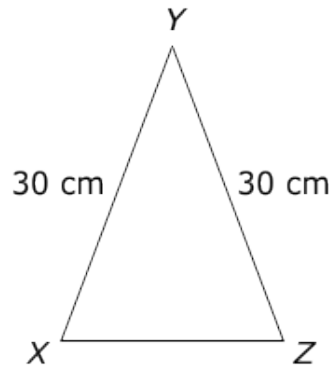


TEST NAME: Q1Q2 test Math 1 Kwon
TEST ID: 2743763
GRADE: 09 - Ninth Grade
SUBJECT: Mathematics
TEST CATEGORY: My Classroom

Student: _____
Class: _____
Date: _____

1. In the triangle below, $m\angle X = 4x - 10$ and $m\angle Y = 2x$.



What is the measure of $\angle Z$?

- A. 20°
B. 30°
C. 40°
D. 70°
2. **Scott can install a fence in 2 days. Dave can install the same fence in 7 days. How long, in days, would it take Scott and Dave to install the fence if they worked together?**
- A. $\frac{9}{14}$
B. $1\frac{5}{9}$
C. $3\frac{1}{9}$
D. $4\frac{1}{2}$
3. **Jesse wants to purchase three binders and a backpack. If the backpack costs \$16, which equation represents the situation in which x denotes the cost per binder purchased and y denotes the total cost of Jesse's purchase?**
- A. $y = 16x$
B. $y = x + 16$
C. $y = 16x + 3$
D. $y = 3x + 16$

4. Which of the following equations could represent the relationship between x and y in the table below?

x	0	1	2	3	4	5
y	-1	0	3	8	15	24

- A. $y = x - 1$
- B. $y = x + 1$
- C. $y = x^2 - 1$
- D. $y = x^2 + 1$
5. The graph of which of the following equations has a slope of $-\frac{1}{2}$ and an x -intercept of $(-6, 0)$?
- A. $y = -\frac{1}{2}x - 6$
- B. $y = -\frac{1}{2}x - 3$
- C. $y = -\frac{1}{2}x + 3$
- D. $y = -\frac{1}{2}x + 6$
6. Kaitlyn is mowing her lawn. The lawn has an area of 5,625 square feet. She can mow about 75 square feet each minute. Which equation represents the amount of lawn, y , that Kaitlyn still has left to mow after x minutes?
- A. $y = 5,625 + 75x$
- B. $y = 5,625 - 75x$
- C. $y = 5,625(x - 75)$
- D. $y = 5,625(75 - x)$
7. The formula to convert Fahrenheit (F) to Kelvin (K) is $K = \frac{5}{9}(F - 32) + 273$. Which formula would calculate the temperature, in Fahrenheit, given the temperature in Kelvin?
- A. $F = \frac{9}{5}(K - 32) + 273$
- B. $F = \frac{5}{9}(K + 273) - 32$
- C. $F = \frac{9}{5}(K - 273) + 32$
- D. $F = \frac{5}{9}(K + 32) - 273$

8. The equation below is used to find S , the sum of the measures of the interior angles of a polygon with n sides.

$$S = 180(n - 2)$$

Which equation is equivalent when solved for n in terms of S ?

- A. $n = 180S + 2$
B. $n = 180(S + 2)$
C. $n = \frac{S + 2}{180}$
D. $n = \frac{S}{180} + 2$
9. If Sonja deposits \$1,000 into a savings account at 4% simple interest, how long will it take her to earn \$100 in interest? ($I = PRT$)
- A. 0.25 years
B. 2.5 years
C. 25 years
D. 250 years
10. Counting the number of cricket chirps can provide an estimate of the temperature. The formula below gives the temperature in degrees Celsius based on the number of cricket chirps (n) in 15 seconds.

$$C = \frac{5n + 40}{9}$$

This formula can be rearranged to solve for the number of chirps as a function of the temperature in degrees Celsius. Which formula has been rearranged correctly?

