CTJan27 Online Year 8 Practice Test Math 15122022

Instructions: Complete All The Questions

1. At what point do the lines $y = 4x - 10$ and $y = 7x + 11$ intersect?
   a. (-7, -38)
   b. (-5, -10)
   c. (-3, -10)
   d. (-1, 4)

2. Which system of equations has no solutions?
   a. $a - b = 2, \quad b = -a - 3$
   b. $a - b = 3, \quad a + b = -2$
   c. $-a + b = -2, \quad b = a + 3$
   d. $a + b = 3, \quad -a + b = 2$

3. Solve the linear equations for x and y by using the elimination method.

   $5x - 7y = -2$
   $x - 4y = -3$

   a. x = 1, y = 1
   b. x = 1, y = 2
   c. x = -1, y = 1
   d. x = -1, y = -1
   e. x= 2, y = 1

4. You are ordering softballs for two softball leagues. The size of a softball is measured by its circumference. The Pony League uses an 11-inch softball priced at $3.50. the Junior League uses a 12-inch softball priced at $4.00. The bill smeared in the rain, but you know the total was 80 softballs for $305. How many of each size did you order?
   a. Small = 50, Large = 30
   b. Small = 25, Large = 55
   c. Small = 55, Large = 25
   d. Small = 30, Large = 50

5. Mitch bought 120 floor tiles and 3 cans of paint for $195. If a can of paint cost $3.50 more than each tile, find the cost of two cans of paint.
   a. $3.00
   b. $5.00
   c. $6.00
   d. $8.00
   e. $10.00

6. Solve the equation for the specified variable.

$c = \dfrac{2d+1}{3}$, for d

a. $d = \dfrac{c}{3} - 2$

b. $d = \dfrac{3c+1}{2}$

c. $\dfrac{2}{3}c - 1 = d$

d. $\dfrac{3c-1}{2} = d$

7. The formula for the volume of a rectangular prism is $V = LWH$. Which equation solves the formula for L?

a. $L = V - WH$

b. $L = \dfrac{V}{HW}$

c. $L = \dfrac{VW}{H}$

d. $L = \dfrac{VH}{W}$

8. Name all the sets to which the following number belongs. $\sqrt{16}$

a. Irrational
b. Rational only
c. Rational & Integer
d. Rational, Integer, Whole, & Natural

9. A study is done on a park having an area of 325 acres and is found to have 85,230 trees. How many trees per acre does the park have?

a. .004 trees/acre
b. 2,622 trees/acre
c. 426 trees/acre
d. 262 trees/acre

10. Find the GCF.

$25x^2, 30xy$

a. 10

b. $25x$

c. $5x$

d. $15y$

11. A fish tank filled with water weighs 8 kg. When it is half full the tank and water together weigh 5 kg. How much does the empty tank weigh?

    a. 1.5 kg
    b. 2 kg
    c. 2.5 kg
    d. 3 kg

12. Simplify the following expression.

    $(-2)^3 \cdot (-2)^1 \cdot (-2)^2 \cdot (-2)^6$

    a. -2^{12}
    b. $(-2)^{12}$
    c. -2^{36}
    d. $(-2)^{36}$

13. Which expression is equivalent to $\left(3x^5\right)\left(2x^{12}\right)$?

    a. $5x^{17}$
    b. $5x^{60}$
    c. $6x^{17}$
    d. $6x^{60}$

14. Which of the following is a correct way to rewrite the expression $4^{-\frac{5}{3}}$? Choose all that apply.

    a. $\sqrt[3]{4^{-5}}$
    b. $-\sqrt[3]{4^5}$
    c. $\dfrac{1}{\sqrt[3]{4^5}}$
    d. $\left(\sqrt[3]{4}\right)^{-5}$

