Name: _____

Date: _____

GNBVT
12th Grade
Summer Math IV Packet
SY 2018-19

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Summer of 2018

1) What is $\frac{1257}{99}$ rounded to the nearest integer?

a. 12
b. 13
c. 14
d. 15

2) Evaluate: $7\frac{3}{8} + 5\frac{3}{4} =$

a. $12\frac{1}{8}$
b. $12\frac{1}{2}$
c. $12\frac{3}{4}$
d. $12\frac{1}{8}$

3) If $\frac{5}{4} \div \frac{1}{8} = m$, then what whole number is m between?

a. 7 and 9
b. 9 and 11
c. 11 and 13
d. 13 and 15

4) Which of the following choices places the fraction correctly in order from least to greatest?

a. $\frac{5}{4}, \frac{16}{12}, \frac{12}{10}$
b. $\frac{12}{10}, \frac{16}{12}, \frac{5}{4}$
c. $\frac{12}{10}, \frac{5}{4}, \frac{16}{12}$
d. $\frac{16}{12}, \frac{5}{4}, \frac{12}{10}$

5) Roman's bag of candies is comprised of $\frac{1257}{99}$ yellow candies and $\frac{1257}{99}$ green candies. The rest of the candies and orange. What fraction of Roman's bag of candies is orange?

a. $\frac{4}{15}$
b. $\frac{3}{8}$
c. $\frac{5}{8}$
d. $\frac{11}{15}$

6) Evaluate: $4 \div \frac{8}{9} =$

a. $\frac{9}{2}$
b. $\frac{9}{8}$
c. $\frac{4}{5}$
d. $4\frac{1}{9}$

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7) Which of the following choices is closest to 21.2 × 19.4?

a. 40
b. 400
c. 450
d. 4,000

8) Which of the following statements is true?

a. $0.62 < 0.062 < 0.602 < 0.26$
b. $0.26 < 0.062 < 0.62 < 0.602$
c. $0.062 < 0.26 < 0.62 < 0.602$
d. $0.062 < 0.26 < 0.602 < 0.62$

9) Evaluate: 4.29 × 3.9 =

a. 16.531
b. 16.651
c. 16.731
d. 177.31

10) Evaluate: 10.53 ÷ 6 =

a. 1.755
b. 0.1755
c. 1.6755
d. 1.905

11) 15 is 20% of what number?

a. 3
b. 60
c. 75
d. 300

12) What is 55% of 60?

a. 33
b. 32.5
c. 22
d. 36

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13) If 30% of a number, *P*, is 1.8, what is the value of *P*?

a. 0.54
b. 5.4
c. 6
d. 12.6

14) Which of the following is equivalent to 3.17?

a. 0.0317%
b. 0.317%
c. 31.7%
d. 317%

15) Solve $\frac{15}{3} - 2 \times 5 + 16 \times 3 =$

a. -53
b. 43
c. 53
d. 93

16) The measures of two angles of a triangle are 52˚ and 35˚. What is the measure of the third angle of the triangle?

a. 87˚
b. 90˚
c. 93˚
d. 180˚

17) Three of four numbers have the sum of 24. If the average of the four numbers is 9, what is the fourth number?

a. 6
b. 8
c. 10
d. 12

18) Simplify $\frac{-3}{5-(-1)} =$

a. $-\frac{1}{2}$
b. $\frac{1}{2}$
c. -2
d. $-\frac{3}{4}$

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19) Which of the following lists of numbers is ordered from least to greatest?

a. $-\frac{2}{3}, -\frac{5}{8}, \frac{3}{8}, \frac{5}{12}$
b. $-\frac{2}{8}, -\frac{5}{8}, \frac{5}{12}, \frac{3}{8}$
c. $-\frac{5}{8}, -\frac{2}{3}, \frac{3}{8}, \frac{5}{12}$
d. $-\frac{5}{8}, -\frac{2}{3}, \frac{5}{12}, \frac{3}{8}$

20) What is the value of the expression $3a^2 - 5ab + 2b^2$ when a = -1 and b= 6?