- A. $n = \frac{9}{5}C - 8$
B. $n = \frac{9}{5}C - 40$
C. $n = \frac{9}{5}(C - 8)$
D. $n = \frac{9}{5}(C - 40)$
11. Which of the following points lies on the graph of the equation $y = \frac{3}{2}x + 6$?
- A. (0, -4)
B. (4, 12)
C. (9, 2)
D. (15, 6)

12. Which point lies on the graph of the equation $y = \frac{3}{4}x - 8$?

- A. (0, 8)
- B. (3, -4)
- C. (4, -5)
- D. (-4, 11)

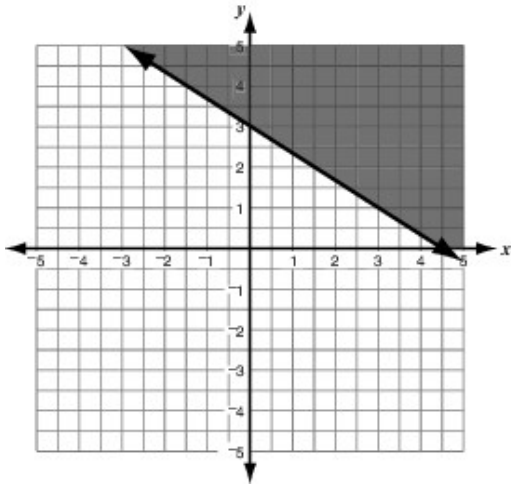
13. Which ordered pair lies on the graph of the line $2x - 5y = 12$?

- A. $(3, -\frac{6}{5})$
- B. (1, 2)
- C. $(0, \frac{12}{5})$
- D. (-1, -2)

14. Which ordered pair is a solution to the inequality $-2x - 3y > 9$?

- A. (0, -3)
- B. (-4, 0)
- C. (1, -2)
- D. (-2, -3)

15. Which inequality represents the graph below?



A. $y > -\frac{2}{3}x + 3$

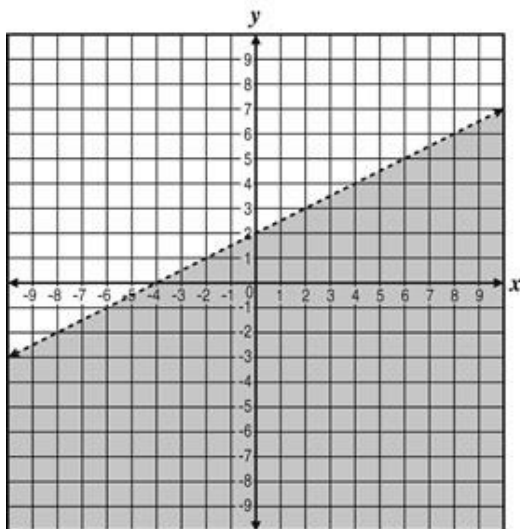
B. $y \geq -\frac{2}{3}x + 3$

C. $y \geq -\frac{3}{2}x + 3$

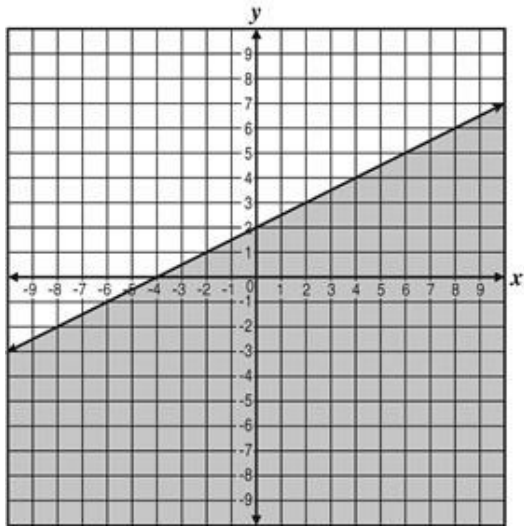
D. $y > -\frac{3}{2}x + 3$

16. The shaded portion of which graph BEST represents the solution to the inequality $2y - x \leq 4$?

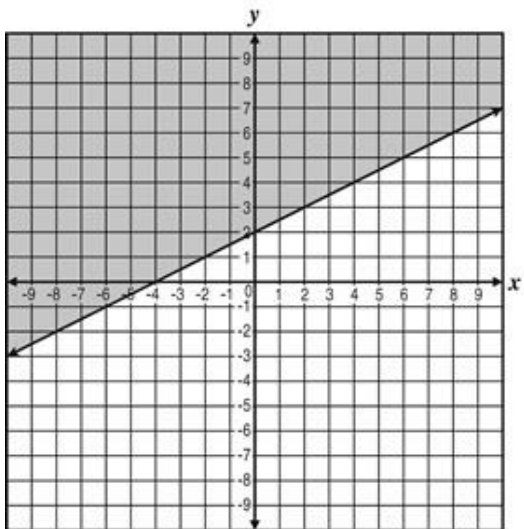
A.