15. Express using radicals and integer exponents.

$$\left((2x)^{\frac{2}{3}} \cdot (4xy)^{\frac{5}{3}}\right)^{\frac{1}{3}}$$

a. $16\sqrt[3]{2x^7y^5}$

b. $2\sqrt[9]{8x^7y^5}$

c. $2\sqrt[9]{16x^5y^5}$

d. $4\sqrt[6]{x^7y^5}$

16. Simplify $\left(-3xy^2\right)^4$ and write your answer as a power.

a. $81x^4y^8$

b. $12x^4y^8$

c. $81x^5y^6$

d. $-81x^4y^8$

e. $-12x^5y^8$

17. $\left(m^5\right)^3 \div \left(m^2\right)^6 = m^5$

a. True

b. False

18. The expression $27^{1/3}$ is equal to the cube root of _____.

a. 27

b. 9

c. 81

d. 1

19. Some of the values of $f(x)$ are given in the table below. What is the function rule for this linear function?

x	f(x)
0	2
1	−8
2	−18
3	−28

a. $f(x) = 10x - 2$

b. $f(x) = -10x + 2$

c. $f(x) = 10x + 2$

d. $f(x) = -10x - 2$

20. A car is traveling at 15 mph, and then begins to accelerate. The function $v(t) = 15 + 9t$ models this, where v measures the speed of the car in miles per hour, and t is the time elapsed in seconds since the car started accelerating. How fast is the car accelerating?

a. 15 mph/s
b. 9 mph/s
c. 24 mph/s
d. It depends on how much time has elapsed.

21. Solve for y.

$2(y + 4) = 3y + 5$

a. $y = -1$

b. $y = 2$

c. $y = 3$

d. $y = 9$

22. Find the slope from the pair of points.
(-5, -4) and (5, 0)

a. 4
b. 10
c. 2/5
d. 5/2

23. Which statement about the given equation is NOT true?

    3x + 4y = 12

    a. It is in slope-intercept form with a positive slope of 4/3.
    b. It is an example of a linear equation.
    c. It has two variables and has coefficients of 3 and 4.
    d. It represents a line which, when graphed, doesn't pass through the origin.

24. What is the equation of the line with a slope of 3 through (-1, 4)?

    a. y + 4 = 3(x + 1)
    b. y - 4 = 3(x + 1)
    c. y - 4 = 3(x - 1)
    d. y + 4 = 3(x - 1)
    e. None of the above

25. Jacob is saving for a new bicycle which costs $175. He has already saved $35. His goal is to have enough money saved in six weeks to pay for the bicycle. Let d represent the money he will save per week. Which equation represents how much money he needs to save each week to meet his goal?

    a. $35 + 6d = 175$
    b. $35 + 12d = 175$
    c. $6(35 + 2d) = 175$
    d. $2(35 + 6d) = 175$

26. Find the slope and y-intercept. y = 1/5x + 5

    a. m = 5 and b = 1/5
    b. m = 1 and b = 1
    c. m = 1/5 and b = 5
    d. m = 5 and b = 5

