

Algebra I

Semester 1 Review Test

Please read the following instructions carefully before beginning!

1. Do not open this test booklet until instructed to do so.
2. Do not write on any portion of this test booklet. Do all computations on the scratch paper provided.
3. For each problem, choose the one best answer.
4. Bubble the letter corresponding to your answer NEATLY in the appropriate circle of your answer sheet.
5. If the scanner cannot read your response, the answer is WRONG!
6. All scratch paper is to be turned in with your test materials.
7. During the test, you may not get out any materials, communicate with anyone, or leave the room.
8. During the test, I cannot clarify problems or answer questions, so please don't ask.
9. Do your best, and good luck!

Algebra Semester Exam Review

Name: _____

1. Simplify: $3(x - 4) - 5(x - 2) + 3(x - 3)$

[A] $-6x - 3$

[B] $-4x + 15$

[C] $-6x + 5$

[D] $x - 11$

2. Evaluate $\frac{a+t}{c}$ if $a = 3$, $c = -2$, $t = -4$

[A] $\frac{1}{2}$

[B] $-\frac{1}{2}$

[C] -2

[D] 2

3. Bert uses the equation $C = 24.99 + 0.24(x - 250)$ to find C , the total cost of his phone bill if he uses x minutes during peak times. Which of these statements best describes the cost of his phone bill?

[A] Bert is charged \$0.24 for each minute he uses

[B] Bert is charged \$0.24 for each minute he uses over 250 minutes

[C] Bert pays \$0.24 for the first 250 minutes

[D] Bert pays \$24.99 for his minute usage

4. Which of the following is an example of discrete data?

[A] Your weight from birth to age 14

[B] Your walking speed from this class to your locker

[C] The air temperature over a 90 day period

[D] The cost for purchasing x amount of sodas from a vending machine

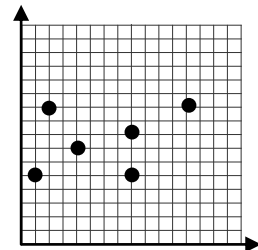
5. What is the range of the graph?

[A] $5 < y < 10$

[B] $1 < y < 12$

[C] $\{1, 2, 4, 8, 12\}$

[D] $\{5, 7, 8, 10\}$



6. A plumber charges \$35 to make a house call, plus \$25 an hour for labor. The equation $C = 25h + 35$ represents c , the total cost for h hours. What is the independent variable?

- [A] Number of hours worked [C] Price of labor
 [B] Amount of money paid [D] House call charge

7. Determine which relation represents a function.

[A]

x	3	2	5	2
y	4	4	1	5

[B]

x	1	2	3	4
y	3	6	9	6

[C]

x	1	1	1	1
y	4	3	3	1

[D]

x	3	3	1	1
y	4	3	2	5

8. Which of the following is the function rule for this table?

- [A] $f(x) = \frac{1}{3}x$ [C] $f(x) = x + 3$
 [B] $f(x) = x^3$ [D] $f(x) = 3x$

x	y
0	0
1	3
2	6
3	9

9. Find the range for the function $f(x) = 6x - 4$ when the domain is $\{-3, 0, 1, 5\}$

- [A] $R = \{-14, 0, 8, 26\}$
 [B] $R = \{-22, -4, 2, 26\}$
 [C] $R = \{22, 4, -3, -26\}$
 [D] $R = \{-28, -4, 76, 6\}$

10. What function describes the values in the table?

- [A] $y = 4x + 21$
 [B] $y = 5x + 20$
 [C] $y = 4x + 12$
 [D] $y = 12x + 4$

x	y
1	25
2	30
3	35
4	40

11. Which is a correct first step in solving $\frac{2}{7}x + 12 = 36$ for x ?

- [A] subtract 12 to both sides [B] add 12 from both sides
 [C] divide both sides by 7 [D] multiply both sides by 7

