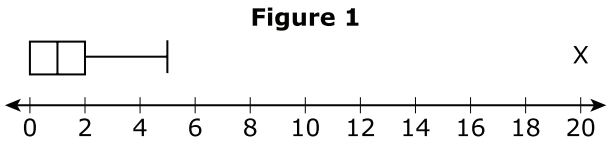
Ⓓ The graph represents the equation $2x - 3y = -12$.

Ⓔ The graph represents the equation $2x + 3y = -12$.

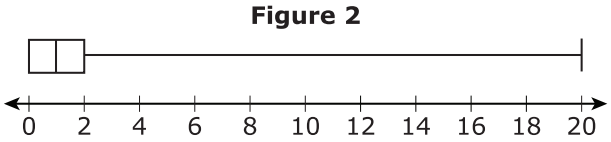
37. The number of absences for each student in Mr. Lee's class is $1, 1, 0, 5, 0, 20, 0, 3, 0, 2, 2, 2, 1, 1$.

Which box plot **best** represents the data?

Ⓐ



Ⓑ



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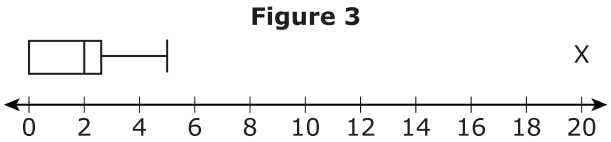

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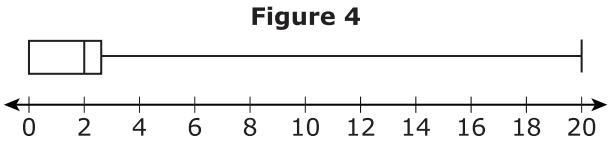


38. Which scenarios **best** represent exponential growth, exponential decay, or neither?

Select the box that describes each scenario as exponential growth, exponential decay, or neither.

	Exponential Growth	Exponential Decay	Neither
An initial population of 15 hamsters doubles each year for 6 years.	○	○	○
Sheila bought a car for $\$18{,}000$. She expects the car to lose value at a rate of 14% per year.	○	○	○
Ella starts a track program by walking 2 miles. She increases her distance 3% each week.	○	○	○
To take a taxi, it will cost Connor $\$2.00$ for the first mile. After 5 miles, it will cost him a total of $\$6.50$.	○	○	○
Membership at a fitness center declined at a rate of 5% per year. There were 125 members at the end of the first year.	○	○	○

39. Which equation could be used to find the zeros of the function $f(x) = 6x^2 - x - 15$?

Ⓐ $(x + 3)(x - 4) = 0$

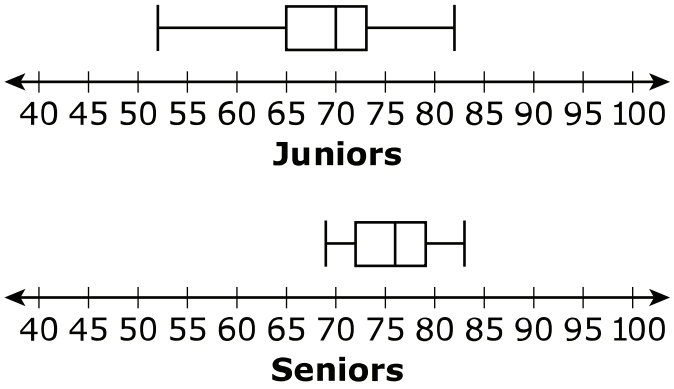
Ⓑ $(x + 3)(x - 5) = 0$

Ⓒ $(2x + 3)(3x - 5) = 0$

Ⓓ $(3x + 4)(2x - 3) = 0$

40. All juniors and seniors who drive to school are required to park in Student Parking Lot A. The transportation director tracks the number of vehicles parked in Student Parking Lot A for a month. The results are recorded in the box plots.

Number of Vehicles in Student Parking Lot A



Which statement **best** represents the box plots?

Ⓐ More seniors had vehicles to drive than juniors.

