The ACT test writers provided the following description of the math subtest test that was revised in June 2016. (See Official Act Prep Guide, 1st Edition, Wiley Publishing, May 31, 2016.)

Numbers and Quantities. Math questions in this category test knowledge of numbers and fundamental math concepts and operations, including the following.

- Perform calculations on whole numbers and decimals
- Recognize equivalent fractions and fractions in lowest terms
- Locate rational numbers (whole numbers, fractions, decimals, and mixed numbers) on the number line
- Recognize single digit factors of a number
- Identify a digit's place value
- Demonstrate knowledge of elementary number concepts, including rounding, ordering of decimals, pattern identification, primes, and greatest common factor
- Write powers of 10 using exponents
- Comprehend the concept of length on the number line, and find the distance between two points
- Understand absolute values in terms of distance
- Find the distance between two points with the same x-coordinate or y-coordinate in the coordinate plane
- Add, subtract, and multiply matrices (tables of numbers)
- Order fractions
- Find and use the least common multiple
- Demonstrate knowledge of complex numbers and multiply two complex numbers
- Comprehend the concept of irrational numbers, such as π
- Apply properties of rational exponents
- Use relations involving addition, subtraction, and scalar multiplication of vectors and matrices
- Analyze and draw conclusions based on number concepts

Algebra and Functions
Algebra. Algebra knowledge and skills include the following:

- Demonstrate knowledge of basic expressions, such as *b + g* to identify a total
- Solve equations in the form *x + a = b*, where *a* and *b* are whole numbers or decimals
- Use substitution to evaluate mathematical expressions
- Combine like terms, such as *2x + 5x*
- Add and subtract algebraic expressions
- Multiply two binomials
- Match inequalities with their graphs on the number line
- Demonstrate knowledge of slope
- Solve real-world problems by using first degree equations
- Solve inequalities
- Match linear or compound inequalities with their graphs on the number line
- Add, subtract, and multiply polynomials
- Solve quadratic equations
- Factor quadratics
- Work with squares/square roots and cubes/cube roots of numbers
- Work with scientific notation
- Solve problems involving positive integer exponents
- Determine the slope of a line from an equation
- Solve linear inequalities when the method involves reversing the inequality sign
- Solve systems of two linear equations
- Solve absolute value equations and inequalities
- Match quadratic inequalities with their graphs on the number line

Functions. Questions that involve functions test the students' ability to do the following:

- Understand the concept of a function having a well-defined output at each valid input value
- Extend a given pattern by a few terms for patterns that have a constant increase or decrease between terms or that have a constant factor between terms
- Evaluate linear, quadratics, and polynomial functions expressed in function notation at the integer level
- Interpret statements that use function notation in terms of their context
- Find the domain of polynomial functions and rational functions
- Find the range of polynomial functions
- Find where a rational function's graph has a vertical asymptote
- Use function notation for simple functions of two variables
- Relate a graph to a situation described qualitatively in terms of faster change or slower change
- Build functions for relations that are inversely proportional or exponential
- Find a recursive expression for the general term in a sequence described recursively
- Evaluate composite functions of integer values
- Compare actual values and the values of a modeling function to judge model fit and compare models
- Demonstrate knowledge of geometric sequences
- Demonstrate knowledge of unit circle trigonometry
- Match graphs of basic trigonometric functions with their equations
- Use trigonometric concepts and basic identities to solve problems
- Demonstrate knowledge of logarithms
- Write an expression for the composite of two simple functions

Algebra and Functions. Questions that involve both algebra and functions test the students' ability to:

- Solve problems using whole numbers and decimals in the context of money
- Solve one- or two-step arithmetic problems using positive rational numbers, such as percent
- Relate a graph to a situation described quantitatively
- Solve two- or three-step arithmetic problems involving concepts such as rate and proportion, sales tax, percentage of, and estimation
- Perform word-to-symbol translations
- Solve multi-step arithmetic problems that involve planning or converting units of measure (for example, feet per second to miles per hour)
- Build functions and write expressions, equations, or inequalities with a single variable for common pre-algebra settings, such a rate and distance problems and problems that involve proportions
- Match linear equations with their graphs in the coordinate plane
- Solve word problems containing several rates, proportions, or percentages
- Build functions and write expressions, equations, and inequalities for common algebra settings
- Interpret and use information from graphs in the coordinate plane
- Solve complex math problems involving percent of increase or decrease or requiring integration of several concepts
- Build functions and write expressions, equations, and inequalities when the process requires planning and/or strategic manipulation
- Analyze and draw conclusions based on properties of algebra and/or functions
- Analyze and draw conclusions based on information from graphs in the coordinate plane
- Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
- Given an equation or function, find an equation or function whose graph is a translation by specified amounts up or down