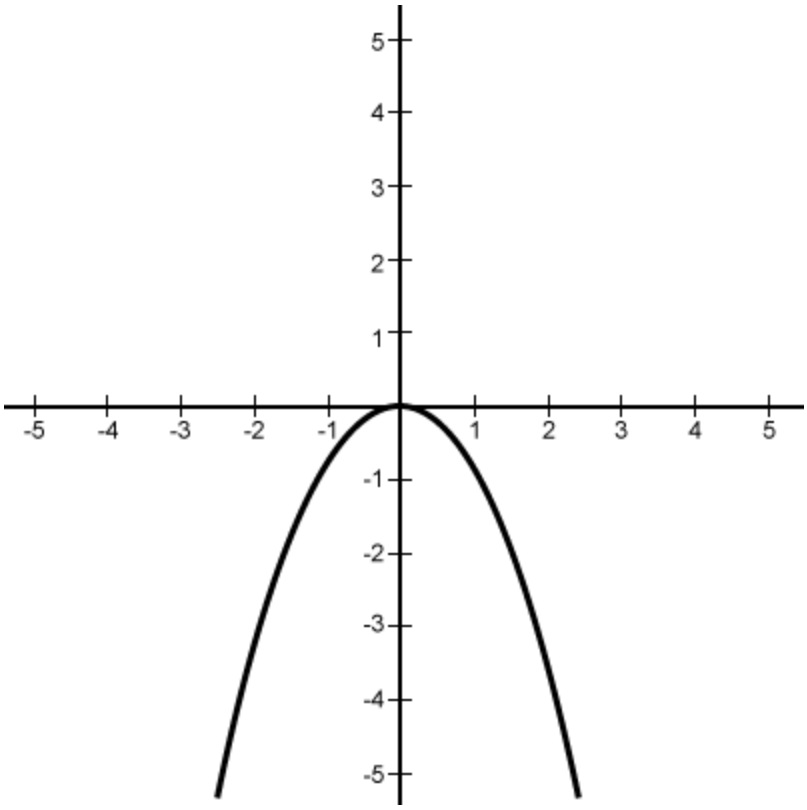
27. Solve for x.
    $x^2 + x = 12$

    a. 6, -2
    b. -3, -4
    c. -4, 3
    d. -2, 6

28. Factor the expression.
    $x^2 - 10x + 16$

    a. $(x - 8)(x - 2)$
    b. $(x - 4)(x - 4)$
    c. $(x - 8)(x + 2)$
    d. $(x + 8)(x - 2)$

29. Which equation represents the graph of the parabola?



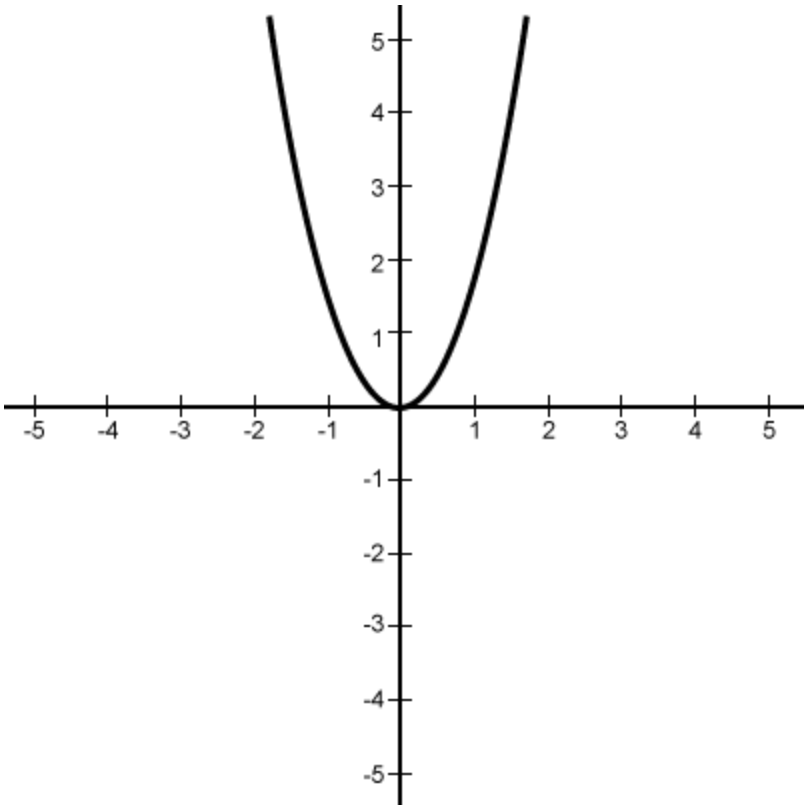
a. $y = -\frac{x}{2}$

b. $y = \frac{x}{2}$

c. $y = -\frac{x^2}{2}$

d. $y = \frac{x^2}{2}$

30. Which equation represents the graph?



a. $y = x$

b. $y = x^2$

c. $y = -x$

d. $y = -x^2$

31. Factor. $9m^2 - 16$

a. $(3m - 4)(3m - 2)$

b. $(3m - 8)(3m + 2)$

c. $(3m - 4)(3m + 4)$

d. $(3m - 4)(3m - 4)$

32. What is the parallel slope to 2x - 3y = 30?

a. 2/3
b. 3/2
c. 2
d. -3/2

33. Charlotte measures the distance from the center of a circular garden to its edge and finds it is 43 meters. How long is the path which goes around the outside of the garden?

