ACT MATH CCR STANDARDS

Table 1. Math College and Career Readiness Standards for Score Ranges 13–15	Is this covered in my curriculum?
Perform one-operation computation with whole numbers and decimals	
Recognize equivalent fractions and fractions in lowest terms	
Locate positive rational numbers (expressed as whole numbers, fractions, decimals, and mixed numbers) on the number line	
Solve problems in one or two steps using whole numbers and using decimals in the context of money	
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	
Extend a given pattern by a few terms for patterns that have a constant increase or decrease between terms	
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 (e.g., 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 (e.g., dollars to dimes, inches to feet, and hours to minutes)	
Calculate the average of a list of positive whole numbers	
Extract one relevant number from a basic table or chart, and use it in a single computation	

Table 2. Math College and Career Readiness Standards for Score Ranges 16–19	Is this covered in my curriculum?
Recognize one-digit factors of a number	
Identify a digit's place value	
Locate rational numbers on the number line	
Solve routine one-step arithmetic problems using positive rational numbers, such as single-step percent	
Solve some routine two-step arithmetic problems	
Relate a graph to a situation described qualitatively in terms of familiar properties such as before and after, increasing and decreasing, higher and lower	
Apply a definition of an operation for whole numbers (e.g., a • b = 3a – b)	
Substitute whole numbers for unknown quantities to evaluate expressions	
Solve one-step equations to get integer or decimal answers	
Combine like terms (e.g., 2x + 5x)	
Extend a given pattern by a few terms for patterns that have a constant factor between terms	
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	

Locate points in the first quadrant	
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 basic tables and charts	
Extract relevant data from a basic table or chart and use the data in a computation	
Use the relationship between the probability of an event and the probability of its complement	

Table 3. Math College and Career Readiness Standards for Score Ranges 20–23	Is this covered in my curriculum?
Exhibit knowledge of elementary number concepts such as rounding, the ordering of decimals, pattern identification, primes, and greatest common factor	
Write positive powers of 10 by using exponents	
Comprehend the concept of length on the number line, and find the distance between two points	
Understand absolute value in terms of distance	
Find the distance in the coordinate plane between two points with the same x-coordinate or y-coordinate	
Add two matrices that have whole number entries	
Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and estimating by using a given average value in place of actual values	

Perform straightforward word-to-symbol translations	
Relate a graph to a situation described in terms of a starting value and an additional amount per unit (e.g., unit cost, weekly growth)	
Evaluate algebraic expressions by substituting integers for unknown quantities	
Add and subtract simple algebraic expressions	
Solve routine first-degree equations	
Multiply two binomials	
Match simple inequalities with their graphs on the number line (e.g., $x \geq -3/5$)	
Exhibit knowledge of slope	
Evaluate linear and quadratic functions, expressed in function notation, at integer values	
Use properties of parallel lines to find the measure of an angle	
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	
Find the length of the hypotenuse of a right triangle when only very simple computation is involved (e.g., 3-4-5 and 6-8-10 triangles)	
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 plane	
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	
Describe events as combinations of other events (e.g., using *and*, *or*, and *not*)	
Exhibit knowledge of simple counting techniques	

Table 4. Math College and Career Readiness Standards for Score Ranges 24–27	Is this covered in my curriculum?
Order fractions	
Find and use the least common multiple	
Work with numerical factors	
Exhibit some knowledge of the complex numbers	
Add and subtract matrices that have integer entries	
Solve multistep arithmetic problems that involve planning or converting common derived units of measure (e.g., feet per second to miles per hour)	
Build functions and 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)	
Match linear equations with their graphs in the coordinate plane	
Recognize that when numerical quantities are reported in real-world contexts, the numbers are often rounded	
Solve real-world problems by using first-degree equations	

