**6 Math exercises:**

1. List and explain the main mathematical symbols.

2. Explain the main concepts of the Set Theory.

3. Define proposition, syllogism and predicate.

4. Write arithmetic equivalents to the main logical operations.

5. Explain the multiplication and addition laws.

6. Define cyclic permutations.

7. Deduce the number of solutions to the Traveling Salesman Problem for *n* cities.

8. By how many lines can you connect *n* points?

9. By how many lines can you connect *n* points?

10. Calculate the number of options for a Graceful Graph.

11. How many passwords can be made of the numbers up to 999999? How many up to 8-symbol passwords can be made with 10 digits (0-9) and 26 English letters (a-z)?

12. How many options are there in each of the number puzzles?

13. Expand.

a. (a + b)2 = . . .

b. (a + b)3 = . . .

c. (a + b)4 = . . .

d. (a + b)5 = . . .

14. To prepare to the Mid-Term Exam:

Study the class notes, solve all the problem sets, solve all the relevant problems from the textbooks, visit the web-sites, study the solutions, watch the videos, and meet me if you have any questions.

**Deadline: 5 November 2014**