

**The
University of
Chicago
School
Mathematics
Project**

**Advanced
Algebra**

Correlated to
Minnesota
Academic Standards for
Mathematics

Grade 10



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ASSESSMENT ANCHOR	
Algebra Understand the concept of function, and identify important features of functions and other relations using symbolic and graphical methods where appropriate.	
9.2.1.1 Understand the definition of a function. Use functional notation and evaluate a function at a given point in its domain.	PE: 4–5, 14–17, 20–25, 26–32, 62–63, 64–65, 66–69 TE: 4–5, 14–17, 20–25, 26–32, 62–63, 64–65, 66–69 LM: 1-2A, 1-2B, 1-3A, 13-B, 1-4A, 1-4B RM: 1, 7, 8, 9, 10, 11 AR: Chapter 1 Test Forms A–D
9.2.1.2 Distinguish between functions and other relations defined symbolically, graphically or in tabular form.	PE: 14–19, 64–65, 66–69 TE: 14–19, 64–65, 66–69 LM: 1-2A, 1-2B RM: 7, 8 AR: Chapter 1 Test Forms A–D
9.2.1.3 Find the domain of a function defined symbolically, graphically or in a real-world context.	PE: 26–32, 33–39, 62–63, 64–65, 66–69 TE: 26–32, 33–39, 62–63, 64–65, 66–69 LM: 1-4A, 1-4B, 1-5A, 1-5B RM: 1, 11, 12, 13 AR: Chapter 1 Test Forms A–D
9.2.1.4 Obtain information and draw conclusions from graphs of functions and other relations.	PE: 26–32, 33–39, 64–65, 66–69 TE: 26–32, 33–39, 64–65, 66–69 LM: 1-4A, 1-4B, 1-5A, 1-5B RM: 1, 11, 12, 13 AR: Chapter 1 Test Forms A–D
9.2.1.5 Identify the vertex, line of symmetry and intercepts of the parabola corresponding to a quadratic function, using symbolic and graphical methods, when the function is expressed in the form $f(x) = ax^2 + bx + c$, in the form $f(x) = a(x - h)^2 + k$, or in factored form.	PE: 102, 372–373, 386–392, 393–400, 401–407, 441–442, 443–444, 445, 446–449 TE: 102, 372–373, 386–392, 393–400, 401–407, 441–442, 443–444, 445, 446–449 LM: 6-3A, 6-3B, 6-4A, 6-5A, 6-5B RM: 100, 101, 105, 106 AR: Chapter 6 Test Forms A–D

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9.2.1.6 Identify intercepts, zeros, maxima, minima and intervals of increase and decrease from the graph of a function.	PE: 150–151, 163–168, 212, 213–214, 215–219, 388, 437 TE: 150–151, 163–168, 212, 213–214, 215–219, 388, 437 LM: 3-1A, 3-1B, 3-3A, 3-3B RM: 38, 39, 41 AR: Chapter 3 Test Forms A–D
9.2.1.7 Understand the concept of an asymptote and identify asymptotes for exponential functions and reciprocals of linear functions, using symbolic and graphical methods.	PE: 106–113, 581 TE: 106–113, 581 LM: 2-6A, 2-6B RM: 28, 29, 30 AR: Chapter 2 Test Forms A–D
9.2.1.8 Make qualitative statements about the rate of change of a function, based on its graph or table of values.	PE: 93–99, 100–105, 136–137, 138–139, 140–142, 143–147 TE: 93–99, 100–105, 136–137, 138–139, 140–142, 143–147 LM: 2-4A, 2-4B, 2-5A, 2-5B RM: 25, 26, 27 AR: Chapter 2 Test Forms A–D
9.2.1.9 Determine how translations affect the symbolic and graphical forms of a function. Know how to use graphing technology to examine translations	PE: 386–392, 443–444, 445, 446–449 TE: 386–392, 443–444, 445, 446–449 LM: 6-3A, 6-3B RM: 98, 99, 100, 101 AR: Chapter 6 Test Forms A–D
Algebra Recognize linear, quadratic, exponential and other common functions in real-world and mathematical situations; represent these functions with tables, verbal descriptions, symbols and graphs; solve problems involving these functions, and explain results in the original context.	
9.2.2.1 Represent and solve problems in various contexts using linear and quadratic functions.	PE: 148–149, 150–156, 372–373, 374–379 TE: 148–149, 150–156, 372–373, 374–379 LM: 3-1A, 3-1B, 6-1A, 6-1B RM: 38, 39, 94, 95

