Algebra Assessment & Instruction: Meeting Standards (AAIMS)
Recommended Cut Scores
Based on Student Performance within Huron County, Michigan
August, 2012

When using AAIMS Algebra probes as part of a Multi-Tiered System of Supports (MTSS), it is useful to set cut scores based on a correlation of student performance on the AAIMS probes to later performance on the mathematics portions of the Michigan Educational Assessment Program (MEAP) or Michigan Merit Exam (MME). In order to interpret the tables below, the following definitions will be useful:

sensitivity – the percentage of students correctly identified as at risk
specificity – the percentage of students correctly identified as not at risk
accuracy – the overall percentage of students who are correctly identified as at risk or not at risk

The **sensitivity** and **specificity** of a measure can be changed by raising or lowering the target (the Tier 1 cut score). Raising the target will result in increased sensitivity and decreased specificity. A measure with high sensitivity will "catch" most students who are at risk but may over-identify some students.   By contrast, lowering the target will increase the specificity of the measure at the expense of sensitivity. When a student performs below target on a measure with high specificity, one can be certain that the student is at risk, but the measure may "miss" some at-risk students.

The Tier 1 cut scores (targets) in the following tables were determined by seeking the cut score that would yield the greatest specificity and accuracy possible while not allowing the sensitivity to drop below 0.70. The Tier 3 range is based on a high specificity (>0.95) along with correlation to a MEAP or MME performance level of 4. Students performing above Tier 3 but below target are considered to be Tier 2.

Table 1: Algebra Basic Skills

	Fall	Winter	Spring
Grade 6			
Tier 1	11+	12+	16+
sensitivity	0.79	0.78	0.67
specificity	0.64	0.61	0.68
accuracy	0.72	0.70	0.68
Tier 2	5-10	6-11	7-15
Tier 3	0-4	0-5	0-6
Grade 7			
Tier 1	15+	16+	17+
sensitivity	0.73	0.87	0.74
specificity	0.71	0.63	0.70
accuracy	0.72	0.80	0.73
Tier 2	7-14	8-15	10-16
Tier 3	0-6	0-7	0-9

Table 2: Algebra Foundations

	Fall	Winter	Spring
Grade 7			
Tier 1	11+	14+	17+
sensitivity	0.83	0.76	0.78
specificity	0.71	0.74	0.63
accuracy	0.80	0.75	0.74
Tier 2	4-10	7-13	11-16
Tier 3	0-3	0-6	0-10
Grade 8			
Tier 1	19+	21+	23+
sensitivity	0.76	-------	0.76
specificity	0.79	-------	0.62
accuracy	0.77	-------	0.74
Tier 2	12-18	12-20	12-22
Tier 3	0-11	0-11	0-11
Grade 9+			
Tier 1	23+	25+	28+
sensitivity	0.73*	0.85*	0.76*
specificity	0.69*	0.62*	0.69*
accuracy	0.73*	0.81*	0.75*
Tier 2	12-22	12-24	12-27
Tier 3	0-11	0-11	0-11

* Correlations between ninth-grade performance on the AAIMS measures and later performance on the MME are less accurate because the only students who take the AAIMS assessments in Grade 9 are those who did not complete Algebra 1 in Grade 8.

Table 3: Content Analysis

	Fall	Winter	Spring
Grade 8			
Tier 1	12+	15+	20+
sensitivity	0.76	-------	-------
specificity	0.61	-------	-------
accuracy	0.72	-------	-------
Tier 2	3-11	7-14	11-19
Tier 3	0-2	0-6	0-10
Grade 9+			
Tier 1	20+	24+	27+
sensitivity	0.71*	0.80*	0.80*
specificity	0.69*	0.85*	0.62*
accuracy	0.71*	0.80*	0.77*
Tier 2	11-19	15-23	18-26
Tier 3	0-10	0-14	0-17

* Correlations between ninth-grade performance on the AAIMS measures and later performance on the MME are less accurate because the only students who take the AAIMS assessments in Grade 9 are those who did not complete Algebra 1 in Grade 8.