12. Simplify the inequality $7x - 2y \geq 8$

[A] $y \geq \frac{7}{2}x + 8$

[B] $y \geq -\frac{2}{7}x + \frac{8}{7}$

[C] $y \leq \frac{7}{2}x - 4$

[D] $y \leq -\frac{2}{7}x - \frac{4}{7}$

13. Solve for z: $6(z - 1) = 6z - 1$

[A] 0

[B] all real numbers

[C] no solution

[D] 6

14. In which step below does a mistake first appear in simplifying $0.5(-12c + 6) - 3(c + 4) + 10(c - 5)$?

Step 1: $-6c + 3 - 3(c + 4) + 10(c - 5)$

Step 2: $-6c + 3 - 3c - 12 + 10(c - 5)$

Step 3: $-6c + 3 - 3c - 12 + 10c - 50$

Step 4: $7c - 41$

[A] Step 1

[B] Step 2

[C] Step 3

[D] Step 4

15. What is the x coordinate of the x-intercept of the function $2y = -18x + 36$?

[A] 12

[B] 18

[C] -9

[D] 2

16. Put the equation $3x + 4y = 12$ in slope intercept form.

[A] $y = 12 - 3x$

[B] $y = 3 - \frac{3}{4}x$

[C] $y = 4 - 3x$

[D] $y = 12 - \frac{3}{4}x$

17. What is the equation in standard form of the line that passes through $(1, 24)$ and has a slope of $-3/5$?

[A] $3x + 5y = 125$

[B] $3x + 5y = 77$

[C] $3x + 5y = 123$

[D] $3x + 5y = 115$

18. Movie-by-Mail costs \$5 to join. Each movie that is rented costs \$2.95. Let x represent the number of movies. Which of the following represents the function rule for the situation.

[A] $f(x) = 5x - 2.95$

[B] $f(x) = 2.95x + 5$

[C] $f(x) = 2.95x - 5$

[D] $f(x) = 5x + 2.95$

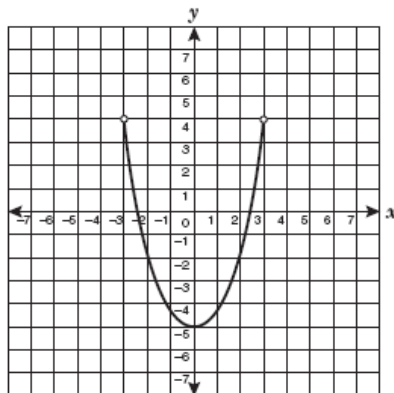
19. What is the domain of the function shown on the graph?

[A] $-3 < x < 3$

[B] $-3 \leq x \leq 3$

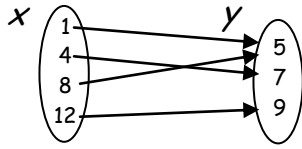
[C] $-5 < x \leq 4$

[D] $-5 \leq x < 4$



20. Which is NOT a representation of the following relation? $\{(1,5), (4,7), (8,5), (12,9)\}$

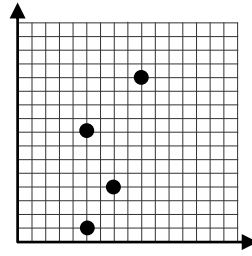
[A]



[B]

x	y
1	5
4	7
8	5
12	9

[C]



21. Jill has a \$45 gift card for movie rental. Each time she rents a movie \$3 is deducted from her gift card. If g represents the balance on her gift card, and m represents the number of movies Jill rents, which expression can be used to determine her gift card balance?

[A] $g = 45m - 3$

[B] $m = 45 - 3g$

[C] $m = 45g - 3$

[D] $g = 45 - 3m$

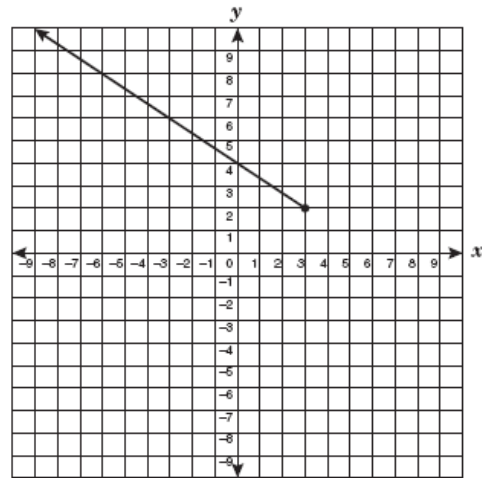
22. What is the range of the function shown on the graph?

