PRACTICE – Lesson 1

THE HISTORY OF INTERNATIONAL MATHEMATICS

Mathematics has been fundamental to advances in science, engineering, and philosophy. However, every culture on earth has made contributions to the development of what is called international mathematics. This one has its roots in ancient Egypt and Babylonia. The most ancient mathematical texts available are Plimpton 322 (Babylonian mathematics c. 1900 BC), the Moscow Mathematical Papyrus (Egyptian mathematics c. 1850 BC), and the Rhind Mathematical Papyrus (Egyptian mathematics c. 1650 BC). Then, mathematics grew rapidly in ancient Greece. The theorems and studies were written in ancient Greek and then translated into Arabic. Later, this mathematics was translated into Latin and it became the mathematics of Western Europe and eventually, the mathematics of the world

The Greeks began working hard in Mathematics from around 450 BC and it was Pythagoras who coined the term "mathematics" from the ancient Greek *μάθημα* (*mathema*), meaning "subject of instruction". Zeno of Elea's paradoxes led to the atomic theory of Democritus. The Greeks realized that rational numbers did not suffice to measure all lengths. As a result, a geometric formulation of irrational numbers arose. Their major progress in mathematics was from 300 BC to 200 AD. After this time progress continued in Islamic countries. Mathematics flourished in particular in Iran, Syria and India. The work in these regions did not match the progress made by the Greeks but it did preserve Greek mathematics. From about the 11th Century Adelard of Bath, then later Fibonacci, brought this Islamic mathematics and its knowledge of Greek mathematics back into Europe. The Middle Ages were characterized by centuries of stagnation, although there were bursts of mathematical creativity. Major progress in mathematics could be observed in Europe, mainly in Italy, during the Renaisance thanks to the contributions of mathematicians such as Pacioli, Cardan, Tartaglia and Ferrari, among others. Also, Copernicus and Galileo revolutionised by applying mathematics to the study of the universe.

It is quite hard to understand the brilliance of major mathematical discoveries. On the one hand, they often appear as isolated flashes of brilliance. However, they are the culmination of work by many, often less able, mathematicians over a long period.

COMPREHENSION

<u>Exercise no.1</u>: Complete the following chart in English

The text is about	
Languages in which texts were written	
"mathematics"	**Word invented by:** **Meaning:**
Old countries mentioned in the text where contributions were made	

Exercise no.2: Which is the reference? Copy the word here.

1. **This one** (line 3) _____
2. **its** (line 3) _____
3. **this mathematics** (line 7) _____
4. **who** (line 10)_____
5. **Their** (line14) _____
6. **this time** (line 15) _____
7. **These regions** (line 16) _____
8. **it** (line 16) _____
9. **others** (line 22) _____
10. **they** (line 25) _____

Exercise no.3: Choose the function of the following connectors from the box. You can use the same word more than once.

Sequence	***reason***	***contrast***	***exemplification***	***addition***
Consequence	***hypothesis***	***purpose***	***alternative***	***similarity***

1. **Then** (line 6) _____
2. **Later** (line 7) _____
3. **As a result** (line 10) _____
4. **but** (line 16) _____
5. **and** (line 18) _____
6. **although** (line 19) _____
7. **such as** (line 21) _____
8. **Also** (line 22) _____
9. **On the one hand** (line 24) _____
10. **However** (line 25) _____

Exercise no. 4: Circle the correct meaning for this context

1. **ancient**	(line 3)	a. anticuados	b. ancianos	c. antiguos
2. **available**	(line 4)	a. válidos	b. disponibles	c. realizables
3. **flourished**	(line 15)	a. florecía	b. prosperó	c. agitó
4. **bursts**	(line 19)	a. ráfaga	b. reventones	c. estallidos
5. **able**	(line 26)	a. capaces	b. aptos	c. hábiles

Exercise no.5: Complete the chart with information from the text. Translate the sentence(s).

450 BC	
300 BC to 200 AD	
After 200AD	
11th Century	
Middle Ages	
Renaisance	

Exercise no.6: True (T) or False (F). Justify your answer with the numbers of the lines

1. ___ Mathematics resulted from different contributions lines ……..
2. ___ Democritus' atomic theory was based on Zeno of Elea's paradoxes lines ……..
3. ___ Greeks knew that rational numbers were enough to calculate lengths lines ……..
4. ___ The contributions made in Iran, Syria and India were more important than those of the Greeks lines ……..
5. ___ Not all mathematicians are bright lines ……..

Exercise no.7: Answer the following questions in Spanish and in your own words

1. Why were irrational numbers formulated?
2. Why can´t we speak of "*isolated flashes of brilliance*"?