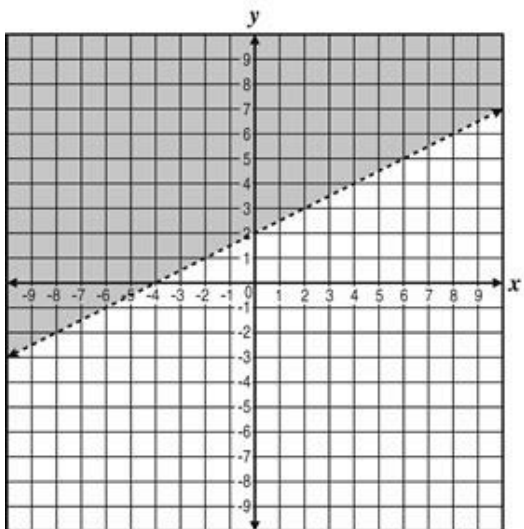
B.



C.

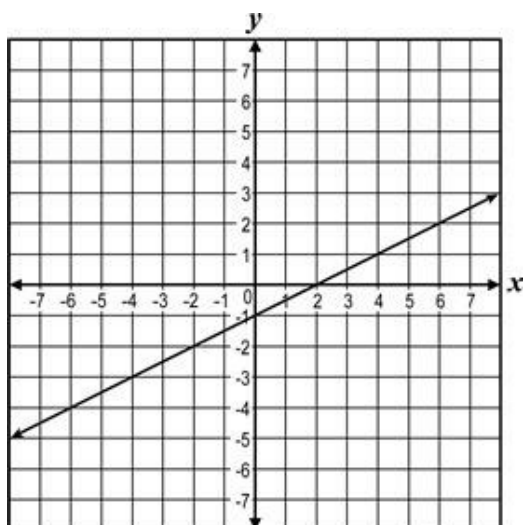


D.



17. Wendy solved an equation and found x to be 5. Which equation could she have solved?
- A. $2x + 4 = 12$
 - B. $13 - 4x = 20$
 - C. $3x - 10 = 5x + 20$
 - D. $14 + 2x = 54 - 6x$
18. Which of the following is equivalent to $10 - 4x \leq 50$?
- A. $x \leq -15$
 - B. $x \geq -15$
 - C. $x \leq -10$
 - D. $x \geq -10$
19. Janis uses the equation $C = 4h + 8$ to find the total cost, C , in dollars, of renting a bike for h hours. If Janis does not spend more than \$60, what is the maximum number of hours she can rent the bike?
- A. 48
 - B. 17
 - C. 13
 - D. 7
20. What is the solution to $6x + 8 - 6x = 10$?
- A. 0
 - B. 2
 - C. all real numbers
 - D. no solution

21. Which equation describes the graph of the line?



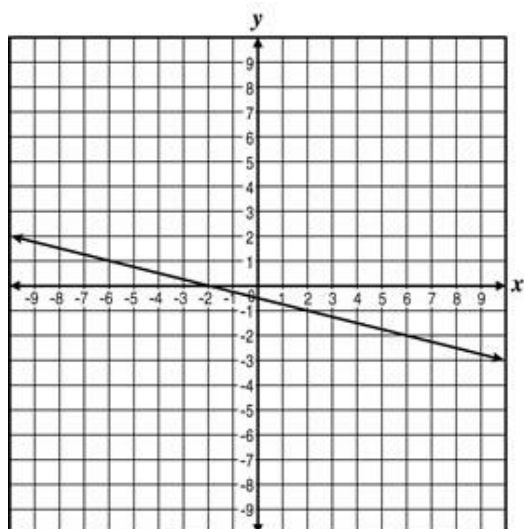
- A. $2y - x = -2$
- B. $2y - x = 1$
- C. $y - 2x = -1$
- D. $y - 2x = 2$

