Introduction
Nowadays, to investigate students’ potentiality, any exam has to contain a lot of questions. Therefore, using attribution hierarchy model will be able to reduce the number of questions. This study was to develop a diagnostic test and to quantify its quality. The study will concentrate in students’ mathematical problem-solving skill. Moreover, the created diagnostic test will limit to the skill of solving adding and subtracting fractions questions only.

Methods
- Participants
  Samples in the research were 1,252 Grade 6 students, selected by stratified random sampling. Separated by genders, there were 633 male students (50.56 %) and 619 female students (49.44 %).
- Instruments
  Research instruments included a diagnostic test for mathematical problem solving skills regarding adding and subtracting fractions for Grade 6 students, applying the concepts of AHM.

Results
Research instruments includes a diagnostic test for mathematical problem solving skills regarding adding and subtracting fractions for Grade 6 students, applying the 17 steps of AHM. The level of difficulty of items in the test ascends from the easiest to the hardest. The diagnostic test is a combination of multiple-choice and written items. The test is assessed with 0-1 marking.

The evaluation of the test quality was done with the 2-parameter item response theory, with item difficulty index from -2.14 to 1.06, item discrimination index from 0.77 to 3.07, content validity IOC at 1.00 for each item, inter-rater reliability at 0.898, and Hoyt’s reliability at 0.84.

Conclusion
The diagnostic test developed in this study is quite simple and effectively assess students. The diagnostic test, thus, is appropriate for the diagnosis of errors in mathematic problem solving regarding adding and subtracting fractions. Although the test has only 17 items, it is able to diagnose every attribute ranging from reading, keyword interpretation, adding and subtracting skills. The limited number of items not only prevents students from weariness, but also decreases the possibility of guessing.

References