[A] $y \leq 2$

[B] $y \leq 3$

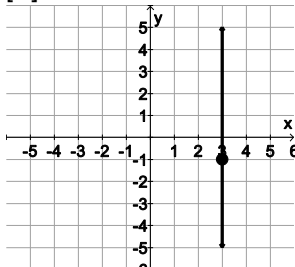
[C] $y \geq 2$

[D] $y \geq 3$

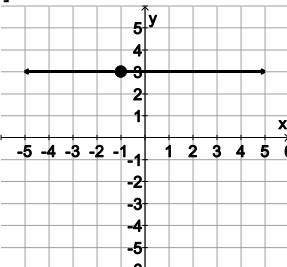


23. Graph a line that passes through the point $(3, -1)$ and has a slope of 0.

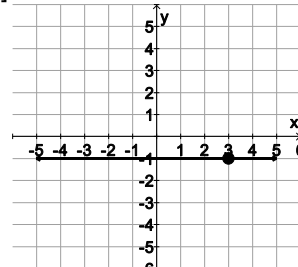
[A]



[B]



[C]



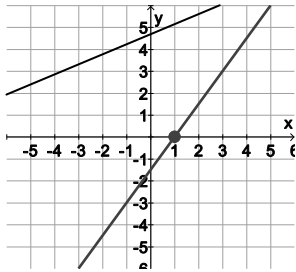
24. Find the rate of change for the data in the table.

- [A] \$10 per hour
- [B] \$30 per hour
- [C] \$20 per hour
- [D] \$200 per hour

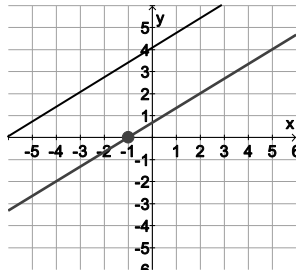
Hours worked	Amount Earned
1	\$20
4	\$80
5	\$100
10	\$200

25. Which of the following systems of equations has no solution?

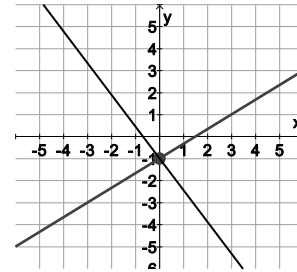
[A]



[B]

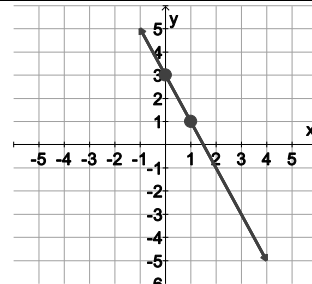


[C]



26. Which of the following is the equation of the line on this graph?

- [A] $y = 2x - 3$
- [B] $y = 2x + 3$
- [C] $y = -2x - 3$
- [D] $y = -2x + 3$

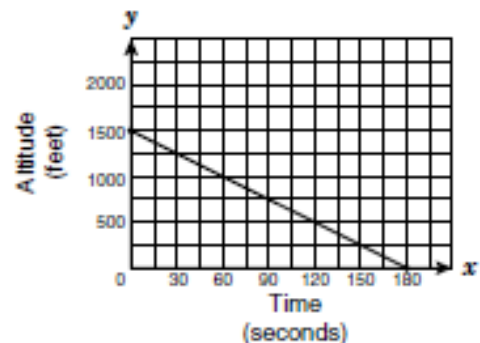


27. Find the equation of the line passing through the points (1, 2) and (5, 3).

- [A] $y = -1/4x + 11/8$
- [B] $y = 4x + 3$
- [C] $y = 1/4x + 7/4$
- [D] $y = 4x + 1$

28. The line segment on the graph shows the altitude of a landing airplane from the time its wheels are lowered to the time it touches the ground. Which of the following best describes the slope of the line segment?

- [A] The plane descends about 1 foot per 8 seconds.
- [B] The plane descends about 2 feet per second.
- [C] The plane descends about 1 foot per 2 seconds.
- [D] The plane descends about 8 feet per second.



29. The cost of renting a car for 1 day at Cars Plus is \$20 plus 10 cents per mile driven. The cost of renting a car for 1 day at Need-A-Car is \$20 plus 15 cents per mile driven. In a graph of the cost of a car rental, what does the initial \$20 represent?

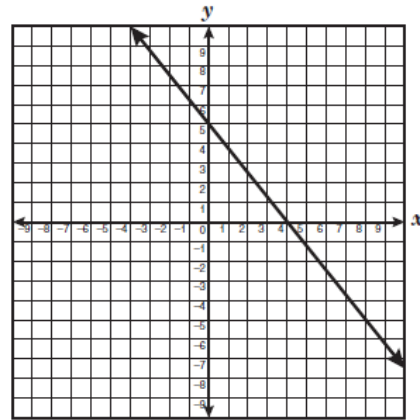
- [A] The y-intercept [B] The x-intercept [C] The slope [D] The point of intersection

30. Tyler wants to buy a video-game system for \$375. He can pay for the system in 12 months if he pays \$75 now and \$25 each month. How will the number of monthly payments be affected if Tyler pays \$75 now and \$30 each month?

