STUDENT NAME:_____

GROUP:_____   R.N._____   GRADE _____

INSTRUCTIONS: Read the text carefully and answer each and every one of the questions and for the problems, write the procedure clearly, otherwise the answer is considered wrong, remember at the end to review your answers.

1. It is a specific form of correspondence between the elements of two sets.

a) *Function*   b) *Dependent Variable*   c) *Relation*   d) *Independent Variable*

2. It is the set of values of the dependent variable corresponding to all the values of the independent variable in the domain of a function

a) *Domain*   b) *Function*   c) *Range*   d) *Independent Variable*

3. It is a special kind of relation for which there is exactly one value of the dependent variable (y) for each value of the independent variable (x) in the domain.

a) *Domain*   b) *Function*   c) *Range*   d) *Relation*

4. In a linear function, it is the ratio between elevation and displacement, where displacement is the horizontal distance between two points on the graph and elevation is the vertical distance between them.

a) *Slope*   b) *Domain*   c) *Constant*   d) *Ordinate*

5. It is any expression that refers to the relationship between two numbers, and that, therefore, bears the sign of "$>$ o $<$"

a) *Interval*   b) *Equation*   c) *Inequality*   d) *Graph*

6. They are so called when the independent variable appears as an exponent, root index, power, logarithm base or associated with a trigonometric ratio.

a) *Algebraic Function*   b) *Rational Functions*   c) *Polynomial Functions*   d) *Trascendental Functions*

7. It is a polynomial function of zero degree.

a) *Linear Function*   b) *Quadratic Function*   c) *Algebraic Function*   d) *Zero Function*

8. It is known as the intersection on the "y" axis

a) *Ordinate*   b) *Intercept*   c) *Ordinate to the origin* d) *Slope*

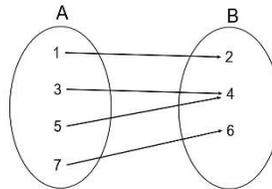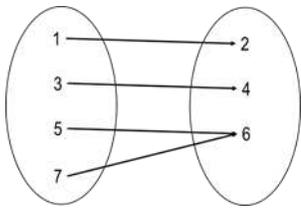9. If the slope is positive, the graph shall behave in such a way:

a) *Graph*   b) *Decreasing*   c) *Inclined*   d) *Increasing*

10. If the slope is negative, the graph shall behave in such a way:

a) *Graph*   b) *Decreasing*   c) *Inclined*   d) *Increasing*

II. Look at figures and answer what is asked.

11. Determine if it is Function or Relationship

12. Review the following set of pairs by looking at whether it represents a relationship or function.
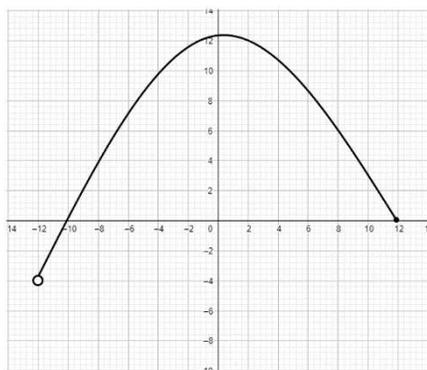
$\{(1,5), (-2,5), (3,-5), (2,3), (-3,6)\}$

13. Look at the following number line and write the inequality and interval that corresponds to it.

-6 -4 -2 0 2 4 6

14. Look at the following number line write the inequality and interval that corresponds to it.
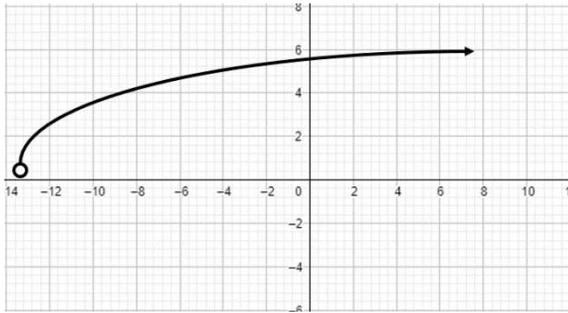

-3 -2 -1 0 1 2 3
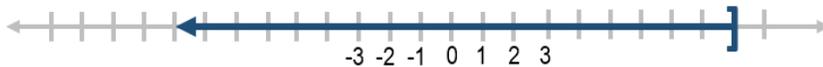
15. Determine the domain and range of the following graph.

