



ALPHA KERANYO SECONDARY & PREPARATORY SCHOOL

Full Name _____

Grade 10 Section ____ Roll No. ____

Subject Math

Second Semester First Worksheet

Teacher's Name: _____

Year: April 2012 E.C

General question Worksheet one for Grade 10 student(2012 EC)

CHOOSE THE CORRECT ANSWER FOR THE FOLLOWING QUESTIONS

-----1. What is the rationalizing factor for the expression $\frac{\sqrt[3]{5}-\sqrt[3]{7}}{3}$?

- A. $\frac{\sqrt[3]{25}+\sqrt[3]{49}}{\sqrt[3]{25}+\sqrt[3]{49}}$ B. $\frac{\sqrt[3]{25}+\sqrt[3]{35}+\sqrt[3]{49}}{\sqrt[3]{25}+\sqrt[3]{35}+\sqrt[3]{49}}$ C. $\frac{\sqrt[3]{25}-\sqrt[3]{49}}{\sqrt[3]{25}-\sqrt[3]{49}}$ D. $\frac{\sqrt[3]{25}+\sqrt[3]{49}}{3}$

-----2. The GCF and LCM of two numbers is 2 and 12 respectively, if one of the numbers is 4, then what is the other number?

- A. 2 B. 4 C. 6 D. 12

-----3. Which of the following pair of numbers is different from the other?

- A. (2, 8) B. (5, 15) C. (5, 8) D. (17, 51)

-----4. Which of the following is the value of x if x is located at the mid-point of $\frac{1}{3} < x < \frac{2}{3}$?

- A. $\frac{1}{2}$ B. $\frac{1}{3}$ C. $\frac{2}{3}$ D. 1

-----5. if $A = \{2, 3\}$ and $B = \{a, b\}$, then what is the cross product of set A and set B?

- A. $\{(2,a), (2,b)\}$ C. $\{(2,a), (2,b), (3, a), \{3, b\}\}$
B. $\{(3,a), (3,b)\}$ D. $\{(a,2), (a, 3), (b, 2), (b,3)\}$

-----6. How many proper subsets can be formed, if elements of a set are solution set of $|x-2|-1 \leq 0$ if the set of natural numbers are the domain of the inequality?

A. 2

B. 3

C. 7

D. 8

-----7. Which of the following is True about the absolute value equation $|x|=a$?

A. Has always one solution

B. May have more than one solution

B. Some times has one solution

D. Have no a solution

-----8. What is the area of the shaded region obtained by the inequality?

$$\begin{cases} -1 \leq x \leq 1 \\ -1 \leq y \leq 1 \end{cases}$$

A. 4 sq unit

B. 8sq unit

C. 16 sq unit

D. 32sq unit

-----9. Which of the following is the solution set of $|24x| < -3$?

A. $(-\infty, 3)$ or $(-\infty, 4]$

B. $(-\infty, \infty)$

C. $(3, \infty) \cup (4, \infty)$

D.

$\emptyset$

----- 10. If $x = \frac{-1}{5}$ and $y=0$ then what is the simplest form of

$$\left| \frac{5x+3y}{-10x-\frac{3}{2}y} \right|?$$

A. 1

B. 2

C. $\frac{2}{5}$

D. $\frac{-5}{2}$

-----11. What is the solution set of $x^2 > 81$?

A. $(-\infty, 9) \cup (9, \infty)$

B. $(-9, 9)$

C. $(-\infty, 9) \cup (-9, \infty)$

D.

$[-9, 9]$

-----12. For what value of k does the quadratic equation $kx^2-2x+k=0$ has two solution?

A. 2

b -2

C (1 or -1)

D (2 or -2)

----- 13. What is the solution set of the quadratic equation $-4x^2+2x-1 < 0$?

A. $\emptyset$

B. $(-\infty, \infty)$

C. $(-4, 4)$

D. $[-4, 4]$

-----14. Which of the following is the factor of $f(x)=x^5+x-2$?

A. $x-1$

B. $x+1$

C. $x-5$

D. $x+5$

-----15. The value of x on the equation $x^3-x^2+x-1=0$ is _____?

A. $\{1\}$

B. $\{-1\}$

C. $\{-1, 1\}$

D. $\{-1, 0, 1\}$

-----16. What is the value of y on the ratio $y-2:3=4:y+2$?

A. $\{4\}$

B. $\{-4\}$

C. $\{-4, 4\}$

D. $\{-2, 2\}$

-----17. What is the solution set of the quadratic equation if $ax^2+bx+c=0$ has one solution?

A. $\frac{-b}{2a}$

B. $\frac{-2b}{a}$

C. $\frac{b}{2a}$

D. $\frac{2b}{a}$

-----18. If the graph of a polynomial function has $(n-1)$ turning points then the degree of the function will be _____?

A. $2n$

B. $2n-1$

C. n

D. $n-1$

-----19. Which of the following is not true about the solution set of $|ax-b|<c$?