a. 90 m
b. 135 m
c. 180 m
d. 270 m

34. What is the radius of a circle with a circumference of 14?

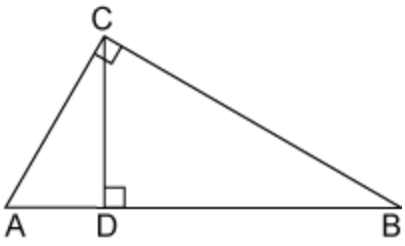
a. $\frac{2\pi}{14}$
b. $\frac{2\pi}{7}$
c. $\frac{14}{\pi}$
d. $\frac{7}{\pi}$

35. A right triangle has a hypotenuse of length 17. If another side has a length of 15, what is the length of the third side?

a. 2
b. 5
c. 8
d. 11

36. Suppose the designer of a square pyramid wanted the sides of the base to be 675 meters. The sides of the base of the square pyramid that was built measure 0.675 meters. What is the similarity ratio of the pyramid that was built to the one that the designer planned?

37. If CA is 10, AD is 6, and DB is x - 6, what is x?



38. A cylindrical hole has a diameter of 40 meters and a height of 10 meters. If one cubic meter of sand has a mass of 75 kg, which is a way to find the amount of sand in the hole?

    a. 40 x 3.14 x 10 divided by 75 kg
    b. 20 x 3.14 x 10 divided by 75 kg
    c. 20 squared x 3.14 x 10 divided by 75 kg
    d. 75 x 10 x 40 x 0 kg

39. Joe came to school with 3 pencils in the morning. Over the course of the school day, he let 5 different people borrow his pencils. The first three people gave him the pencil back, but the last two people didn't. How many pencils does he have now?

    a. 0
    b. 3
    c. 1
    d. 2

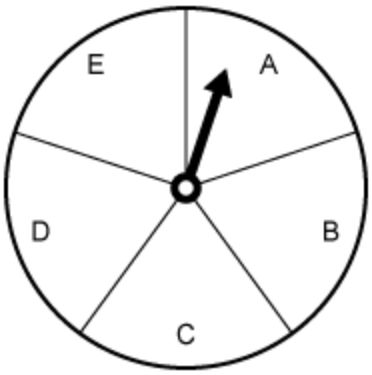
40. A class has 11 boys and 9 girls. Two of the students will be selected at random to serve on a committee. What is the probability that both of the selected students will be girls?

    a. $\frac{72}{400}$
    b. $\frac{18}{95}$
    c. $\frac{81}{380}$
    d. $\frac{81}{121}$

41. During summer vacation, Carlos has the option of attending summer camp for a week, working at a grocery store, volunteering in his community, and taking driver's education. If Carlos can decided to do all, some, or none of these activities over his summer vacation, how many different combinations are there from which he can select?

    a. 14
    b. 16
    c. 20
    d. 24

42. If you use the spinner two times in a row, what is the probability that you will spin a C followed by landing on E?



a. 1/5
b. 2/5
c. 1/25
d. 2/25

43. If there are 20 marbles in a bag with 5 red, 10 green, 2 blue, and 3 yellow, what is the probability of pulling a red marble followed by a green marble followed by a blue marble?

a. 17/6840
b. 5/342
c. 1/80
d. .66%

44. The following high temperatures were recorded in Chicago for eight days in October. What is the median temperature?
50, 52, 51, 50, 54, 53, 50, 53

a. 50
b. 50.5
c. 51.5
d. 53

45. Sam got the following scores on his math tests: 61, 100, 98, 82, 59, 91, 86, 92, 76, and 55. What is the mean of his tests scores?