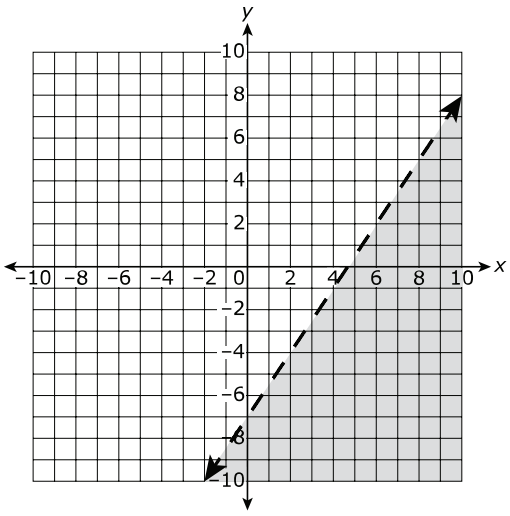
Ⓑ Seniors drove to school more consistently than juniors.

Ⓒ If a vehicle were chosen at random, it would most likely be one driven by a senior.

Ⓓ On any given day of the month, there were more vehicles driven by seniors than driven by juniors.

41. Which graph is the solution to $3x - 2y < 14$?

Ⓐ



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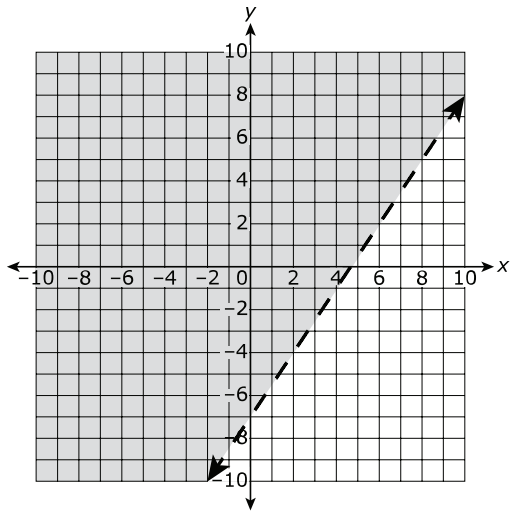
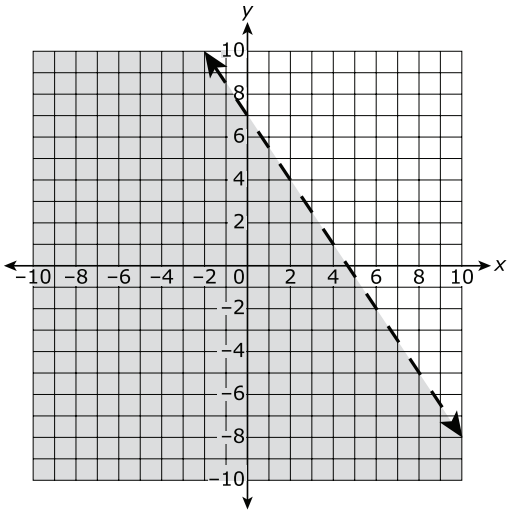
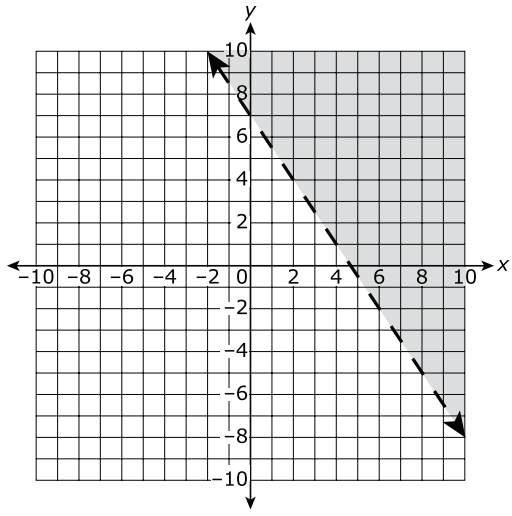


Ⓒ



Ⓓ



42. Which polynomial represents the product of $2x - 3$ and $x^2 + 6x - 2$?

Ⓐ $2x^3 + 6x - 6$

Ⓑ $2x^3 - 18x - 2$

Ⓒ $2x^3 + 9x^2 - 22x + 6$

Ⓓ $2x^3 + 15x^2 - 14x + 6$

43. A school has 124 students who want to take a new computer class. Each class can have a maximum of 18 students. Which inequality could be used to determine how many classes, c, need to be scheduled so that all students can take the class?

