I- Upon studying the number of daily hours spent by each of the ***25*** students of Grade 9 on the internet, we obtained the following results organized in the table below:

Number of daily hours	1	2	3	4	5
Number of students	2	y	9	x	3

1) Determine the character under studied and its nature.
2) a) Explain what x and y represent in the above table and interpret one of them.
   b) Deduce a relation between x and y.
3) Calculate x and y knowing that the mean number of daily hours spent on the internet is 3.2.
   For the remaining parts, let $x = 7$ and $y = 4$
4) Set up the table of increasing cumulative frequency in percentage and interpret any value.
5) Is it true that 76% of the students use the internet at least 3 hours daily? **Justify**.
6) Calculate the central angles and draw the circular diagram for this statistical distribution.

II- Upon studying the type of cellular phones used by each of the 25 students of grade 9, we obtained the following results organized in the table below: **(x is a natural number)**

Type of cellular phone	Nokia	iPhone	Blackberry	Samsung
Frequency	$x + 1$	$4x + 1$	$x + 3$	$3x + 2$

1) Determine the variable and its nature.
2) Show that $x = 2$, then determine the most used cellular phone.
3) a) Set up the table of frequencies and the central angles in degrees.
   b) Draw the semi-circular diagram for this statistical distribution.
4) Can you determine the increasing cumulative frequencies? Justify.
5) Calculate the percentage of the students who have Blackberry phones.

III- The marks of a set of students in the mathematical test for grade 9 are as follows:

Marks	4	6	8	12	14	16
Frequency	5	3	1	b	1	3

1. Calculate b such that the mean of the class is 9.6.
2. Draw the increasing cumulative frequency polygon of the above table.

IV- The table below shows the distribution of the grades of a class of 20 students.

Grades	5	6	8	10	12	13	18
number of students	a	2	4	1	3	3	b

1) Calculate a and b knowing that the mean grade of this class is 9.5.
2) The teacher decides to add 2 points for each student.
   a. Determine the new mean of this class. Justify.
   b. Represent the new grades in a statistical table of increasing cumulative frequencies.
   c. Find the percentage of students who got a grade at most 10.

V- Consider the following statistical distribution:

Values x_i	x_1	x_2	x_3	x_4
Frequencies	n_1	n_2	n_3	n_4

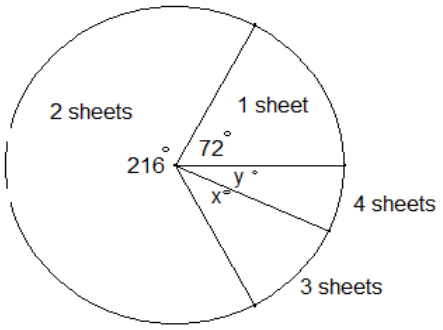
Find the mean $\bar{y}$, if y is a new variable such that $y_i = 10\,x_i - 4$ & $\bar{x}$ is the mean of the old variable x.

VI- The following list of data indicates the number of rooms in 20 houses on a given street.

3 ; 4 ; 5 ; 3 ; 4 ; 6 ; 4 ; 4 ; 5 ; 3
4 ; 4 ; 6 ; 4 ; 5 ; 4 ; 5 ; 4 ; 3 ; 4

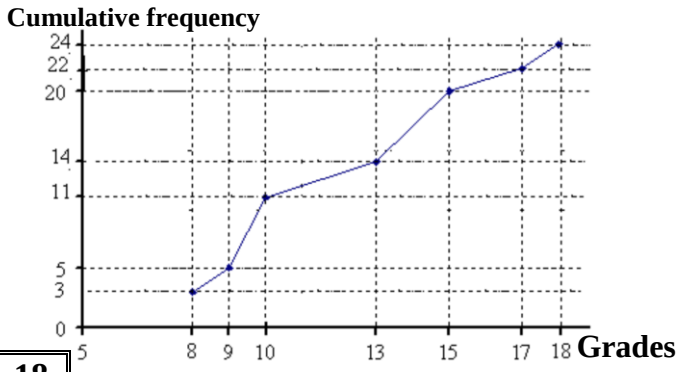
1) Define the range find its value form the above data?
2) Organize the above results in a statistical table, showing the frequency and relative frequency (in fractions and in percentages) for each value.
3) Represent graphically the frequencies in a bar graph.
4) Calculate the average number of rooms in the studied street.

VII- A surveyor asked 90 students of grade 9 about the number of double sheet papers used in the last math test. The results are represented in the circular diagram to the right.



1) Determine the population, the character and its nature.
2) Knowing that 10 students used 3 double sheet papers, calculate x, and deduce y, then interpret the meaning of y.
3) Organize the given information in a statistical table that shows the frequencies.
4) Calculate the increasing cumulative frequency of the value 3 sheets and interpret its meaning.
5) a) Calculate the average number $\bar{X}$ of double sheet papers used.
   b) The teacher supposes that the number of double sheet papers used by all the students will double in the final exam. Calculate the new mean $\bar{Y}$ in terms of the old mean $\bar{X}$.

VIII- The adjacent graph represents the cumulative frequency polygon of the students' grades in certain class.



1) What is the number of students of this class?
2) Complete the following table:
3) The st. line y = 11 cuts the given curve at a point M. Find abscissa of M and interpret its statistical value.
4) Write as percent the relative frequency of grade 10.

Grades	**8**	**9**	**10**	**13**	**15**	**17**	**18**
Cumulative frequency	**3**	**5**					
Frequency	**3**	**2**					

5) What is the average grade of the students of this class?
6) A student got the following scores in different subjects:11,10,16,15,10,13.
   a) What is the mean score?
   b) What should he get in the seventh subject so that his mean score increases by 1 score.