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9.2.2.2 Represent and solve problems in various contexts using exponential functions, such as investment growth, depreciation and population growth.	PE: 578–579, 580–586, 602–607, 643–649, 650–651, 652–653, 654–655, 656–659 TE: 578–579, 580–586, 602–607, 643–649, 650–651, 652–653, 654–655, 656–659 LM: 9-1A, 9-1B, 9-4A, 9-4B, 9-10A, 9-10B RM: 152, 153, 154, 160, 161, 162, 177, 179, 180 AR: Chapter 9 Test Forms A–D
9.2.2.3 Sketch graphs of linear, quadratic and exponential functions, and translate between graphs, tables and symbolic representations. Know how to use graphing technology to graph these functions.	PE: 148–149, 150–156, 213–214, 215–219, 393–400, 446–449, 578–579, 580–586, 602–607, 656–659 TE: 148–149, 150–156, 213–214, 215–219, 393–400, 446–449, 578–579, 580–586, 602–607, 656–659 LM: 3-1A, 3-1B, 6-4A, 9-1A, 9-1B RM: 38, 39, 152, 153 AR: Chapter 3 Test Forms A–D, Chapter 6 Test Forms A–D, Chapter 9 Test Forms A–D
9.2.2.4 Express the terms in a geometric sequence recursively and by giving an explicit (closed form) formula, and express the partial sums of a geometric series recursively.	PE: 479–485, 507–508, 509, 510–513 TE: 479–485, 507–508, 509, 510–513 LM: 7-5A, 7-5B RM: 127–128 AR: Chapter 7 Test Forms A–D
9.2.2.5 Recognize and solve problems that can be modeled using finite geometric sequences and series, such as home mortgage and other compound interest examples. Know how to use spreadsheets and calculators to explore geometric sequences and series in various contexts.	PE: 876–882, 928–929, 930–931, 932–933, 934–937 TE: 876–882, 928–929, 930–931, 932–933, 934–937 LM: 13-2A, 13-2B RM: 246, 247, 248, 249 AR: Chapter 13 Test Forms A–D
9.2.2.6 Sketch the graphs of common non-linear functions such as $f(x)=\sqrt{x}$, $f(x)= x $, $f(x)=\frac{1}{x}$, $f(x)=x^3$, and translations of these functions, such as $f(x)=\sqrt{x-2}+4$. Know how to use graphing technology to graph these functions.	Students sketch the graphs of common non-linear systems. PE: 308–310, 316–317 TE: 308–310, 316–317

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Algebra Generate equivalent algebraic expressions involving polynomials and radicals; use algebraic properties to evaluate expressions.	
9.2.3.1 Evaluate polynomial and rational expressions and expressions containing radicals and absolute values at specified points in their domains.	PE: 380–385, 445, 446–449, 562–567, 572–573, 574–577, 728–729, 730–737, 790–791, 792–795 TE: 380–385, 445, 446–449, 562–567, 572–573, 574–577, 728–729, 730–737, 790–791, 792–795 LM: 6-2A, 6-2B, 8-8A, 8-8B, 11-1A, 11-1B RM: 96, 97, 150, 151, 204, 205, 206 AR: Chapter 6 Test Forms A–D, Chapter 8 Test Forms A–D, Chapter 11 Test Forms A–D
9.2.3.2 Add, subtract and multiply polynomials; divide a polynomial by a polynomial of equal or lower degree.	PE: 738–744, 766–771, 790–791, 792–795 TE: 738–744, 766–771, 790–791, 792–795 LM: 11-2A, 11-2B, 11-6A, 11-6B RM: 207, 208, 209, 214 AR: Chapter 11 Test Forms A–D
9.2.3.3 Factor common monomial factors from polynomials, factor quadratic polynomials, and factor the difference of two squares.	PE: 745–751, 790–791, 792–795 TE: 745–751, 790–791, 792–795 LM: 11-3A, 11-3B RM: 210 AR: Chapter 11 Test Forms A–D
9.2.3.4 Add, subtract, multiply, divide and simplify algebraic fractions.	PE: 766–771 TE: 766–771
9.2.3.5 Check whether a given complex number is a solution of a quadratic equation by substituting it for the variable and evaluating the expression, using arithmetic with complex numbers.	PE: 766–771, 790–791, 792–795 TE: 766–771, 790–791, 792–795 LM: 11-6A, 11-6B RM: 214 AR: Chapter 11 Test Forms A–D
9.2.3.6 Apply the properties of positive and negative rational exponents to generate equivalent algebraic expressions, including those involving n^{th} roots.	PE: 486–492, 493–499, 500–504, 509, 510–513 TE: 486–492, 493–499, 500–504, 509, 510–513 LM: 7-6A, 7-6B, 7-7A, 7-7B, 7-8A, 7-8B RM: 129, 130, 131, 132, 133, 134, 135 AR: Chapter 7 Test Forms A–D

