



COLEGIO NACIONES UNIDAS I.E.D.
TALLER PREPARATORIO
I TRIMESTRE
MATEMÁTICAS 6°

This workshop must be copied and solved in the mathematics notebook, as a requirement to take the competency test.

DELIVERY DATE: APRIL 2nd - 2024

1L) In the case of binary code, the digits used are zeros (0) and ones (1). We should not confuse the system with the code, as the former could operate with digits such as a and b (since the logic is the same), while the latter operates specifically with 1s and 0s.

Binary code is fundamental to the construction of the computers we know today, especially because it adapts well to the presence or absence of electrical voltages, thus giving rise to a bit of information: present or absent, that is, 1 or 0, respectively. Source: <https://concepto.de/sistema-binario/#ixzz8UrnZb0b9>

Based on the above information, response: What is a binary numbering system?

2L) What is the place value of the number 6 in the number 23246545?. Observe the example.

Ten thousands	Thousands	Hundreds	Tens	Ones	.	Tenths	Hundredths
8	7	4	8	1	.	2	3

3p) If each position in a decimal number represents a power of ten, what value represents the third position to the left of the decimal point?

$10^0 = 1$	$10^0 = 1$
$10^{-1} = 0.1$	$10^1 = 10$
$10^{-2} = 0.01$	$10^2 = 100$
$10^{-3} = 0.001$	$10^3 = 1000$
$10^{-4} = 0.0001$	$10^4 = 10000$
$10^{-5} = 0.00001$	$10^5 = 100000$
$10^{-6} = 0.000001$	$10^6 = 1000000$

4p) Why is the decimal system considered a positional system? Justify your answer.

- a) Because the position of each digit affects its value
- b) Because it is based on the position of the human body
- c) Because it was created in the 90's

5P) In the decimal system, how does the addition of a zero to the right of a whole number affect? Justify your answer.

- a) Multiply the number by ten
- b) Does not change the value of the number
- c) Divide the number by ten

6P) What advantage does the decimal system offer over other non-positional numbering systems? Justify your answer.

- a) It's easier to convert to other bases
- b) Requires fewer symbols to represent large numbers
- c) Allows greater precision in mathematical calculations

7P) If a car travels 300 kilometers on 25 liters of gasoline, what is the ratio of kilometers per liter?

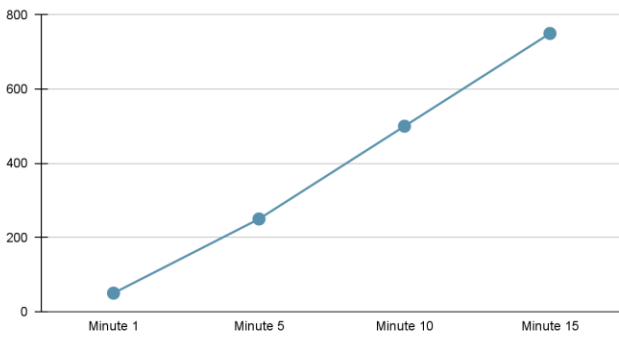
8P) If a recipe calls for a 2:3 ratio of sugar and flour to make one cake, how much of each would you need to make 5 cakes?

9P) If a map is drawn at a scale of 1:1000, what distance on the map represents 1 kilometer in reality?

10P) How do proportions relate to the simple rule of three in math problems?

11P) A printer prints 250 pages in 5 minutes. How many pages will you print in 12 minutes?

PAGES



12P) If 7 meters of fabric can be used to make 3 shirts, how many shirts can be made with 15 meters of fabric?

13P) What is a quantitative variable and how does it differ from a qualitative variable?

	Quantitative Variables	Qualitative Variables
Definition	Take on numeric values	Take on names or labels
Examples	Number of students in a class	Eye color
	Number of square feet in a house	Gender
	Population size of a city	Breed of dog
	Age of an individual	Level of Education
	Height of an individual	Marital status

14P) How can you define what is a class interval when you group quantitative data into a problem.