Ⓐ $\frac{124}{c} \leq 18$

Ⓑ $\frac{c}{124} \leq 18$

Ⓒ $\frac{124}{c} \geq 18$

Ⓓ $\frac{c}{124} \geq 18$

44. With a setup fee of $\$55$, the total cost, in dollars, C, to provide food for an event with p people is given by the function $C(p) = 16p + 55$. When the setup fee increases by $\$30$, the new total cost, in dollars, T, is given by the function $T(p) = C(p) + 30$.

Which statement is true?

Ⓐ The graph of T is a vertical translation 30 units up from the graph of C.

Ⓑ The graph of T is a vertical translation 30 units down from the graph of C.

Ⓒ The graph of T is a horizontal translation 30 units left from the graph of C.

Ⓓ The graph of T is a horizontal translation 30 units right from the graph of C.

45. What is the solution to $-2(9r + 3) - 7r \geq -10r - (12r + 9)$?

Ⓐ $r \leq -5$

Ⓑ $r \geq -5$

Ⓒ $r \leq 1$

Ⓓ $r \geq 1$

46. The table contains some points of a quadratic function.

x	$f(x)$
−6	0
−5	−6
−4	−10
−3	−12
−2	−12
−1	−10
0	−6

Which statements are true for the function represented by the table?

Select **two** answer choices.

Ⓐ The function has a zero at $(0, -6)$.

Ⓑ The function has a zero at $(-6, 0)$.

Ⓒ The values of $f(x)$ are increasing on the interval $-2 < x < 0$.

Ⓓ The values of $f(x)$ are decreasing on the interval $-2 < x < 0$.

Ⓔ The function has a maximum value between $x = -3$ and $x = -2$.

47. The student council estimated that they would have 250 people attend the homecoming dance. The number of people who actually attended was 315. What is the percent of error to the nearest hundredth percent?

Fill in the blank with the value that makes the statement true.

The percent of error to the nearest hundredth percent is
[ ] %.

48. The cost for bowling includes $\$4.00$ for shoes and $\$4.75$ for each game bowled. Which equation represents the amount, in dollars, y, for x games bowled?

Ⓐ $y = 4x - 4.75$

Ⓑ $y = 4x + 4.75$

Ⓒ $y = 4.75x - 4$

Ⓓ $y = 4.75x + 4$

49. Which ordered pairs are on the graph of $f(x) = 4(3)^x$?

Select **two** answer choices.

Ⓐ $\left(-1, \frac{4}{3}\right)$

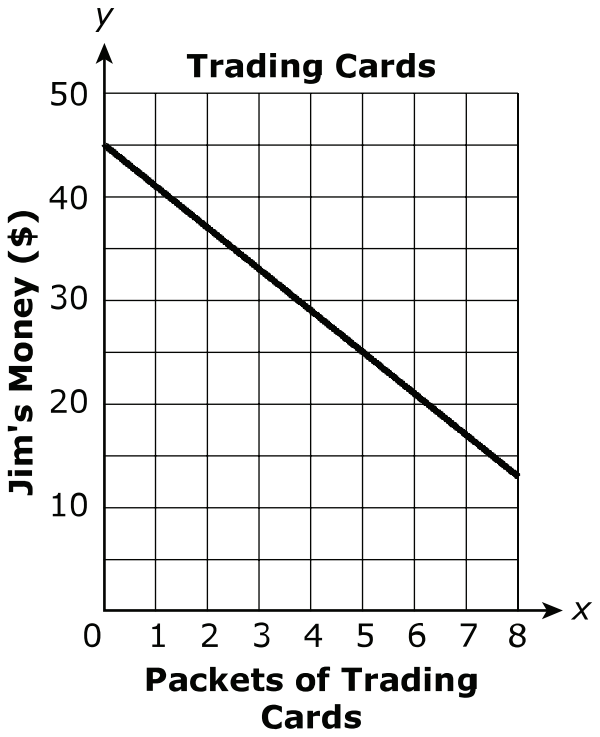
Ⓑ $(0, 12)$

Ⓒ $\left(\frac{1}{2}, 6\right)$

Ⓓ $(2, 144)$

Ⓔ $(4, 324)$

50. The function $f(p) = 45 - 4p$ represents the amount of money, in dollars, Jim has after purchasing p packets of trading cards. The function is modeled by the graph.