A. $\frac{-c+b}{a} < x < \frac{c+b}{a}$ can be the solution

B. $\frac{c+b}{a} < x < \frac{-c+b}{a}$ can be the solution

C. $\frac{c-b}{a} < x < \frac{c+b}{a}$ can be the solution

D. $\frac{b-c}{a} < x < \frac{b+c}{a}$ can be the solution

-----20. If $4^{3x-3}=4^{1+2x}$, then what is the value of x ?

A. 0

B. 1

C. 2

D. 4

-----21. If $\ln(x^2+1) + \ln x = \ln x$, then which of the following is the value of x ?

A. 0

B. 1

C. 2

D. $\emptyset$

-----22. Which of the following is necessarily TRUE about graphs of logarithmic functions of the form $\log_a x$ for $0 < a < 1$ and $x > 0$?

A. Passes through $(0, 1)$

B. The function increases as x decreases

C. Domain of such functions is the set of real numbers

D. As the base a increases the graph more approaches to the y-axis in the negative direction

-----23. Which of the following is the range of the function $f(x) = 10^x$?

- A. $\{y: y > 10\}$ B. $\{y: y < 10\}$ C. $\{y: y > 0\}$ D. $\{y: y < 0\}$

-----24. Which of the following is FALSE about the function $f(x) = a^x$, for $a > 1$?

- A. crosses the x-axis B. crosses the y-axis
C. the range of f is the set of real numbers D. it is increasing function

-----25. The value of x on $\log_8 2^x - 4 = 2$ is _____?

- A. 24 B. 34 C. 60 D. 64

-----26. Which of the following is not side length of a triangle?

- A. 2, 3, 5 B. 3.5, 3.5, 3.5 C. 4, 7, 10 D. 4, 6, 6

-----27. What is the equation of the line parallel to the equation $2 - 4x = y$ if the y-intercept of the line is (0,4)?

- A. $y = 2x - 4$ B. $y = -4x + 2$ C. $-4x - 4$ D. $-2x + 4$

-----28. What is the area of a regular hexagon of side length 6cm?

- A. 12 sq unit B. 12π sq unit C. 6 sq unit D. 6
 π sq unit

-----29. Which of the following is the degree of the polynomial function $P(x) = (x^3 - 2)(x^2 + 1)(3 - x^3)$

- A. 5 B. 6 C. 7 D. 8

-----30. Which of the following is necessarily true?

- A. The sum of two real numbers is always real number
B. The sum of two irrational numbers is always irrational numbers
C. The difference of two natural numbers is always natural numbers
D. The quotient of two integers is always integer

-----31. What is the multiplicative inverse of 0.125?

- A. 4 B. 8 C. 16 D. 125

-----32. Which of the following is the equation of the line passes through the origin with slope -2?

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

-----33. If $P(x)=-x^5+\frac{1}{5}x^3-x^2-\frac{1}{7}$, then which of the following is FALSE about the function?

- A. The constant term is -0.7 B. P is a polynomial over rational numbers
C. The leading coefficient is -1 D. The polynomial has only four terms

-----34. Which of the following is NOT TRUE?

- A. $(4x+2b)+(b-x)=3(b+x)$ B. $5x^2y+2xy^2-(x^2y-xy^2)=4x^2y+3xy$
C. $8a-(b+9a)=a-b$ D. $2x-4(x-y)+(y-x)=5y-3x$

-----35. If the functions $f(x)$ and $g(x)$ have the same degree(m), then which of the following is TRUE about $f(x)$ and $g(x)$?

- A. The degree of $k(f+g)(x)$ is m B. The degree of $(fg)(x)$ is m
C. The degree of $(f/g)(x)$ is 1 D. The degree of $(f-g)(x)$ is 2m

-----36. If the volume of a cube is 8 cubic unit and one of the length of a cube is $(x-1)$, then which of the following is the value of x?

- A. 2 B. 3 C. 4 D. 5

-----37. Which of the following is the quotient if one divide x^3-5x^2+2x+8 by $x-2$?

- A. 0 B. 2 C. -2 D. 8

-----38. What is the value of m and k if $x-2$ is a factor of $f(x)=x^4-2mx^3+mx^2-x+k$ and $f(-1)=3$?

- A. $(1, -1/4)$ B. $(1/4, -1)$ C. $(1/4, 1/4)$ D. $(-1, 1/4)$

-----39. What is/are the real root /s of the polynomial function $f(x)=x^n-k^n$ if n is an element of an even natural number?

- A. 2k B. -2k C. -k and k D. -n and n

-----40. If the area of a square is $x^2-8x+16$, then for what value of x does the area of the square give 16 square unit?

- A. 0 B. 1 C. 4 D. 8

-----41. Which of the following is TRUE about a function $f(x)$?