a. 45
b. 57
c. 99
d. 105

21) If b represents the number of paintbrushes sold for \$12 each, and c represents the number of paint cans sold for \$45 each, which of the following represents the total cost of buying b paintbrushes and c paint cans in dollars??

a. $12b + 45c$
b. $57bc$
c. $45c - 12b$
d. $45b + 12c$

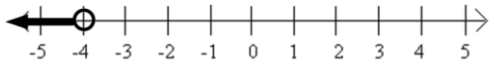
22) If $3x - 7 = 21$, then what does x equal?

a. 7
b. 28
c. $9\frac{1}{3}$
d. 25

23) Tymel and his brother are 4 years apart in age. If the sum of their ages is 42, what is the product of their ages?

a. 437
b. $1\frac{4}{19}$
c. 546
d. 336

24) The solution set of which of the following inequalities is graphed on the number line below?



a. $-4x + 1 > 2$
b. $-x + 8 < -4$
c. $-4x - 3 \leq 13$
d. $-2x - 3 > 5$

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25) If (x, y) is a solution to the following system of equations, what is the value of y?

$$2x - y = 20$$
$$5x + y = 8$$

a. -12
b. 0
c. 4
d. 7

26) Simplify: $(16m^3 - 4m^2 + 5) - (12m^3 - 2m^2 + 5m)$

a. $4m^3 - 2m^2$
b. $4m^3 + 2m^2 - 5m + 5$
c. $4m^3 - 2m^2 - 5m + 5$
d. $4m^3 - 2m^2 + 5m + 5$

27) Factor $a^2 - 64x^2$

a. $(a - 8x)^2$
b. (a – 8x)(a + 8x)
c. (a - 32x)(a + 32x)
d. 8a(a – 8x)

28) If the quotient $\frac{4x^2+16x}{2x} \div \frac{12x^2-8x}{6x}$ is simplified to the lowest terms, which of the following is the numerator of the resulting expression?

a. 48x
b. x + 4
c. 3x + 12
d. x + 12

29) For which of the following functions are x = 2 and x = -5 both solutions?

a. $x^2 + 3x - 10 = 0$
b. $x^2 - 3x - 10 = 0$
c. $x^2 - 7x - 10 = 0$
d. $x^2 + 7x - 10 = 0$

30) Consider the system of equations below.

$$x + y = 10$$
$$x + z = 19$$
$$y + z = 13$$

What is the value of z?

a. 8
b. 9
c. 10
d. 11
e. 12

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31) Find the determinant of $\begin{vmatrix} 7 & -2 \\ -3 & 4 \end{vmatrix}$

a. -26
b. -22
c. -2
d. 2
e. 22

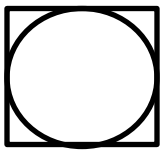
32) Factor $a^3 - b^3$

a. $(a+b)(a^2 - ab + b^2)$
b. $(a+b)(a^2 - ab - b^2)$
c. $(a-b)(a^2 + ab + b^2)$
d. $(a-b)(a^2 + b^2)$
e. $(a+b)(a^2 - b^2)$

33) What is the solution set to $\sqrt{|x+2|} = 4$?

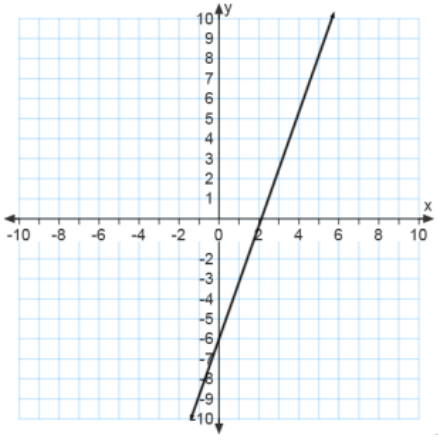
a. x = -14 and x = 18
b. x = -14 and x = -18
c. x = 14 and x = 18
d. x = 14 and x = -18
e. x = 14 and x = 22

34) The area of the square below is $x^2 + 6x + 9$. Which of the expressions below gives the area of the circle inscribed inside the square?