Solve first-degree inequalities when the method does not involve reversing the inequality sign	
Match compound inequalities with their graphs on the number line (e.g., $-10.5 < x \leq 20.3$)	
Add, subtract, and multiply polynomials	
Identify solutions to simple quadratic equations	
Solve quadratic equations in the form $(x + a)(x + b) = 0$, where a and b are numbers or variables	
Factor simple quadratics (e.g., the difference of squares and perfect square trinomials)	
Work with squares and square roots of numbers	
Work with cubes and cube roots of numbers	
Work with scientific notation	
Work problems involving positive integer exponents	
Determine when an expression is undefined	
Determine the slope of a line from an equation	
Evaluate polynomial functions, expressed in function notation, at integer values	
Find the next term in a sequence described recursively	
Build functions and use quantitative information to identify graphs for relations that are proportional or linear	
Attend to the difference between a function modeling a situation and the reality of the situation	

Understand the concept of a function as having a well-defined output value at each valid input value	
Understand the concept of domain and range in terms of valid input and output, and in terms of function graphs	
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	
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 that an appropriate level of precision is related to the measuring device and procedure	
Compute the perimeter of simple composite geometric figures with unknown side lengths	
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	
Given the length of two sides of a right triangle, find the third when the lengths are Pythagorean triples	

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	
Calculate the average given the frequency counts of all the data values	
Manipulate data from tables and charts	
Compute straightforward probabilities for common situations	
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	

Table 5. Math College and Career Readiness Standards for Score Ranges 28–32	Is this covered in my curriculum?
Apply number properties involving prime factorization	
Apply number properties involving even/odd numbers and factors/multiples	
Apply number properties involving positive/negative numbers	
Apply the facts that p is irrational and that the square root of an integer is rational only if that integer is a perfect square	

Apply properties of rational exponents	
Multiply two complex numbers	
Use relations involving addition, subtraction, and scalar multiplication of vectors and of matrices	
Solve word problems containing several rates, proportions, or percentages	
Build functions and write expressions, equations, and inequalities for common algebra settings (e.g., distance to a point on a curve and profit for variable cost and demand)	
Interpret and use information from graphs in the coordinate plane	
Given an equation or function, find an equation or function whose graph is a translation by a specified amount up or down	
Manipulate expressions and equations	
Solve linear inequalities when the method involves reversing the inequality sign	
Match linear inequalities with their graphs on the number line	
Solve systems of two linear equations	
Solve absolute value equations	
Relate a graph to a situation described qualitatively in terms of faster change or slower change	
Build functions for relations that are inversely proportional	
Find a recursive expression for the general term in a sequence described recursively	

Evaluate composite functions at integer values	
Use relationships involving area, perimeter, and volume of geometric figures to compute another measure (e.g., 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 ratios to solve right-triangle problems	
Use the distance formula	
Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point	
Find the coordinates of a point reflected across a vertical or horizontal line or across y = x	
Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle)	
Calculate or use a weighted average	
Interpret and use information from tables and charts, including two-way frequency tables	
Apply counting techniques	
Compute a probability when the event and/or sample space are not given or obvious	
Recognize the concepts of conditional and joint probability expressed in real-world contexts	
Recognize the concept of independence expressed in real-world contexts	

Table 6. Math College and Career Readiness Standards for Score Ranges 33–36	Is this covered in my curriculum?
Solve complex arithmetic problems involving percent of increase or decrease or requiring integration of several concepts (e.g., using several ratios, comparing percentages, or comparing averages)	
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 in the horizontal and vertical directions	
Solve simple absolute value inequalities	
Match simple quadratic inequalities with their graphs on the number line	
Apply the remainder theorem for polynomials, that P(a) is the remainder when P(x) is divided by (x – a)	
Compare actual values and the values of a modeling function to judge model fit and compare models	
Build functions for relations that are exponential	
Exhibit knowledge of geometric sequences	
Exhibit knowledge of unit circle trigonometry	

Match graphs of basic trigonometric functions with their equations	
Use trigonometric concepts and basic identities to solve problems	
Exhibit knowledge of logarithms	
Write an expression for the composite of two simple functions	
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	
Distinguish between 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 randomization in surveys, experiments, and observational studies	
Exhibit knowledge of conditional and joint probability	
Recognize that part of the power of statistical modeling comes from looking at regularity in the differences between actual values and model values	