**CHAPTER I**

**PRELIMINARY**

1. **Background**

Each student has different skills in learning, such as reading, listening, and writing skills that they gain from their learning experience that is definitely influential with student achievement. With high learning achievement means a goal of teaching and learning activities is achieved well.

According Suherman, et al (2003) one of the lessons that train students' skills is mathematics. Mathematics is a part of science that contributes significantly to the development of science and also the development of human resources. Mathematics arises because of the human mind associated with ideas, processes, and reasoning. Mathematics also has an important role in the fulfillment of practical needs and solve problems in everyday life such as collecting, processing, presenting and interpreting data, calculate the content and weight.

During this time students may simply accept the teaching of mathematics in school, without questioning why or for what math should be taught. One of the tendencies that caused some students failed to master well in the mathematics of the students are less understanding and use good reason in solving the given problem (Usniati, 2011). The point that needs to be emphasized is that in teaching mathematics requires activity in the world of reasoning and the problem is how a teacher instills the best concept to the student.

Teaching mathematics requires teaching that can develop students' reasoning abilities which is one of the important goals in learning mathematics, providing materials taught to students not just as memorization, but more than that with reasoning students can better understand the concept of the subject matter itself. According to Wahyudin (Permana, 2004) suggests that one of the tendencies that cause some students to fail to master well in mathematics is because students do not use logical reasoning in solving mathematical problems, so reasoning is an important aspect in learning mathematics.

Based on the observations that researchers do in SMP Negeri 8 Makassar, it is known that when the learning process most students pay attention to the material presented by the teacher without any feedback from students. In the learning process students have difficulty in delivering the results of his work to teachers and friends. Also visible teachers have not included students in thinking and communicating ideas, so that students are poorly trained in developing the idea. Teachers only deliver material, give examples of problems and ultimately the teacher gives practice to the students. This illustrates that the learning process has not centered on students and is still impressed applying direct learning model.

Most students are not used to writing down what is known and what is being asked before solving the problem. Students also often misinterpret the intent of the matter so that it has not been able to present the solution of mathematical problems in detail and correctly. Students also tend to memorize the formulas and steps of the problem without the involvement of optimal reasoning. The teacher gives examples of problems and exercises similar problems so that when students get the questions that require reasoning somewhat different with the routine, then the students will be confused in solving the problem. Students have not been accustomed to use and develop their own reasoning.

According to Depniknas (2004) reasoning is a thought process that produces knowledge. While the problems faced by the students continue to be left then the students will be less able to reason mathematically. Therefore it takes a model and approach of learning that can stimulate students' reasoning through the problems that exist around the students.

There are many steps to develop students' reasoning abilities, among others, teachers encourage students to be able to think logically by providing problems of application in accordance with daily life which is then changed in the form of mathematics. Students themselves can also develop reasoning skills by learning to analyze things based on steps that are appropriate to the theorems and mathematical concepts.

One model of learning that can be used to improve reasoning skills and student achievement in mathematics is the study model *Auditory Intellectually Repetition (AIR)* approach *Contextual Teaching and Learning (CTL).* *AIR* learning model is defined as a learning model that emphasizes three aspects, namely *auditory* (learn by hearing), *intellectually* (learning by thinking), and *repetition* (repetition in order to learn to be more effective). In this study, *AIR* learning model combined with *CTL* approach that consists of learning the principles of *CTL.*

Through AIR learning model that emphasizes learning activities, where students actively construct knowledge individually or in groups associated with *CTL* teaching approach departs from problems in the real world, it is expected that lessons be meaningful for students. Thus they are motivated to engage in the lessons and develop their mathematical reasoning abilities. To support the learning process that activates the students required a development of mathematics subject matter that is focused on the application in everyday life (contextual) and adapted to the cognitive level of students.

*CTL* according to Johnson (2009) is a learning system that matches the performance of the brain, to develop patterns that embody meaning, by linking academic content to the context of everyday life of learners. This is important so that the information received is not only stored in short-term memory, which is easily forgotten, but can be stored in long-term memory so that it will be appreciated and applied in the job task.

Based on the above background, efforts should be made to improve the ability of mathematical reasoning students so that researchers interested in conducting research that is "Influence Learning Model of *Auditory Intellectually Repetition (AIR)* approach *Contextual Teaching and Learning (CTL)* on the ability of mathematical reasoning eighth grade students of SMP Negeri 8 Makassar.

1. **Research of Questions**

Based on the background that has been described above, it can be formulated as follows:

1. How would you describe the reasoning ability of students taught by applying the learning model *Auditory Intellectually Repetition (AIR)* with a *Contextual* Approach *Teaching and Learning* (CTL) in class VIII SMPN 8 Makassar?
2. How would you describe the reasoning ability of students taught by applying the learning model p embelajaran models directly In class VIII SMP Negeri 8 Makassar?
3. Is learning model *Auditory Intellectually Repetition (AIR)* to approach *Contextual Teaching and Learning* *(CTL)* has positive effects on reasoning ability eighth grade students of SMPN 8 Makassar?
4. **Research purposes**

In accordance with the formulation of the problem, then the expected goals of this study are:

1. For a description of the reasoning abilities of students who are taught by applying the learning models of *Auditory Intellectually Repetition (AIR)* with *Contextual Teaching and Learning* *(CTL) approach* in class VIII SMPN 8 Makassar?
2. For a description of the reasoning abilities of students who are taught by applying the direct instruction learning model on the class VIII SMPN 8 Makassar?
3. To know the positive influence learning model of *Auditory Intellectually Repetition (AIR)* with *Contextual Teaching and Learning* *(CTL)* approach toward students’ mathematical reasoning ability on Grade VIIIth SMP Negeri 8 Makassar?
4. **Benefits of research**

The results of this study are expected to be used for:

1. Provide information to educators and prospective educators to always improve the quality of teaching and the use of a particular approach that appeals to students to improve math reasoning abilities of students to the teaching materials.
2. For the teacher, it can be a reference in the use of a variety of learning approaches in the pursuit of the class.
3. For students, being one way in learning to train students' thinking skills especially those on the ability of reasoning ability that can help students in solving everyday problems.
4. **Term Limit**

In connection with this research, it is necessary to clarify the following terms:

* + 1. The positive influence which is meant is that if the hypothesis testing, t tests of mathematical reasoning students taught through learning model *Auditory Intellectually Repetition (AIR)* with *Contextual Teaching and Learning* *(CTL)* approach is higher than t tests of mathematical students reasoning taught through direct instruction learning model .
    2. The learning model of *Auditory Intellectually Repetition (AIR)* with *Contextual Teaching and Learning* *(CTL)* approach is the applied learning in the teaching process, with emphasis on three aspects: *Auditory, Intellectually,* and *Repetition* and associate the subject matter with real situations of everyday life of students.
    3. Reasoning abilities of students mean is the ability to think about mathematical problems logically to obtain settlement and explain or give the reasons for solution of an issue and draw conclusions. Indicators reasoning that researchers use the ability filed allegations, the ability to manipulate math, the ability to draw a conclusion, and the ability to inspect the validity of an argument.