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<p>9.2.3.7 Justify steps in generating equivalent expressions by identifying the properties used. Use substitution to check the equality of expressions for some particular values of the variables; recognize that checking with substitution does not guarantee equality of expressions for all values of the variables.</p>	<p>PE: 40–46, 752–759 TE: 40–46, 752–759 LM: 1-6A, 1-6B, 11-4A, 11-4B RM: 14, 15</p>
<p>Algebra Represent real-world and mathematical situations using equations and inequalities involving linear, quadratic, exponential and nth root functions. Solve equations and inequalities symbolically and graphically. Interpret solutions in the original context.</p>	
<p>9.2.4.1 Represent relationships in various contexts using quadratic equations and inequalities. Solve quadratic equations and inequalities by appropriate methods including factoring, completing the square, graphing and the quadratic formula. Find non-real complex roots when they exist. Recognize that a particular solution may not be applicable in the original context. Know how to use calculators, graphing utilities or other technology to solve quadratic equations and inequalities.</p>	<p>PE: 374–379, 380–385, 386–392, 393–400, 401–407, 414–419, 441–442, 445, 446–449 TE: 374–379, 380–385, 386–392, 393–400, 401–407, 414–419, 441–442, 445, 446–449 LM: 6-1A, 6-4A, 6-4B, 6-5A, 6-7A RM: 94, 95, 96, 97, 109, 110 AR: Chapter 6 Test Forms A–D</p>
<p>9.2.4.2 Represent relationships in various contexts using equations involving exponential functions; solve these equations graphically or numerically. Know how to use calculators, graphing utilities or other technology to solve these equations.</p>	<p>PE: 580–586, 654–655, 656–659 TE: 580–586, 654–655, 656–659 LM: 9-1A, 9-1B RM: 152, 153, 154 AR: Chapter 9 Test Forms A–D</p>

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9.2.4.3 Recognize that to solve certain equations, number systems need to be extended from whole numbers to integers, from integers to rational numbers, from rational numbers to real numbers, and from real numbers to complex numbers. In particular, non-real complex numbers are needed to solve some quadratic equations with real coefficients.	PE: 26–32 TE: 26–32 LM: 1-4A, 1-4B RM: 11
9.2.4.4 Represent relationships in various contexts using systems of linear inequalities; solve them graphically. Indicate which parts of the boundary are included in and excluded from the solution set using solid and dotted lines.	PE: 348–354, 365–366, 367–371 TE: 348–354, 365–366, 367–371 LM: 5-8A RM: 89, 90, 91 AR: Chapter 5 Test Forms A–D
9.2.4.5 Solve linear programming problems in two variables using graphical methods.	PE: 355–361, 362–363, 365–366, 367–371 TE: 355–361, 362–363, 365–366, 367–371 LM: 5-9A, 5-9B RM: 92, 93 AR: Chapter 5 Test Forms A–D
9.2.4.6 Represent relationships in various contexts using absolute value inequalities in two variables; solve them graphically.	PE: 380–385, 445, 446–449 TE: 380–385, 445, 446–449 LM: 6-2A RM: 96, 97 AR: Chapter 6 Test Forms A–D
9.2.4.7 Solve equations that contain radical expressions. Recognize that extraneous solutions may arise when using symbolic methods.	PE: 537–544, 545–550, 551–555, 556–561, 562–567, 572–573, 574–577 TE: 537–544, 545–550, 551–555, 556–561, 562–567, 572–573, 574–577 LM: 8-4A, 8-4B, 8-5A, 8-5B, 8-6A, 8-6B, 8-7A, 8-7B, 8-8A, 8-8B RM: 147, 148, 149, 150, 151 AR: Chapter 8 Test Forms A–D
9.2.4.8 Assess the reasonableness of a solution in its given context and compare the solution to appropriate graphical or numerical estimates; interpret a solution in the original context.	PE: 155, 377, 393, 394, 455, 458, 492, 540, 583, 585, 591, 592, 594, 599, 603, 605, 606 TE: 152, 154, 155, 375, 377, 393, 394, 455, 458, 492, 540, 541, 581, 583, 585, 587, 591, 592, 594, 595, 596, 597, 599, 601, 603, 605, 606