22. Which exponential function's graph passes through the points shown in the table below?

x	y
1	0.25
3	0.0625

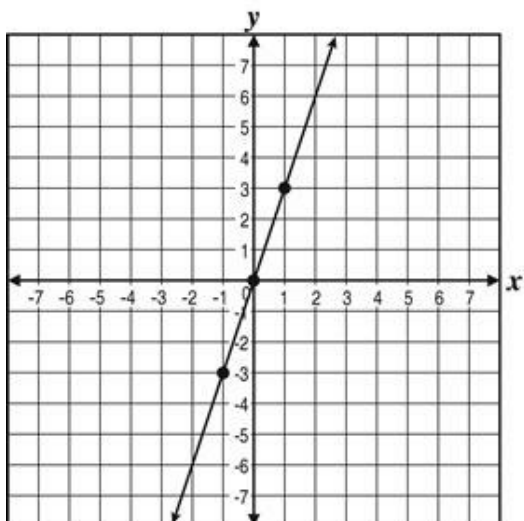
- A. $y = 2\left(\frac{1}{8}\right)^x$
- B. $y = \left(\frac{1}{4}\right)^x$
- C. $y = \frac{1}{2}\left(\frac{1}{2}\right)^x$
- D. $y = \frac{1}{8}(2)^x$

23. Which equation is BEST represented by the line shown on the graph?



- A. $y + 2 = -4(x - 6)$
- B. $y - 6 = -4(x + 2)$
- C. $y + 2 = -\frac{1}{4}(x - 6)$
- D. $y - 6 = -\frac{1}{4}(x + 2)$

24. What is the equation of this line?



- A. $y = x$
- B. $y = 2x$
- C. $y = 3x$
- D. $y = 6x$

25. A sequence is shown below.

$-3, -2, -1, 0, 1, \dots$

If n represents the position of the number in the sequence, which expression can be used to determine the n th term?

- A. $2n - 4$
- B. $n - 4$
- C. $n + 1$
- D. $n - 3$

26. The number of mosquitoes in a small pool of stagnant water increases according to the pattern below.

$7, 10, 13, 16, \dots$

Which expression represents any term in the pattern when n is the number of the term?

- A. $4 + n$
- B. $4 + 3n$
- C. $3 + 4n$
- D. $4 + n^3$

27. In a sequence, each number after the first number is obtained by adding 4 to the previous number. If the first number in the sequence is 7, which of the following expressions represents the n th number in the sequence?

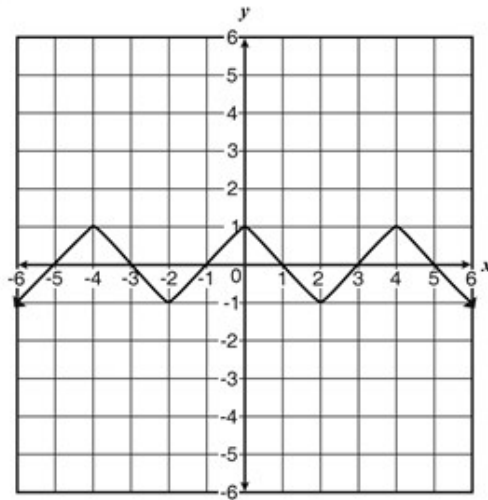
- A. $7 + 4n$
- B. $7 + (4n - 1)$
- C. $7 + 4(n - 1)$
- D. $7 + 4(n + 1)$

28. Which expression represents the total amount earned on \$2,500 invested in a savings account yielding 0.65% per year for 5 years?

- A. $2500(0.35)^5 - 2500$
- B. $2500(0.9935)^5 - 2500$
- C. $2500(1.0065)^5 - 2500$
- D. $2500(1.65)^5 - 2500$

29. The hourly growth rate of a bacteria sample is given by $x(1.36)^t$, where t represents the number of hours and x represents the initial population of bacteria. Which expression is the equivalent form of the given expression that reveals the approximate minute growth rate?
- A. $x(1.36)^{\frac{t}{60}}$
 - B. $x(1.36)^{60t}$
 - C. $x(1.005)^{60t}$
 - D. $x(1.005)^{\frac{t}{60}}$
30. The function $v(x) = 20,000(0.87)^x$ models the value of a car x years after its purchase. Which **best** describes the rate of change in the value of the car?
- A. exponential growth of 87% each year
 - B. exponential growth of 13% each year
 - C. exponential decay of 87% each year
 - D. exponential decay of 13% each year
31. What is the range of the function $y = 3x + 2$ for the domain $2 \leq x \leq 6$?
- A. $0 \leq y \leq \frac{4}{3}$
 - B. $\frac{2}{3} \leq y \leq 2$
 - C. $6 \leq y \leq 18$
 - D. $8 \leq y \leq 20$