Domain:

Range:

16. Determine the domain and range of the following graph.

Domain:

Range:

17. Perform the following operations with functions.

$f(x) = x^2 - 7x, g(x) = x - 2$

a) $(f+g)(x) =$

c) $(f \bullet g)(x) =$

b) $(f-g)(x) =$

d) $\left(\dfrac{f}{g}\right)(x) =$
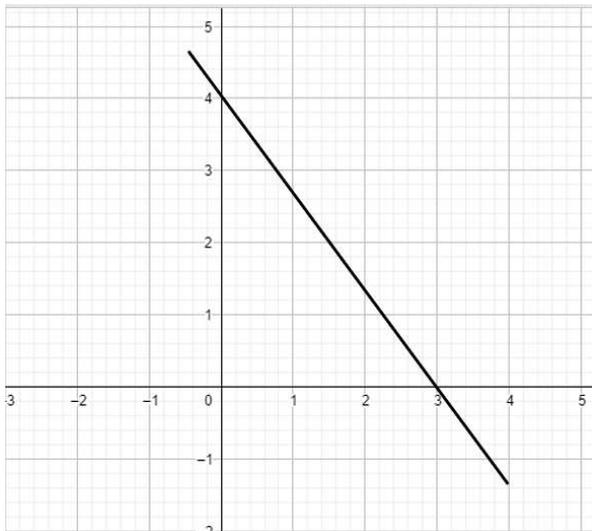
18. Perform the following composition of functions

$f(x) = \sqrt[3]{x+5}, g(x) = x^3$

$(f \circ g)(x) =$

$(g \circ f)(x) =$

19. Look at the graph and determine the linear equation and the slope of the line.

Equation (slope-intercept):

m =

y-intercept=

20. The number of meters of cable needed for an elevator depends on the number of floors in service of the building. Suppose, "y" is the number of meters of elevator cable and "x" is the number of floors of the construction. $y = 7x + 56$

a) How much cable will an elevator need for a 15-story building?

b) How many floors is a building that used 133 meters of cable in its elevator?

21. Your weight expressed in pounds is directly proportional to your weight expressed in kilograms. Paul gets on a scale and it marks 49 kilograms, if he knows it weighs 110 pounds.

a) Write a particular equation that expresses pounds in terms of kilograms.

b) How many kilograms would Paul weigh if he weighed 175 pounds?

c) How many pounds would a person weight if you read 140 kg

22. Look at the graph below and answer what is asked.
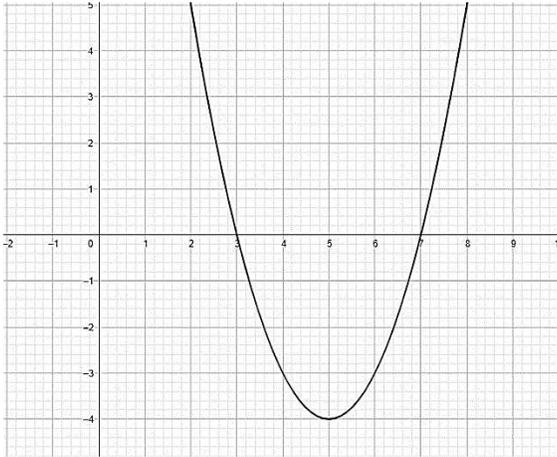
a) The nature of its roots:

(b) The value of a:

c) The coordinates of its vertex:

d) The vertex is (maximum or minimum):

(e) Intersections on the "x" axis:

(f) Intersection on the "y" axis:

g) Its vertex shape:

23. Transform the quadratic function to the vertex shape: $y = 3x^2 + 15x - 27$

24. Researchers at a company have found that the cost for the production of a certain item is given by $C(x) = 0.002x^2 - x + 200$, where "C(x)" is the cost for producing an x number of items and "x" are the items produced. Determine:

(a) The cost of production of 200 units;

b) The units that must be produced to minimize the cost

(c) The minimum cost of production.

25. The number of houses that can be served by a water pipe varies directly proportional to the square of the pipe diameter. If a pipe of 20 cm in diameter supplies 100 houses.

a) Write a particular function that relates the number of houses to the diameter of the pipe.

b) How many houses can be supplied with a pipe of 43 cm in diameter?

c) For a neighborhood of 1500 houses, what pipe diameter do you need?