

ACT (High School Math)

Course Curriculum (MPSL Academy)

Each Session: 1 hour 15 minutes

(First 10 min review of last week topics/HW, 50 min new topics, 15 min critical thinking Qs)

Mathematics Test Description for the ACT

The ACT mathematics test is a 60-question, 60-minute test designed to assess the mathematical skills students have typically acquired in courses taken up to the beginning of grade 12.

The test presents multiple-choice questions that require you to use reasoning skills to solve practical problems in mathematics. Most questions are self-contained. Some questions may belong to a set of several questions (e.g., several questions about the same graph or chart). Knowledge of basic formulas and computational skills are assumed as background for the problems, but recall of complex formulas and extensive computation is not required.

1) Preparing for Higher Math (57–60%)

This category captures the more recent mathematics that students are learning, starting when students begin using algebra as a general way of expressing and solving equations. This category is divided into the following five subcategories.

a) Number & Quantity (7–10%)

Demonstrate knowledge of real and complex number systems. Students will understand and reason with numerical quantities in many forms, including integer and rational exponents, and vectors and matrices.

b) Algebra (12–15%)

Solve, graph, and model multiple types of expressions. Students will employ many different kinds of equations, including but not limited to linear, polynomial, radical, and exponential relationships. The student will find solutions to systems of equations, even when represented by simple matrices, and apply their knowledge to applications.

c) Functions (12–15%)

The questions in this category test knowledge of function definition, notation, representation, and application. Questions may include but are not limited to linear, radical, piecewise, polynomial, and logarithmic functions. Students will manipulate and translate functions, as well as find and apply important features of graphs.

d) Geometry (12–15%)

Define and apply knowledge of shapes and solids, such as congruence and similarity relationships or surface area and volume measurements. Understand composition of objects, and solve for missing values in triangles, circles, and other figures, including using trigonometric ratios and equations of conic sections.

e) Statistics & Probability (8–12%)

Describe center and spread of distributions, apply and analyze data collection methods, understand and model relationships in bivariate data, and calculate probabilities, including the related sample spaces.

2) Integrating Essential Skills (40–43%)

These questions address concepts typically learned before 8th grade, such as rates and percentages; proportional relationships; area, surface area, and volume; average and median; and expressing numbers in different ways. Students will solve problems of increasing complexity, combine skills in longer chains of steps, apply skills in more varied contexts, understand more connections, and become more fluent.

3) Modeling (>25%)

This category represents all questions that involve producing, interpreting, understanding, evaluating, and improving models. Each question is also counted in other appropriate reporting categories above. This category is an overall measure of how well students use modeling skills across mathematical topics.