Class Interval ∞

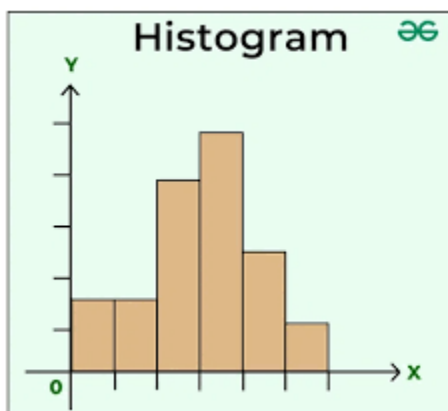
1-10	4
10-20	5
20-30	7
30-40	9

Exclusive

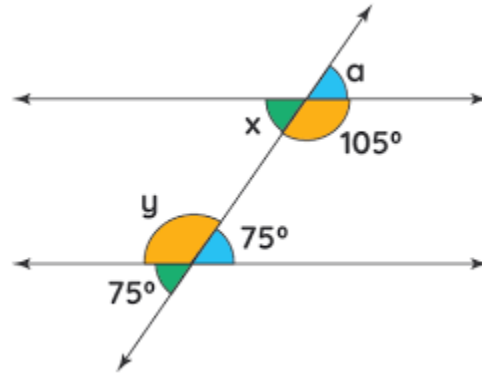
1-9	4
10-19	5
20-29	7
30-39	9

Inclusive

15P) What is a histogram and how does it relate to clustered data? Justify your answer with the help of the chart.



16i) If two angles are complementary and one measures 30° , what is the measurement of the other angle?



17i) What kind of angle is formed when two perpendicular lines intersect?

18i) What is the sum of the measurements of the internal angles of a triangle?

19p) What kind of angle is formed when two lines intersect to form four equal angles? Justify your answer.

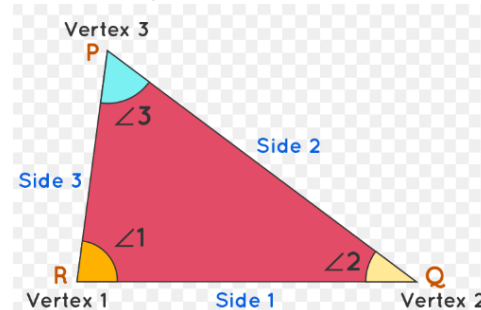
- a) Right angles
- b) Obtuse angles
- c) Acute angles

20p) What kind of angle results from the sum of an acute angle and a right angle? Justify your answer.

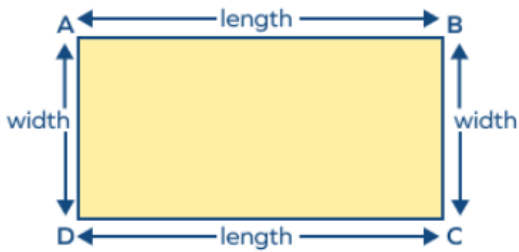
- a) Obtuse angle
- b) Right Angle
- c) Plain angle

21L) What is the basic unit of length in the International System of Units?

22i) If a triangle has sides of 5 cm, 8 cm, and 12 cm, what is its perimeter?

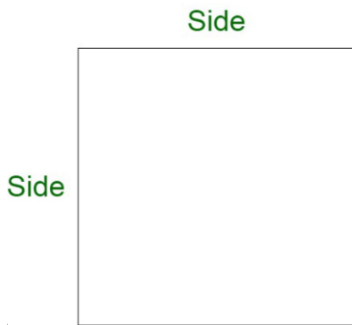


23i) If a rectangle is 10 meters long and 4 meters wide, what is its perimeter?



24i) How many centimeters are there in 1 meter? a) 10 cm b) 100 cm c) 1000 cm⁴
Justify your answer.

25P) If a square has a 7 cm side, what is its area?



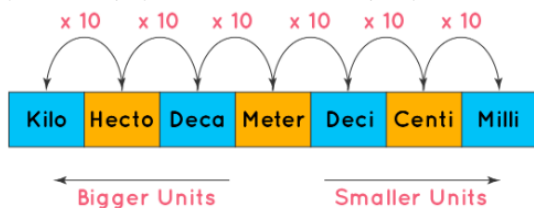
26i) What is the area of a square with a side of 5 meters? Justify your answer.

27i) If a rectangle has a length of 12 centimeters and a width of 8 centimeters, what is its area?

28i) How many hectares are there in 1 square kilometer?

29P) What is the basic unit of the International System of Units (SI) for measuring length?

- a) Liter (L) and milliliter (ML)
- b) Kilogram (kg) and grams (g)
- c) Meter (m) and centimeter (cm)¹



30p) If I want to know the length of an object, what measuring instrument should I use to measure it? tags. Justify your answer.