

College Readiness Standards for the ACT Mathematics Test

Score Range 13 - 15	<ul style="list-style-type: none"> • Perform one-operation computation with whole numbers and decimals • Solve problems in one or two steps using whole numbers • Perform common conversions (e.g., inches to feet or hours to minutes) • Calculate the average of a list of positive whole numbers • Perform a single computation using information from a table or chart • Recognize equivalent fractions and fractions in lowest terms • Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$) • Solve equations in the form $x + a = b$, where a and b are whole numbers or decimals • Identify the location of a point with a positive coordinate on the number line • Estimate or calculate the length of a line segment based on other lengths given on a geometric figure
Score Range 16 - 19	<ul style="list-style-type: none"> • Solve routine one-step arithmetic problems (using whole numbers, fractions, and decimals) such as single-step percent • Solve some routine two-step arithmetic problems • Calculate the average of a list of numbers • Calculate the average, given the number of data values and the sum of the data values • Read tables and graphs • Perform computations on data from tables and graphs • Use the relationship between the probability of an event and the probability of its complement • Recognize one-digit factors of a number • Identify a digit's place value • Substitute whole numbers for unknown quantities to evaluate expressions • Solve one-step equations having integer or decimal answers • Combine like terms (e.g., $2x + 5x$) • Locate points on the number line and in the first quadrant • Exhibit some knowledge of the angles associated with parallel lines • Compute the perimeter of polygons when all side lengths are given • Compute the area of rectangles when whole number dimensions are given
Score Range 20 - 23	<ul style="list-style-type: none"> • Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and computing with a given average • Calculate the missing data value, given the average and all data values but one • Translate from one representation of data to another (e.g., a bar graph to a circle graph) • Determine the probability of a simple event • Exhibit knowledge of simple counting techniques • Exhibit knowledge of elementary number concepts including rounding, the ordering of decimals, pattern identification, absolute value, primes, and greatest common factor • Evaluate algebraic expressions by substituting integers for unknown quantities • Add and subtract simple algebraic expressions • Solve routine first-degree equations • Perform straightforward word-to-symbol translations • Multiply two binomials • Locate points in the coordinate plane • Comprehend the concept of length on the number line • Exhibit knowledge of slope • Find the measure of an angle using properties of parallel lines • Exhibit knowledge of basic angle properties and special sums of angle measures (e.g., 90°, 180°, and 360°) • Compute the area and perimeter of triangles and rectangles in simple problems • Use geometric formulas when all necessary information is given • Evaluate quadratic functions, expressed in function notation, at integer values

<p>Score Range 24 - 27</p>	<ul style="list-style-type: none"> • Solve multistep arithmetic problems that involve planning or converting units of measure (e.g., feet per second to miles per hour) • Calculate the average, given the frequency counts of all the data values • Manipulate data from tables and graphs • Compute straightforward probabilities for common situations • Use Venn diagrams in counting • Find and use the least common multiple • Order fractions • Work with numerical factors • Work with scientific notation • Work with squares and square roots of numbers • Work problems involving positive integer exponents • Work with cubes and cube roots of numbers • Determine when an expression is undefined • Exhibit some knowledge of the complex numbers • Solve real-world problems using first-degree equations • Write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions) • Identify solutions to simple quadratic equations • Add, subtract, and multiply polynomials • Factor simple quadratics (e.g., the difference of squares and perfect square trinomials) • Solve first-degree inequalities that do not require reversing the inequality sign • Identify the graph of a linear inequality on the number line • Determine the slope of a line from points or equations • Match linear graphs with their equations • Find the midpoint of a line segment • Use several angle properties to find an unknown angle measure • Recognize Pythagorean triples • Use properties of isosceles triangles • Compute the area of triangles and rectangles when one or more additional simple steps are required • Compute the area and circumference of circles after identifying necessary information • Compute the perimeter of simple composite geometric figures with unknown side lengths • Evaluate polynomial functions, expressed in function notation, at integer values • Express the sine, cosine, and tangent of an angle in a right triangle as a ratio of given side lengths
<p>Score Range 28 - 32</p>	<ul style="list-style-type: none"> • Solve word problems containing several rates, proportions, or percentages • Calculate or use a weighted average • Interpret and use information from figures, tables, and graphs • Apply counting techniques • Compute a probability when the event and/or sample space are not given or obvious • Apply number properties involving prime factorization • Apply number properties involving even/odd numbers and factors/multiples • Apply number properties involving positive/negative numbers • Apply rules of exponents • Multiply two complex numbers • Manipulate expressions and equations • Write expressions, equations, and inequalities for common algebra settings • Solve linear inequalities that require reversing the inequality sign • Solve absolute value equations • Solve quadratic equations • Find solutions to systems of linear equations • Interpret and use information from graphs in the coordinate plane • Match number line graphs with solution sets of linear inequalities • Use the distance formula • Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point

	<ul style="list-style-type: none"> • Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle) • Apply properties of 30°-60°-90°, 45°-45°-90°, similar, and congruent triangles • Use the Pythagorean theorem • Use relationships involving area, perimeter, and volume of geometric figures to compute another measure • Evaluate composite functions at integer values • Apply basic trigonometric ratios to solve right-triangle problems
<p style="text-align: center;">Score Range 33 – 36</p>	<ul style="list-style-type: none"> • Solve complex arithmetic problems involving percent of increase or decrease and problems requiring integration of several concepts from pre-algebra and/or pre-geometry (e.g., comparing percentages or averages, using several ratios, and finding ratios in geometry settings) • Distinguish between mean, median, and mode for a list of numbers • Analyze and draw conclusions based on information from figures, tables, and graphs • Exhibit knowledge of conditional and joint probability • Draw conclusions based on number concepts, algebraic properties, and/or relationships between expressions and numbers • Exhibit knowledge of logarithms and geometric sequences • Apply properties of complex numbers • Write expressions that require planning and/or manipulating to accurately model a situation • Write equations and inequalities that require planning, manipulating, and/or solving • Solve simple absolute value inequalities • Match number line graphs with solution sets of simple quadratic inequalities • Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$ • Solve problems integrating multiple algebraic and/or geometric concepts • Analyze and draw conclusions based on information from graphs in the coordinate plane • Draw conclusions based on a set of conditions • Solve multistep geometry problems that involve integrating concepts, planning, visualization, and/or making connections with other content areas • Use relationships among angles, arcs, and distances in a circle • Use scale factors to determine the magnitude of a size change • Compute the area of composite geometric figures when planning or visualization is required • Write an expression for the composite of two simple functions • Use trigonometric concepts and basic identities to solve problems • Exhibit knowledge of unit circle trigonometry • Match graphs of basic trigonometric functions with their equations