- A. If $(x-c)^k$ is a factor of $f(x)$, then c is a zero of multiplicity k of $f(x)$
B. If $(x-c)^{k+1}$ is a factor then a zero of multiplicity $k+1$ of $f(x)$
C. If $(x-c)^k$ is a factor but $(x-c)^{k+1}$ is not, then c is said to be a zero of multiplicity k of $f(x)$
D. If $(x-c)^{k+1}$ is a factor but $(x-c)^k$ is not, then c is said to be a zero of multiplicity k of $f(x)$

-----42. What are the zero of the function $f(x)=3x(x-3)(3x-3)$?

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

-----43. Which of the following functions have zero between $x=1$ and $x=2$?

- A. $f(x)=x^3-2x^2-1$ B. $f(x)=x^5-2x^2-1$ C. x^4+2x^2+4 D. $2x^3-3x-18$

-----44. If $2x^2-x+3>0$, then which of the following is the solution set of the inequality?

- A. $\{x: x < 2\}$ B. $\{x: x \in R\}$ C. $\emptyset$ D. $\{x: x > 2\}$

-----45. How many real and possible roots does the polynomial function $f(x)=x^3+2+x$ have respectively?

- A. 2 and 4 B. 4 and 2 C. 1 and 4 D. 4 and 1

-----46. Which of the following is the vertex of the quadratic function $f(x)=2x^2-4x-1$

- A. (-1, -3) B. (1, -3) C. (-1, 3) D. (1, 3)

-----47. Which of the following is the range of $f(x)=-2x^6+6$?

- A. $(-\infty, \infty)$ B. $(-\infty, 6]$ C. $(6, \infty)$ D. $(-\infty, -6)$

-----48. If $0 < x < y < 1$, then which of the following is always TRUE?

- A. $x^m < y^m$, for $m > 0$ B. $x^m < y^m$, for $m < 0$ C. $x^m > y^m$, for $m = 0$ D. $x^m > y^m$ for $m > 0$

-----49. If $\log 5.26 = 0.7210$, then which of the following is the quotient of Mantissa and Characteristics of $\log 526$?

- A. 2.7210 B. 1.4420 C. 0.7210 D. 0.3605

-----50. If a quadratic inequality $ax^2 + bx + c \leq 0$ and $b^2 - 4ac < 0$ and $a > 0$, then _____?

- A. The parabola crosses the x-axis at two points and empty set is the solution set.
 B. The graph touch the x-axis at one point and the set of real number is the solution set
 C. The graph do not touch the x-axis the x-axis and empty set is the solution set
 D. The graph do not touch the x-axis and the set of real number is the solution set

-----51. If the equation of the line is given by $3(2x - y) = 2y - 3x + 4$, then the slope and the y-intercept of the line will be _____ respectively?

- A. $9/5$ and 4 B. 4 and $9/5$ C. $9/5$ and $-4/5$ D. $-4/5$ and $9/5$

-----52. What is the possible values of h if the point $A(0, -2)$ is 10 units away from $B(h, 4)$

- A. 4 or -4 B. 8 or -8 C. 6 or -6 D. 10 or -10

-----53. What is the coordinate of the point R that divides the line segment with end points $P(2, 4)$ and $Q(8, -4)$ in the ratio of 2:2?

- A. $(-4, 4)$ B. $(5, 0)$ C. $(5, 4)$ D. $(5, -4)$

-----54. If the end point of a diameter of a circle is $P(2, 2)$ and $Q(6, 2)$, then what is the area of a circle?

- A. 2π unit square B. 4π unit square C. 8 unit square D. 16 unit square

-----55. If $y_1 = y_2$ on the two coordinates of a line segment, then the distance between the two points will be _____?

- A. $|y_1 - y_2|$ B. $|x_1 - x_2|$ C. $|y_1 + y_2|$ D. $|x_1 + x_2|$

-----56. If the angel of inclination of a line is 150^0 , then the slope of the line will be _____? Note: $\tan 30^0 = \frac{\sqrt{3}}{3}$

- A. $\frac{-\sqrt{3}}{3}$ B. $\sqrt{3}$ C. 3 D. $-\sqrt{3}$

-----57. If a line have no slope and passes through the same coordinates of x with different coordinates of y, then the line will be _____?

- A. rises from left to right B. falls from left to right
C. the line is vertical line D. the line is horizontal line

-----58. If two lines are perpendicular each other and the slope of one of the line is 0.25, then which of the following is the equation of the second line if it passes through the origin?

- A. $y=x$ B. $y=-x$ C. $y=4x$ D. $y=-4x$

-----59. If the equation of the line is $2y-3x+4=0$, then which of the slope of the line parallel to this line?

- A. -0.67 B. 1.5 C. 0.67 D. -1.5

-----60. Your class room role number is an element of _____?

- A. Irrational number B. Natural number C. Negative integer
D. Decimals

-----61. If the GCF of two numbers is one , then they are _____?

- A. Composite B. Relatively prime C. prime D. counting