Based on the scenario, which statement describes domain values of the function?

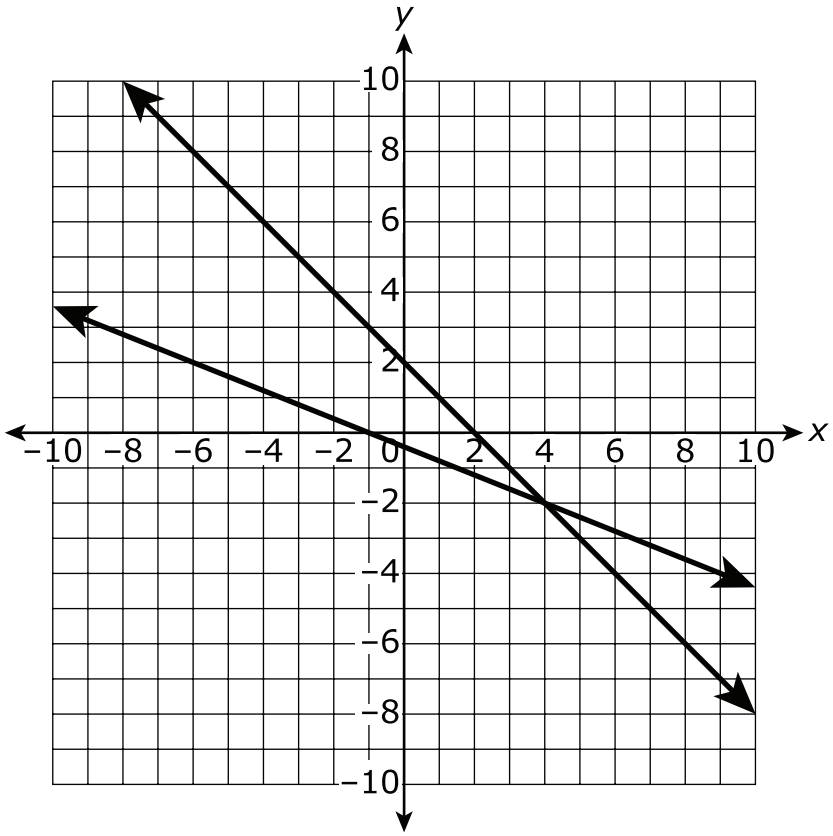
Ⓐ The domain of the function includes all real numbers.

Ⓑ The domain of the function includes all real numbers where $p \leq 45$.

Ⓒ The domain of the function includes all whole numbers where $p \geq 0$.

Ⓓ The domain of the function includes all whole numbers where $0 \leq p \leq 11$.

51. Which system of equations is represented by the graph?



Ⓐ $x - 5y = 14$
$5x - 4y = 28$

Ⓑ $x + 5y = -6$
$5x + 4y = 12$

Ⓒ $3x - 3y = 6$
$2x - 5y = 18$

Ⓓ $3x + 3y = 6$
$2x + 5y = -2$

52. Steve is using the completing the square method to solve a quadratic equation. His first 2 steps are shown.

Given: $2x^2 + 32x + 16 = 0$

Step 1: $x^2 + 16x + 8 = 0$

Step 2: $x^2 + 16x = -8$

Fill in the blanks to complete the square in Step 3.

Step 3: $x^2 + 16x + \square = \square$

53. Given the function $p(x) = \begin{cases} x^2 + 5x + 6, & x < -4 \\ x + 4, & x \geq -4 \end{cases}$, what is the range when the domain is $\{-6, -4, -2, 0, 2\}$?

Ⓐ $\{-60, 0, 2, 4, 6\}$

Ⓑ $\{-2, 0, 2, 4, 6\}$

Ⓒ $\{0, 2, 6, 12, 20\}$

Ⓓ $\{0, 2, 4, 6, 12\}$

54. The orders at a concession stand during the month of September are shown in the table.

Concession Stand Sales - September

	Soda	**Water**	**No Drink**	**Total**
Hot Dog	122	66	24	212
Hamburger	100	58	12	170
No Food	78	40	0	118
Total	300	164	36	500

Which statements are true about the concession stand sales for the month of September?

Select **two** answer choices.

Ⓐ The number of sales of a hamburger and water combination was 58.