a. $\pi\left(\frac{x+3}{2}\right)^2$
b. $\frac{\pi(x^2+6x+9)}{2}$
c. $\pi(x^2 + 6x + 9)^2$
d. $\pi(x+3)$
e. $\pi(x+3)^2$

35) Consider the graph below. Which of the following choices is the equation of the line in slope-intercept form?



a. y = -3x - 6
b. y = 3x – 6
c. y = 2x - 6
d. y = $\frac{1}{3}x$ - 6
e. y = $-\frac{1}{3}x$ - 6

36) A math club has seven members and it must elect one member to be president and another member to be the vice president. In how many different ways can the math club fill these two roles?

a. 5,040
b. 2,520
c. 420
d. 42
e. 14

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37) Evaluate $6i \times (-11i)$

a. 66
b. -66
c. $-66i$
d. $66i$
e. i

38) If $f(x) = \frac{x}{x+1}$, which of the following is true for any two values, a and b, where $a > b > 0$?

a. $f(a) < f(b)$
b. $f(a) > f(b)$
c. $f(a) = f(b)$
d. $f(a) = f(b + 1)$
e. $f(a + 1) < f(b)$

39) What are the roots of $x^2 - 50 = 0$?

a. x = 50 and x = -50
b. $x = 5\sqrt{2}$ only
c. $x = 2\sqrt{5}$ only
d. $x = 5\sqrt{2}$ and $x = -5\sqrt{2}$
e. $x = 2\sqrt{5}$ and $x = -2\sqrt{5}$

40) If $x, y, z \neq 0$, then what does $\frac{1}{x} + \frac{1}{y} + \frac{1}{z}$ equal?

a. $\frac{xyz}{x+y+z}$
b. $\frac{3}{xyz}$
c. $\frac{x+y+z}{xyz}$
d. $\frac{3}{x+y+z}$
e. $\frac{xy+xz+yz}{xyz}$

41) Evaluate $2\sqrt{18} + 6\sqrt{50}$

a. 72
b. $24\sqrt{2}$
c. $36\sqrt{2}$
d. $8\sqrt{2}$
e. $8\sqrt{68}$

42) Carla works two jobs—one as a teacher and another as an editor—for a total of 40 hours each week. She makes $24 per hour as a teacher, and she makes $30 per hour as an editor. If Carla make $1,020 last week, how many hours did she teach?

a. 32
b. 30
c. 28
d. 26
e. 24

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43) Simplify $-3x^2yz^3(7xz - y^2\,z^2) =$

a. $-21x^2yz^3 + 3x^2y^2\,z^2$
b. $-21x^3yz^4 - 3x^2y^3\,z^5$
c. $-21x^3z^4 + 3y^3\,z^5$
d. $-21x^3yz^4 + 3x^2y^3\,z^5$
e. $-21xyz^8 - 3xy\,z^{10}$

44) Consider a circle that has a center at the point (2, -5) and a radius of 7. Which of the following lines will intersect the circle at exactly one point?

a. y =7
b. y = -2
c. y = -5
d. y = -7
e. y = -12

45) For the function $f(x) = \frac{x+2}{3x-2}$, for which value of *x* will *f(x)* be undefined?

a. –2
b. $-\frac{3}{2}$
c. $\frac{3}{2}$
d. $-\frac{2}{3}$
e. $\frac{2}{3}$

46) Simplify $\left(\frac{n^2\,(n^3-2n^2)-n(3n^3-6n^2)}{n(n-5)+6}\right)^2$

a. n^6
b. n^4
c. $n^2 - 1$
d. n
e. 1

47) If θ is an acute angle and $\sin\theta = \frac{\sqrt{2}}{2}$, then what does $\cos\theta$ equal?

a. 1
b. 2
c. $\frac{1}{2}$
d. $\frac{\sqrt{3}}{2}$
e. $\frac{\sqrt{2}}{2}$

48) Simplify $3\log_5 m + \log_5 n$

a. $\log_5 m^3n$
b. $\log_5 3mn$
c. $\log_5 (mn)^2$
d. $\log_5 (m^3 + n)$