UNITED NATIONS COLLEGE I.E.D.
PREPARATORY WORKSHOP
III TRIMESTER
MATHEMATICS 602

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

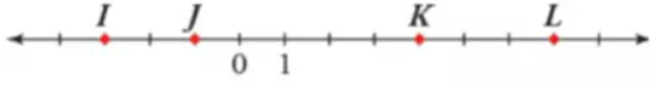
DELIVERY DATE: November 12th

1. In Math Class, the teacher shows six index cards each with a different digit or symbol for students to form numbers:

4	5	0	8	+	–

If we take the larger number and subtract the smaller number. What will be the result?

What are the integers associated with the letters "I", "J", "K" and "L"?, represented on the following number line



2. What is the number before point I?

3. What is the successor number to the L-point?

4. How many units are there between point "I" and point "L"?

5. The following table shows the boiling temperatures of some elements of nature.

Element	**Boiling (C°)**
Hydrogen	– 253
Helium	– 269
Aluminium	2467
Potassium	962
Mercury	357

If the temperatures are ordered from lowest to highest, what is the sequence obtained?

6. In a football game, a team scored 3 goals, but also conceded 5 goals. What is the team's goal balance?

Jorge bought some cleaning implements, he looks at the invoice.

INVOICE			
Buyer:		*Jorge*	
Description	**Quantity**	**Unit Price**	**Total Price**
Cleaner	3	$17,900	$53,700
Detergent	5	$24,000	$120,000
Brush	5	$1,000	$5,000
Bleach	3	$20,100	$60,300
Total =			$239,000

7. The detergent had a discount of -4,000 per unit, what is the operation that determines the total discount of the detergent?

8. If the bleach discount is -10,000 per unit, what is the total price I pay for the bleach?

John is keeping track of the time he spends studying each day for a week. Its records are as follows (in hours):

- Monday: 3
- Tuesday: 4
- Wednesday: 2
- Thursday: 3
- Friday: 5
- Saturday: 6
- Sunday: 4

9. Represents the above data in a histogram.

10. What does the height of each bar in the histogram represent?

11. What additional information could you glean from the histogram about John's study habits during the week?

12. **Sum of whole numbers:** One day, the temperature in a city started at 5 degrees Celsius. Throughout the day, the temperature rose 7 degrees in the morning, but then dropped 9 degrees in the afternoon. What was the final temperature in the city at the end of the day?

13. **Whole Number Subtraction:** In a points competition, Team A started with 50 points. During the game, they lost 15 foul points and then gained an additional 10 points. How many points does team A have at the end?

14. **Multiplication of whole numbers:** If a car travels 60 kilometers in 1 hour, how many kilometers will it have traveled in 5 hours?

15. **Whole Number Division:** Divide 48 apples evenly among 6 baskets. How many apples will be in each basket?

16. **Operations combined with integers:** Solve the following combined operation: $(12-8)+(6\times3)-15=?$

17. **Graph a single number - Draw a number line and graph the number -5:** Mark the numbers from -10 to 10 on the line. Place a dot on the number -5 and write its value.

18. **Graphing multiple numbers - Graph the following numbers on the same number line: -3, 0, 4, -7, 8.** Mark the numbers from -10 to 10. Place a dot on each number in the list and write its value.

19. **Sum of integers on the number line - Draw a number line and graph the following sum: 3 + (-6).** Start at 3 and then scroll 6 units to the left. Mark the point of arrival and write the result.

20. **Subtract whole numbers on the number line - Draw a number line and graph the operation: -4 - (-2).** Start at -4 and then move 2 units to the right (because you're subtracting a negative number). Mark the point of arrival and write the result.

21. **Displacement of positive and negative numbers - Draw a number line and graph the following path: Start at 5, then advance 7 units to the right, and finally go back 10 units to the left.** Clearly mark the points where you start and end, as well as the values of the offsets.

Juan lives in the center of Bogotá and decides to walk along Carrera Séptima to the north and south. The place where he lives is at kilometer 0. First it walks 4 kilometers north (positive direction), then it retreats 7 kilometers to the south (negative direction), and finally it walks 5 kilometers further north.

22. At what point on Carrera Séptima does Juan end up after all his travels?
23. Graph the displacements on a number line, where kilometer 0 represents your starting point.

24. **Buying apples:** Laura went to the market and bought 4 apples. The total cost was $20. If each apple costs the same, how much did Laura pay for each apple?

    Equation:
    $4x=20$

25. **Weekly savings:** Peter has $60 saved. Every week you save $15 more. If after a few weeks he has $105 in total, how many weeks has Pedro been saving?

    Equation:
    $60+15x=105$

26. **Filling a pool:** A pool has 200 liters of water and 25 liters per minute are being added. How many minutes will it take to have 500 liters of water?

    Equation:
    $200+25x=500$

27. **Buying tickets:** Ana wants to buy movie tickets for herself and 3 friends. Each ticket is $8. If Ana has $40, how much money will she have left over after buying the tickets?

    Equation:
    $40-8(4)=x$

28. **Sharing chocolates:** Maria has a box with chocolates. She decides to split the chocolates between her and 5 friends, so that they each receive 6 chocolates. If the box was full, how many chocolates did it have in total?

    Equation:
    $x \div 6 = 6x$

29. **Minimum load on the TransMilenio card:** Andrea plans to make several trips on TransMilenio during the week. Each ticket costs $2,950, and Andrea knows that she will need to make at least 8 trips. How much minimum money should you have on your card to make sure you can afford all rides?

30. Write down the inequality that represents the situation and find the solution.