Ⓑ The percentage of hot dog sales was less than the percentage of hamburger sales.

Ⓒ The number of drink sales with no food was less than the number of food sales with no drink.

Ⓓ The percentage of sales of a hot dog and soda combination was greater than 30% of all sales.

Ⓔ The percentage of sales of a hamburger and water combination was less than 20% of all sales.

55. The formula for the surface area of a right triangular pyramid is given.

$$SA = B + \frac{1}{2}PL$$

Which equation is solved for P, the perimeter of the base of a right triangular pyramid?

Ⓐ $P = \dfrac{L(SA + B)}{2}$

Ⓑ $P = \dfrac{2(SA - B)}{L}$

Ⓒ $P = \dfrac{2(SA + B)}{L}$

Ⓓ $P = \dfrac{SA - B}{2L}$

56. Sam has $3{,}250$ followers on social media. His number of followers is decreasing at a rate of 3% per week. Which function represents his number of followers after w weeks?

Ⓐ $f(w) = 3{,}250(0.97)^{w}$

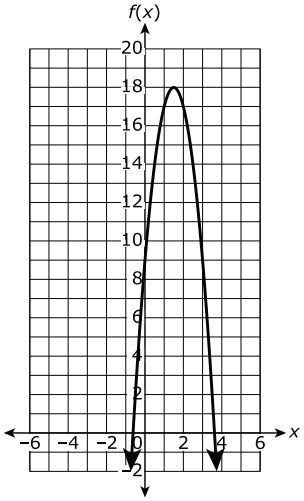
Ⓑ $f(w) = 3{,}250(1.03)^{w}$

Ⓒ $f(w) = 3{,}250(1.03)^{w-1}$

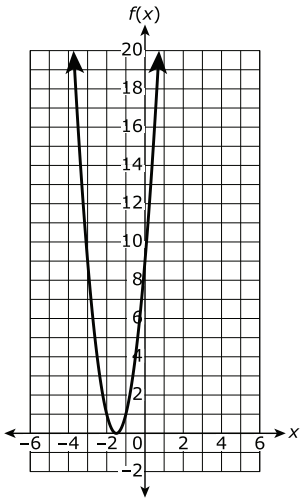
Ⓓ $f(w) = 3{,}250(0.97)^{w-1}$

57. Given the polynomial $4x^2 + 12x + 9$, which option correctly identifies a zero and a sketch of the graph of the function defined by the polynomial?

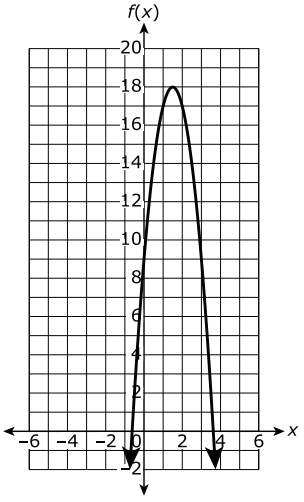
Ⓐ $x = -\frac{3}{2}$,



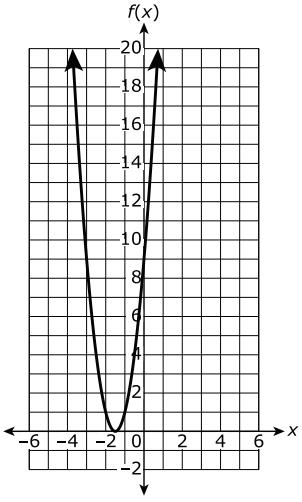
Ⓑ $x = -\frac{3}{2}$,



Ⓒ $x = \frac{3}{2}$,



Ⓓ $x = \frac{3}{2}$,



58. Which expressions are equivalent to $4x^2 - 25$?

Select **two** answer choices.

Ⓐ $(2x - 5)^2$

Ⓑ $(2x + 5)^2$

Ⓒ $(2x)^2 - (5)^2$

Ⓓ $(2x - 5)(2x + 5)$

Ⓔ $(2x - 5)(2x - 5)$

STOP

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DIRECTIONS: Use the information provided in the sentences to answer questions 1–8 that follow.

Gary, the technology coordinator of a high school, is planning to purchase one memory stick for each of the teachers. There are 86 teachers at the school. The English teachers requested memory sticks that have a capacity of 32 gigabytes. Gary determines that $\$600$ is the maximum amount that can be spent for all of the memory sticks. Gary finds the following prices for the purchases from Computer City.

