

- **STUDY PROBLEM:**

The problem of the present study was stated in the following ten questions:

- 1- Does the level performance, as a measure for problem solving in general mathematical tasks (simple - normal - complex) differ according to the metacognition level (high - low)?
- 2- Does the level performance, as a measure for problem solving in general mathematical tasks (simple - normal - complex) differ according to the ambiguity tolerance level (high - low)?
- 3- Does the level performance, as a measure for problem solving in general mathematical tasks, differ according to the task characteristics (simple - normal - complex)?
- 4- Does the level performance, as a measure for problem solving in general mathematical tasks, differ as a result of the integration between metacognition and task characteristics?
- 5- Does the level performance, as a measure for problem solving in general mathematical tasks, differ as a result of the integration between metacognition and ambiguity tolerance?
- 6- Does the level performance, as a measure for problem solving in general mathematical tasks, differ as a result of the integration between ambiguity tolerance and task characteristics?
- 7- Does the level performance, as a measure for problem solving in general mathematical tasks, differ as a result of the integration between metacognition, ambiguity tolerance and task characteristics?
- 8- What are the problem solving strategies used by the students in solving general mathematical problems?
- 9- Do the strategies of solving general mathematical problems differ according to the metacognition level (high

– low)?

10- Do the strategies of solving general mathematical problems differ according to the ambiguity tolerance level (high – low)?

11- Do the strategies of solving general mathematical problems differ according to the task characteristics (simple - normal - complex)?

- **STUDY OBJECTIVES:**

1- Determining the relationship between metacognition, ambiguity tolerance and task characteristics and mathematics performance.

2- Defining the problem solving strategies used by the students in solving general mathematical problems.

3- Examining the difference between high-level and low-level students in metacognition, as well as ambiguity tolerance, when using strategies for solving general mathematical problems.

- **STUDY SAMPLE:**

The initial sample of the present study consisted of 150 male and female students, first year, secondary stage. The final selected sample after the administration of study scales was 55 male and female students.

- **STUDY TOOLS:**

The following tools were used in the present study:

1- Metacognition scale, by Schraw and Dennison 1994, translated into Arabic and standardized by El-Sayed Mohammad Abou-Hashem.

2- Ambiguity tolerance scale, by Maclain 1993, translated into Arabic and standardized by the present study researcher.

3- Experimental study tasks, by the present study researcher.

- **STUDY FINDINGS:**

The present study reached important findings. The following are some of them:

1- There were statistically significant mean differences between high-level and low-level students in metacognition

and performance level on general mathematical tasks (simple – normal – complex), in favour of the former.

- 2- There were no statistically significant mean differences between high-level and low-level students in ambiguity tolerance and performance level on general mathematical tasks.
- 3- There were no statistically significant mean differences in ambiguity tolerance and performance level on general mathematical tasks according to the different task characteristics (simple – normal – complex).
- 4- There were no statistically significant mean differences resulted in the integration between metacognition and task characteristics on performance level when solving general mathematical problems.
- 5- There were no statistically significant mean differences resulted in the integration between metacognition, ambiguity tolerance and task characteristics on performance level when solving general mathematical problems.
- 6- The quantitative analysis revealed some strategies used by the students in solving general mathematical problems.
- 7- The quantitative analysis revealed also that the type of strategy differed according to the task characteristics.