a. 68
b. 67
c. 80
d. 76

46. If you toss a coin 25 times, what is the sample size?

a. 100
b. 75
c. 25
d. 1

47. What is the solution set to the inequality $-5x - 2 < -22$?

a. $x > 4$

b. $x \leq 6$

c. $x \geq 4$

d. $x < 4$

48. Multiply the monomial with the binomial.
$\left(-3y^3\right)\left(-2y^2 + 9y\right)$

a. $6y^5 - 27y^4$

b. $-6y^5 - 27y^4$

c. $-5y^5 + 6y^4$

d. $-6y^6 - 27y^3$

49. Evaluate the algebraic expression for the given value. $x = 10$

$5(x + 2) \div (2x) - 14$

a. 12

b. -11

c. 5

d. 1

50. What is $\dfrac{x^2 - 4xy + 4y^2}{3xy - 6y^2}$ reduced to lowest terms?

a. $\dfrac{x - 2y}{3}$

b. $\dfrac{x - 2y}{3y}$

c. $\dfrac{x + 2y}{3}$

d. $\dfrac{x + 2y}{3y}$

51. Solve the inequality.
$3x + 7 \geq 5$

a. $x \geq -\frac{2}{3}$

b. $x > \frac{2}{3}$

c. $x > -\frac{3}{2}$

d. $x \geq \frac{3}{2}$

52. Add the polynomials.
$\left(4a^2 + b^2 + a - 5c + 7\right) + \left(c^2 - 5 + a - 3b^2 - 6a^2\right)$

a. $4a^2 - 3b^2 - 4c^2 + 2a + 7$

b. $10a^2 + 4b^2 + c^2 + 2a + 5c + 12$

c. $4a^2c^2 + ab^2 - 8b^2c - a^2 - 5a$

d. $-2a^2 - 2b^2 + c^2 + 2a - 5c + 2$

53. Find the value of x if $6(2 - x) + 4x = -5(x + 3)$.

a. -9/5
b. -7/3
c. -27/7
d. -9

54. You sell hotdogs for $1.25 each. Which equation can you use to find how many hotdogs you sold if you have $60 from selling hotdogs?

a. x/60 = 1.25
b. 60x = 1.25
c. 1.25x = 60
d. x/1.25 = 60

55. Simplify the expression.
$-5y^3 + 2y^2 - 6y - 10y^2 + 10y^3 + y$

a. $5y^3 - 8y^2 - 5y$

b. $-5y^3 + 8y^2 + 5y$

c. $15y^3 + 12y^2 + 7y$

d. $-15y^3 - 12y^2 - 7y$

56. Multiply: $4\sqrt{6} \cdot 2\sqrt{3}$

a. $24\sqrt{2}$

b. $48\sqrt{3}$

c. $24\sqrt{6}$

d. $16\sqrt{3}$

57. Joseph's current test scores, in points, are 83, 97, 80, 87, and 93. He earns 100 points on his sixth test. By how many points does Joseph's mean (average) test score increase with the sixth test?

a. 5
b. 2
c. 3
d. 4
e. 7

58. Sebastian is making lemonade. His recipe requires 750 grams of sugar to make 20 liters of lemonade. Sebastian wants to make 12 liters of lemonade.
How many grams of sugar does Sebastian need to maintain the same ratio of sugar to lemonade as in his recipe?

a. 520
b. 482
c. 450
d. 430
e. 34

59. Points A and B are on a number line. The coordinate of point B is 3 and the coordinate of the midpoint of segment AB is negative 5. What is the coordinate of point A ?

a. 5
b. 8
c. -5
d. -13
e. 14

60. In which of the following equations does the value of y increase by 6 units when x increases by 2 units?

a. $y = 4x$

b. $y = 3x$

c. $y = 4x + 2$

d. $y = 2x$

e. $y = 3x + 2$