Option	Memory Stick Capacity	Cost Each
A	16 gigabyte	$5.99
B	32 gigabyte	$9.99

Free shipping for any order $35 or more.

1. If a represents the number of 16-gigabyte memory sticks and b represents the number of 32-gigabyte memory sticks, which equation represents the number of each kind of memory stick that should be purchased for the teachers?

Ⓐ $a + b = 86$

Ⓑ $a + b = 600$

Ⓒ $16a + 32b = 86$

Ⓓ $16a + 32b = 600$

2. Using a to represent the number of 16-gigabyte memory sticks and b to represent the number of 32-gigabyte memory sticks, which inequality represents a constraint on the number of memory sticks that can be purchased based on the amount of money available for purchasing the memory sticks?

Ⓐ $16a + 32b < 600$

Ⓑ $16a + 32b > 600$

Ⓒ $5.99a + 9.99b \leq 600$

Ⓓ $5.99a + 9.99b \geq 600$

3. Gary buys only 1 memory stick for each teacher. He buys 10 32-gigabyte memory sticks.

Select the boxes that indicate whether the domain values for a, the number of 16-gigabyte memory sticks, are reasonable or unreasonable.

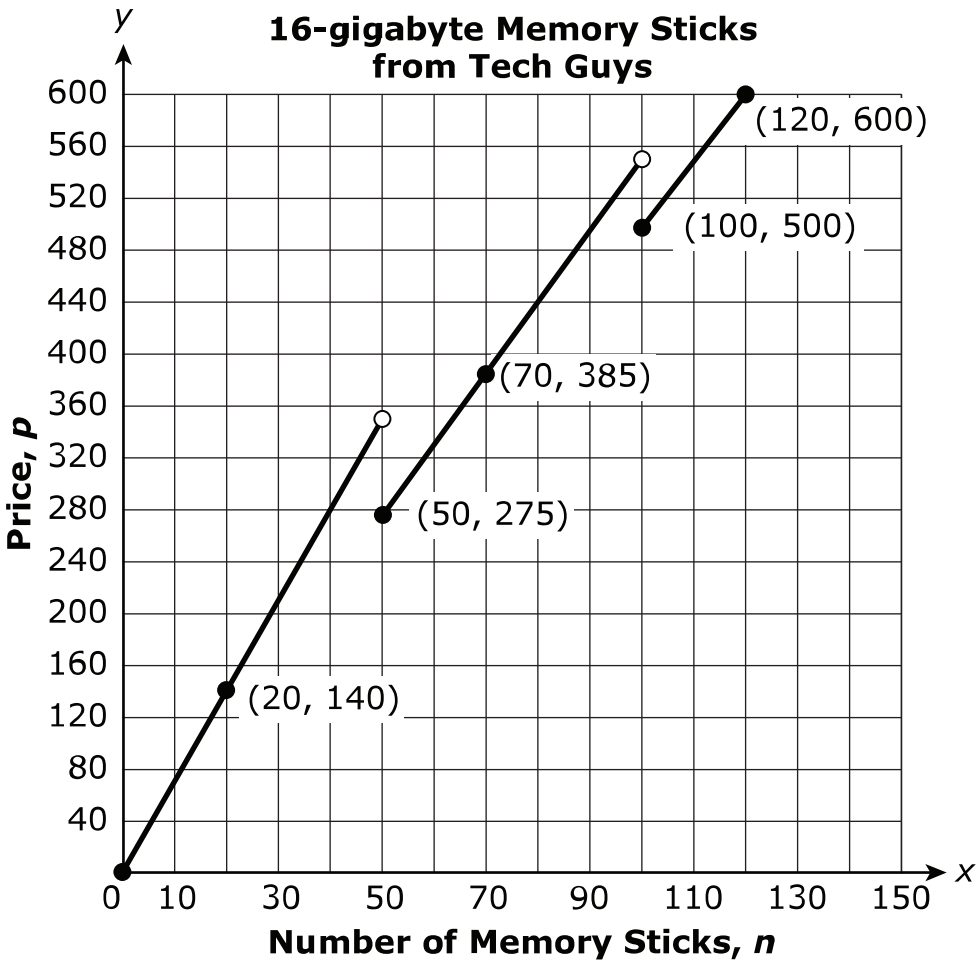
	$a = 73$	$a = 76$	$a = 83$	$a = 86$
reasonable	☐	☐	☐	☐
unreasonable	☐	☐	☐	☐

4. Gary wants to stay within the allowed budget of $\$600$ and only buy 1 memory stick for each teacher. Given different numbers of 32-gigabyte memory sticks, Gary will need to determine whether he can purchase enough of the 16-gigabyte memory sticks for the remaining teachers.