- [A] He will make 10 fewer monthly payments. [B] He will make 5 fewer monthly payments.
 [C] He will make 3 fewer monthly payments. [D] He will make 2 fewer monthly payments.

31. What are the x- and y-intercepts of the function graphed?

- [A] (4, 0) and (0, 5)
 [B] (4, 0) and (5, 0)
 [C] (0, 4) and (5, 0)
 [D] (0, 4) and (0, 5)



32. Which equation describes the line with a slope of $\frac{3}{4}$ that contains the point (4, -2)?

- [A] $y = \frac{3}{4}x - 5$ [B] $y = 3x + 4$ [C] $y = \frac{3}{4}x + 4$ [D] $y = \frac{3}{4}x - 2$

33. Jolie wants to take guitar lessons. At Strum's there is a one-time registration fee is \$60, and each lesson costs \$40. At Music Time there is a rental deposit of \$50 and each lesson is \$45. Which of the following systems of equations can Jolie use to determine x , the number of lessons she can take if she wants to spend c dollars?

- [A] $60x + 40 = c$ [B] $60x - 40 = c$ [C] $60 + 40 = c$ [D] $60 + 40x = c$
 $50x + 45 = c$ $50x - 45 = c$ $50 + 45 = c$ $50 + 45x = c$

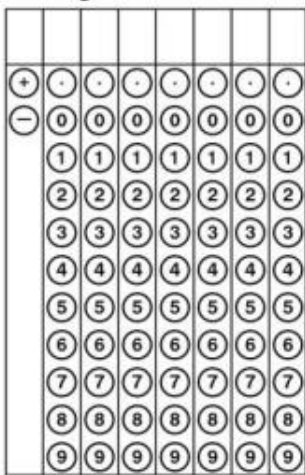
34. A high school band held a bake sale. The number of brownies sold was four more than twice the number of cookies sold. The band sold a total of 52 brownies and cookies. Use a system of equations to determine how many brownies were sold.

- [A] 28 [B] 16 [C] 36 [D] 24

35. The perimeter of a rectangle is 42 centimeters. The length of the rectangle can be represented by $(x + 4)$ and its width can be represented by $(2x - 7)$. What are the dimensions of the rectangle?

- [A] length = 10 and width = 11
- [B] length = 8 and width = 13
- [C] length = 6 and width = 15
- [D] length = 12 and width = 9

36. In the quadratic equation $x^2 - 3x + c = 0$, c represents an unknown constant. If $x = 1$, what is the value of c ?



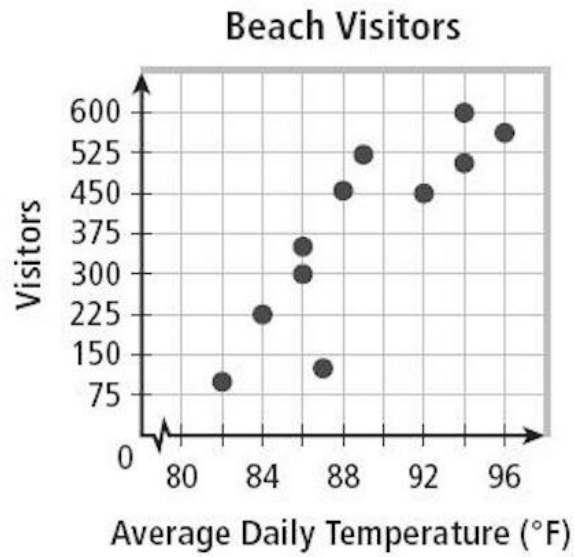
37. Given that y is a function of x and $y = 2x + 3$, express this using function notation.

- [A] $f(x) = (x - 3)/2$
- [B] $f(x) = 2x + 3$
- [C] $f(y) = 2x + 3$
- [D] $f(y) = 2y + 3$

38. Troy graphed the line of the equation $y = 5x + 2$ and Sara graphed $y = 5x - 2$. Which of the following statements best describes the line that Sara graphed?

- [A] It intersects Troy's line at $(2, -2)$
- [B] It is parallel and 4 units above Troy's line
- [C] It is parallel and 4 units below Troy's line
- [D] It is exactly the same line as Troy's line

39. What correlation best describes the scatterplot shown below?



- [A] positive correlation
- [B] non-linear correlation
- [C] negative correlation
- [D] no correlation

40. A 120 feet piece of rope is cut into 3 pieces. The first piece is twice as long as the second piece. The third piece is three times as long as the second piece. What is the length of the longest piece of rope?

- [A] 20 feet
- [B] 60 feet
- [C] 72 feet
- [D] 48 feet