ACT MATH CCR STANDARDS

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| **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 |  |

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| **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 |  |

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| **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 ≥ –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 |  |

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| **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 ≤ 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 |  |

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| **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 |  |

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| **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 = ax² + 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 |  |