Select Yes or No for each number of 32-gigabyte memory sticks to indicate whether Gary can purchase that number of 32-gigabyte memory sticks and have enough money remaining to purchase memory sticks for the remaining teachers.

	Yes	No
20	○	○
21	○	○
22	○	○
25	○	○

5. Gary finds prices from another supplier, Tech Guys. The prices for 16-gigabyte memory sticks are displayed on the graph.



Select True or False for each statement about the graph.

	True	False
If $n = 100$, then $\$5.00$ is the cost of each memory stick.	○	○
If $n > 100$, then $\$5.00$ is the cost of each memory stick.	○	○
If $50 < n \leq 100$, then $\$5.50$ is the cost of each memory stick.	○	○
If $0 \leq n \leq 50$, then $\$7.00$ is the cost of each memory stick.	○	○

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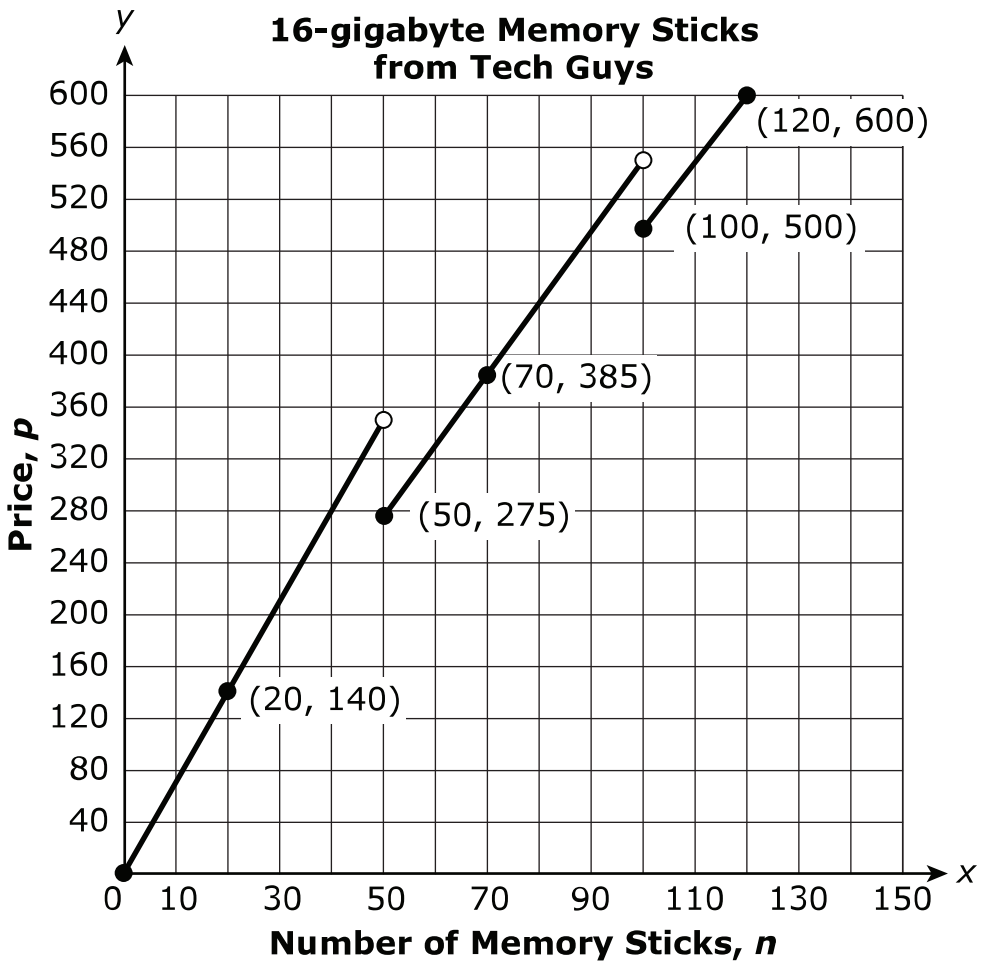
6. The following question has two parts. First, answer Part A. Then, answer Part B.