32. Which option describes the domain of the given function?



- A. The domain is $-1, 0$ and 1 .
 - B. The domain is all real numbers.
 - C. The domain is all real numbers less than or equal to 1 .
 - D. The domain is all real numbers between and including -1 and 1 .
33. The function $h(f) = 69.1 + 2.2f$ can be used to approximate the height of a male, in cm, based on the length, f , of the femur bone, in cm. **Approximately** how tall is a male whose femur bone measures 53 cm?
- A. 116.6 cm
 - B. 122.1 cm
 - C. 185.7 cm
 - D. 205.0 cm
34. The function $p(x) = 8,963(1.03)^x$ models the population of a town x years since 2006. Which statement **best** describes $p(9)$?
- A. the population of the town in 2006
 - B. the population of the town in 2015
 - C. the percent change in the population of the town between 2006 and 2015
 - D. the rate of change in the population of the town between 2006 and 2015

35. A sequence is defined recursively by the equation $a_n = a_{n-1} + 3$, where $a_1 = 0$. Which of the following defines this sequence in function notation?

- A. $f(n) = 3n$
- B. $f(n) = n + 3$
- C. $f(n) = 3(n - 1)$
- D. $f(n) = 3(n + 1)$

36. Which sequence is generated by the rule $3n - 1$, where n represents the position of a term in the sequence?

- A. 3, 6, 9, 12, 15 ...
- B. 4, 7, 10, 13, 16 ...
- C. 4, 5, 6, 7, 8, 9 ...
- D. 2, 5, 8, 11, 14 ...

37. A sequence is defined recursively as follows.

$$a_1 = 8$$

$$a_{n+1} = 0.5a_n$$

What is the value of a_7 ?

- A. 0.125
- B. 0.25
- C. 2
- D. 4

38. Jim is saving for a bike. He has already saved \$25 and puts \$10 per week toward the bike. Which function **best** models Jim's savings?

- A. $f(x) = 10x + 25$
- B. $f(x) = 25x + 10$
- C. $f(x) = 10(25)^x$
- D. $f(x) = 25(10)^x$

39. At a closed landfill, trash is decaying at a rate of 50% every 15 years. Which type of function **best** models the amount of trash that is remaining after x years?
- A. linear
 - B. exponential
 - C. quadratic
 - D. cubic
40. Suppose on average, a high school loses about 5 students each year, because they leave to attend a charter school. Which **best** describes this relationship?
- A. An exponential function because the students are decreasing by 5 each year.
 - B. A linear function because the students are decreasing by 5 each year.
 - C. An exponential function because there is 5% decay.
 - D. A linear function because there is 5% decay.
41. A student observed the change in the number of microorganisms in the population, P , of a sample of algae in the lab. The student models the change using the equation $P = 220e^{0.057t}$, where t represents the time in days. What does 0.057 in the equation represent?
- A. a decay rate of 5.7% per day
 - B. a growth rate of 5.7% per day
 - C. a decay rate of 0.057% per day
 - D. a growth rate of 0.057% per day
42. **The amount in kilograms, a , of a radioactive element that remains after t hours can be modeled by the equation $a = 0.65(0.92)^t$. What is the rate of decrease of this radioactive element?**
- A. 8% per hour
 - B. 35% per hour
 - C. 65% per hour
 - D. 92% per hour

43. The function $p(t) = 3,000(1.02)^{2t}$ models the population, $p(t)$, of deer t years since 2005 in a certain area. Which statement is true?
- The deer population increases by 1.02% approximately every 52 weeks.
 - The deer population increases by 2% approximately every 52 weeks.
 - The deer population increases by 1.02% approximately every 26 weeks.
 - The deer population increases by 2% approximately every 26 weeks.
44. **Many times a tweet will be tweeted and then retweeted with the possible number of retweets growing exponentially. Manuel modeled this phenomenon with the function $f(x) = 3(2^x)$, using x to represent the number of intervals in which the tweet was retweeted. Which statement about Manuel's function is true?**
- There were 2 original tweets.
 - There are 3 times 2 or 6 retweets at each level.
 - At each interval, the number of retweets doubles.
 - A tweet can be retweeted a maximum of 3 times.
45. **Which expression is equivalent to $(3x^2y)^2(2x^4y^2)^2$?**
- $10x^{10}y^6$
 - $12x^{24}y^8$
 - $24x^{10}y^7$
 - $36x^{12}y^6$
46. **Which expression is equivalent to $\frac{(4m^3)(6m^4)}{3m^2}$?**
- $8m^5$
 - $8m^6$
 - $8m^9$
 - $8m^{10}$
47. **Which expression is equivalent to $(p^2)^3$?**
- p^6
 - p^5
 - p^1
 - p^{-1}

