Iowa Algebra Aptitude Test: Item Response Report

Purpose: This report provides each student’s raw score, standard score, national percentile rank, normal curve equivalent, and stanine score for one administration of the IAAT. Student performance by question and test section also displays, with incorrect responses reported. Student results in each section are colored according to the achievement level associated with the student’s section score. Data in this report is useful for reviewing the specific questions students missed and conducting a distractor analysis, quickly identifying the top missed questions and the associated distractor responses, and noting any misconceptions present or student learning gaps. Grouping students by stanine and performance on each standard for a distractor analysis, quickly identifying the top missed questions and the associated distractor responses, and noting any incorrect responses reported. Student results in each section are colored according to the achievement level associated with the associated standard, and the strand/domain in which the associated question correctly.

Report Criteria – Details the math course, the overall percent correct score averaged for the group, and the school information. Click the “Edit” link to select a different assessment to view in the report.

Sections – Questions on the IAAT are grouped in 4 sections, measuring a student’s skills in 4 focused pre-algebra areas. 
Section 1: Pre-Algebraic Number Skills and Concepts (questions #1-15)
Section 2: Interpreting Mathematical Information (questions #16-30)
Section 3: Representing Relationships (questions #31-45)
Section 4: Using Symbols (questions #46-60)
Hover over a section to reveal the range of scores that designate the color for which the student scores are highlighted in the report.

Question# - Click each question number in the top row to view the question stem, correct answer, three provided distractors, the associated standard, and the strand/domain in which the standard lives.
% of Correct Responses – The percentage of students in the group who answered the associated question correctly.
Measurable Standard – Identifies the standard associated with each question on the IAAT.
Student Name – Click the header to sort the students alphabetically and in reverse order.

Select a student’s name to display their individual Section Comparison Report. This report shows a breakdown of student performance by domain within each part of the IAAT. The number of correct and incorrect responses in each completed section also appears. The student’s results in each section are colored according to the achievement level in which the score in each section resides. This report can be sent home to parents/guardians or discussed at conferences.

Student ID and Score - Click the headers to sort the student IDs and scores in ascending or descending numerical order. The score in this column is the number of questions the student answered correctly (all 4 sections combined), divided by the total number of questions on the Iowa Algebra Aptitude Test.

Standard Score – A 3-digit number converted from the raw score, indicating the student’s average achievement on a continuum scale. It measures the amount of academic growth year-over-year. The raw score mean corresponds to a normalized standard score of 150.

NCE - A score from 1 to 99 (mean of 50), it is a normalized standard score used to determine the student’s growth over time. NCE scores correspond to percentile ranks of 1 to 99. Trends can be analyzed from the scores from one year to the next, for the student or group, to note how quickly or slowly the student or group is learning math.

Percentile Rank - A score of 1-99, converted from the standard score. It shows the student’s relative position (or rank) compared to others who took all 4 parts of the IAAT. Percentile ranks are referenced at the national or local level.

Most Common Distractor – The most frequent incorrect response among those students who answered the question incorrectly.

% Students Selecting Distractor – The percentage of students in the group who responded with the most frequent incorrect response.

Report access in EdPower:
- Click the “Class Name”
- Click “Reports” (top menu)
- Click “Item Response Report”
- Select the assessment
- Click “Next”
- Expand the view in the upper right corner (“View Larger”)
- Export the report to Excel or PDF, if desired
This report best answers:

- What is each student’s raw score, standard score, percentile rank, normal curve equivalent, and stanine on the IAAT? Which of the students may be ready to enroll in Algebra I, with additional data to support the decision? 
- On which section of the IAAT did each student score the highest and lowest? 
- On which questions did more students answer incorrectly? What misconceptions might be addressed and where might reteaching need to occur? 
- On which standard(s) do the students in this class/at this school need additional instruction or practice? 
- On which standard(s) might students benefit from extension activities?

Assessment Design:

The Iowa Algebra Aptitude Test, Fifth Edition is a standardized, fixed format 4-part multiple choice math assessment that measures a student’s math abilities in pre-algebraic number skills & concepts, math information interpretation, relationship representation, and symbol usage. The IAAT is designed to help teachers, school counselors, administrators, students, and parents determine the right time for student enrollment in an algebra class so that the student is appropriately challenged, confident, and successful (meaning, earning a C or higher) in a beginner algebra course, without encountering coursework that is beyond their means.

The IAAT is typically administered to students in grades 7 & 8, though any student academically ready to begin studying algebra may take it. The online administration of the IAAT allows for immediate data and score updates and a clickable dashboard for customized selections.

Next Reports for Review:

- **Student Report** – Displays the individual student’s overall score on the IAAT, the achievement level in which the score lives, the student’s score compared to proficiency, and the number of questions the student answered correctly by domain. The report can be printed or emailed to parents.

- **Individual Student Performance Report** – Includes the student’s overall score on the IAAT, the achievement level in which the score lives, and a breakdown of student performance by standard. The number and percentage of questions the student answered correctly for each standard, in comparison to the class average, displays. Standard descriptions and aligned questions are included on the report.

- **Performance Band Report** – Groups the students tested according to their achievement on each domain and standard. Click a colored performance band next to each standard in this report to view a list of students and their scores on the standard. This report includes the standard number assessed and the associated description.

- **Class Scores Report** – Groups the overall student scores on the IAAT within a histogram, with scores colored according to the designated achievement level. Each student’s individual score and performance, broken down by domain, appears in the lower portion of the report. Click the score and domain headers to sort for analysis purposes. Click a student’s name to reveal their Student Report. The Student Report provides the student’s overall IAAT score compared to Algebra I readiness and performance by domain.
This report best answers:

- What is each student’s raw score, standard score, percentile rank, normal curve equivalent, and stanine on the IAAT? Which of the students may be ready to enroll in Algebra I, with additional data to support the decision?
- On which section of the IAAT did each student score the highest and lowest?
- On which questions did more students answer incorrectly? What misconceptions might be addressed and where might reteaching need to occur?
- On which standard(s) do the students in this class/at this school need additional instruction or practice?
- On which standard(s) might students benefit from extension activities?

Note:

Administrators can view overall performance of students in all classes or view the report from a teacher’s perspective.

Questions for Investigation:

- Sort the student stanine scores in descending order. Which students may qualify for Algebra I, with additional data available (class assessments & performance, other normed assessments, & teacher recommendations) to support the decision?
- On which 5-10 questions did the highest percentage of students answer incorrectly? (Review the “% of Correct Responses” row to identify the lowest percentages.) Which distractor was the most frequent response on each of these questions? Click the question number in the top row to view each question and the associated distractors. What misconceptions may need to be addressed, or where are opportunities for reteaching and individual, small group, and/or whole group instruction?
- On which 3 standards did the students perform the highest? What instructional strategies, resources, or programs may have contributed to the success of the high performance? On which 3 standards did the students perform the lowest? What instructional resources, strategies, or programs may be needed or need to be implemented to improve performance in each area? Share with others (if applicable), resources/ideas for helping particular students master any or all 3 identified standards.
- How can students be sorted for instructional purposes, to improve their performance in a particular standard(s) and on particular questions?

Key insights

Teachers and administrators will be able to identify those students most likely ready to enroll in Algebra I, with additional data provided to support the decision.

Teachers and administrators will discover the individual questions each student answered correctly and incorrectly, according to each standard assessed.

Implementation of distractor analysis for the assessed questions will support instructional groupings and help identify misconceptions for reteaching.