Gary notices that Computer City offers free shipping, but that Tech Guys charges for shipping.



Shipping Cost for Tech Guys

Amount Spent	$0 – $199.99	$200 – $499.99	$500 or more
Shipping Cost	$12	$18	$25

Part A

Gary considers buying 65 16-gigabyte memory sticks from Tech Guys. Within the budget of $\$600$, he plans to purchase as many 32-gigabyte memory sticks from Computer City as possible.

Which inequality can be used to determine the maximum number of memory sticks, a, that can be purchased from Computer City?

Ⓐ $5.99a \leq 600 - (357.50 + 18)$

Ⓑ $5.99a \leq 600 - (357.50 - 18)$

Ⓒ $9.99a \leq 600 - (357.50 + 18)$

Ⓓ $9.99a \leq 600 - (357.50 - 18)$

Part B

Gary instead buys 18 32-gigabyte memory sticks from Computer City. Within the budget of $\$600$, he plans to purchase as many 16-gigabyte memory sticks from Tech Guys as possible.

Which inequality can be used to determine the maximum number of memory sticks, n, that can be purchased from Tech Guys?

Ⓐ $5n + 25 \leq 600$

Ⓑ $5.5n + 18 \leq 300$

Ⓒ $5.5n + 18 \leq 420.18$

Ⓓ $7n + 12 \leq 420.18$

7. Gary checks the prices of a third store, Computers Now. He buys 18 32-gigabyte memory sticks from Computer City. Within the budget of $\$600$, he plans to purchase as many 16-gigabyte memory sticks from Computers Now as possible.

Gary writes the function $f(n) = 5.25n + 20$, where n is the number of 16-gigabyte memory sticks and $f(n)$ is the amount of money available to spend at Computers Now, to determine the cost of purchasing the remaining 16-gigabyte memory sticks from Computers Now.

What does 5.25 represent in Gary's function?

Select **<u>two</u>** answer choices.

Ⓐ x-intercept

Ⓑ y-intercept

Ⓒ the shipping cost

Ⓓ the cost per memory stick

Ⓔ the rate of change in the graph

8. Gary buys 18 32-gigabyte memory sticks from Computer City. Within the budget of $\$600$, he plans to purchase as many 16-gigabyte memory sticks from Computers Now as possible.

Gary writes the function $f(n) = 5.25n + 20$, where n is the number of 16-gigabyte memory sticks and $f(n)$ is the amount of money available to spend at Computers Now, to determine the cost of purchasing the remaining 16-gigabyte memory sticks from Computers Now.

What does 20 represent in Gary's function?

Select **two** answer choices.

Ⓐ x-intercept

Ⓑ y-intercept

Ⓒ the shipping cost

Ⓓ the cost per memory stick

Ⓔ the rate of change in the graph

STOP

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

Mississippi Academic Assessment Program

Practice Test
ALGEBRA I

1	District/School/Class Information
District Name:	
School Name:	
Classroom/Group Name:	
Date:	

MARKING DIRECTIONS

- Use only soft black pencil (No. 2).
- Do NOT use ink pen or felt-tip marker.
- Make heavy, dark marks that completely fill the circle.
- Erase completely any marks you wish to change.
- Make NO stray marks on this answer document.

SAMPLE MARKS

RIGHT ○●○○

WRONG ⊘⊗◒◯

2 Student Name

Last Name | First Name | MI

1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	1
○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
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H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K
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M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
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P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
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3 State ID Number

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3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9

4 Birth Date

Month	Day		Year		
○ Jan					
○ Feb					
○ Mar	0	0	19	0	0
○ Apr	1	1	20	1	1
○ May	2	2			2
○ Jun	3	3			3
○ Jul		4			4
○ Aug		5			5
○ Sep		6			6
○ Oct		7			7
○ Nov		8		8	8
○ Dec		9		9	9

ALIGN TOP OF LABEL HERE
If student barcode labels are being used,
position label WITHIN the dotted lines.