Geometry. Geometry questions are based primarily on the mathematical properties and relationships of points, lines, angles, two-dimensional shapes, and three-dimensional objects. Knowledge and skills tested include:

- Estimate the length of a line segment based on other lengths in a geometric figure

- Calculate the length of a line segment based on the lengths of other line segments that go in the same direction (for example, overlapping line segments and parallel sides of polygons with only right angles)
- Perform common conversions of money and of length, weight, mass, and time within a measurement system (for example, inches to feet and hours to minutes)
- Compute the area and perimeter of triangles, rectangles, and other polygons
- Use properties of parallel lines to find the measure of an angle
- Exhibit knowledge of basic angle properties and special sums of angle measures (for example, 90°, 180°, and 360°)
- Use geometric formulas when all necessary information is given
- Locate points in the coordinate plane
- Translate points up, down, left, and right in the coordinate place
- Use several angle properties to find an unknown angle measure
- Count the number of lines of symmetry of a geometric figure
- Use symmetry of isosceles triangles to find unknown side lengths or angle measures
- Recognize that real-world measurements are typically imprecise and than an appropriate level of precision is related to the measuring device and procedure
- Compute the perimeter of composite geometric figures with unknown side lengths
- Compute the area and circumference of circles
- Given the length of two sides of a right triangle, find the length of the third side
- Express the sine, cosine, and tangent of an angle in a right triangle as a ratio of given side lengths
- Determine the slope of a line from points or a graph
- Find the midpoint of a line segment
- Find the coordinates of a point rotated 180° around a given center point
- Use relationships involving area, perimeter, and volume of geometric figures to compute another measure (for example, surface area for a cube of a given volume and simple geometric probability)
- Use the Pythagorean theorem
- Apply properties of 30°-60°-90°, 45°-45°-90°, similar, and congruent triangles
- Apply basic trigonometric rations to solves right-triangle problems
- Use the distance formula
- Use properties of parallel and perpendicular lines to determine and equation of a line or coordinates of a point
- Find the coordinates of a point reflected across a vertical or horizontal line of across $y = x$
- Find the coordinates of a point rotated 90° across a vertical
- Recognize special characteristics of parabolas and circles (for example, the vertex of a parabola and the center or radius of a circle)
- Use relationships among angles, arcs, and distances in a circle
- Compute the area of composite geometric figures when planning and/or visualization is required
- Use scale factors to determine the magnitude of a size change
- Analyze and draw conclusions based on a set of conditions
- Solve multistep geometry problems that involve integrating concepts, planning and/or visualization

Statistics and Probability. Statistics is a branch of mathematics that involves the collection and analysis of large quantities of numerical data. Probability is a branch of mathematics that involves calculating the likelihood of an event occurring or a condition existing. Statistics and probability questions test the students' ability to:

- Calculate averages
- Read and extract relevant data from a basic table or chart and use the data in computation
- Use the relationship between the probability of an event and the probability of its complement
- Calculate the missing data value given the average and all other data values
- Translate from one representation of data to another (for example, from a bar graph to a circle graph)
- Compute probabilities
- Describe events as combinations of other events (for example, using *and*, *or*, and *not*)

- Demonstrate knowledge of and apply counting techniques
- Calculate the average given the frequency counts of all the data values
- Manipulate data from tables and charts
- Use Venn diagrams in counting
- Recognize that when data summaries are reported in the real world, results are often rounded and must be interpreted as having appropriate precision
- Recognize that when a statistical model is used, model values typically differ from actual values
- Calculate or use a weighted average
- Interpret and use information from tables and charts, including two-way frequency tables
- Recognize the concepts of conditional and joint probability and of independence expressed in real-world contexts
- Distinguish among mean, median, and mode for a list of numbers
- Analyze and draw conclusions based on information from tables and charts, including two-way frequency tables
- Understand the role of randomizations in surveys, experiments, and observational studies
- Demonstrate knowledge of conditional and joint probability
- Recognize that part of the power of statistical modeling come from looking at regularity in the differences between actual values and model values