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<p>Geometry & Measurement Calculate measurements of plane and solid geometric figures; know that physical measurements depend on the choice of a unit and that they are approximations.</p>	
<p>9.3.1.1 Determine the surface area and volume of pyramids, cones and spheres. Use measuring devices or formulas as appropriate.</p>	<p>See <i>UCSMP Geometry</i>: PE: 570–576, 577–582, 596–602, 603–608, 609–614, 615–622, 628–632, 633–637, 638, 652, 785, 879–885 TE: 570–576, 577–582, 596–602, 603–608, 609–614, 615–622, 628–632, 633–637, 638, 652, 879–885</p>
<p>9.3.1.2 Compose and decompose two- and three-dimensional figures; use decomposition to determine the perimeter, area, surface area and volume of various figures.</p>	<p>See <i>UCSMP Geometry</i>: PE: 452–456, 457–462, 463–467, 468–473, 474–479, 499, 500–505, 525–531, 532–537, 544–549, 550–558, 564–569, 570–576, 577–582, 603–608, 609–614 TE: 452–456, 457–462, 463–467, 468–473, 474–479, 499, 500–505, 525–531, 532–537, 544–549, 550–558, 564–569, 570–576, 557–582, 603–608, 609–614</p>
<p>9.3.1.3 Understand that quantities associated with physical measurements must be assigned units; apply such units correctly in expressions, equations and problem solutions that involve measurements; and convert between measurement systems.</p>	<p>See <i>UCSMP Geometry</i>: PE: 456, 457–462, 495, 597, 601, 610, 758, 846 TE: 457–462, 495</p>
<p>9.3.1.4 Understand and apply the fact that the effect of a scale factor k on length, area and volume is to multiply each by k, k^2 and k^3, respectively.</p>	<p>See <i>UCSMP Geometry</i>: PE: 734–737 TE: 734–737</p>
<p>9.3.1.5 Make reasonable estimates and judgments about the accuracy of values resulting from calculations involving measurements.</p>	<p>See <i>UCSMP Geometry</i>: PE: 463–467, 495, 524, 761, 785, 802–803 TE: 463–467, 760, 785, 803, 811</p>

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Geometry & Measurement Construct logical arguments, based on axioms, definitions and theorems, to prove theorems and other results in geometry.	
9.3.2.1 Understand the roles of axioms, definitions, undefined terms and theorems in logical arguments.	See <i>UCSMP Geometry</i> : PE: 8, 20, 27–31, 39–43, 60–65, 76–82 TE: 8, 20, 27–31, 39–43, 60–65, 76–82
9.3.2.2 Accurately interpret and use words and phrases such as "if...then," "if and only if," "all," and "not." Recognize the logical relationships between an "if...then" statement and its inverse, converse and contrapositive.	See <i>UCSMP Geometry</i> : PE: 56–71, 72–76, 77–82, 95–100, 654–662 TE: 56–71, 72–76, 77–82, 95–100, 654–662
9.3.2.3 Assess the validity of a logical argument and give counterexamples to disprove a statement.	See <i>UCSMP Geometry</i> : PE: 68–69, 95–100, 648–653, 663–669, 708 TE: 68, 95–100, 648–653, 663–669, 708
9.3.2.4 Construct logical arguments and write proofs of theorems and other results in geometry, including proofs by contradiction. Express proofs in a form that clearly justifies the reasoning, such as two-column proofs, paragraph proofs, flow charts or illustrations.	See <i>UCSMP Geometry</i> : PE: 139–144, 154–155, 263–268, 269–276, 277–281, 297, 319–322, 328–329, 338, 343, 346, 348, 360, 361, 387, 390, 392, 393–398, 401–405, 407, 411, 412, 420, 428, 434, 437, 475, 476, 666, 667, 670–675, 762, 776, 782, 800, 843, 850, 867 TE: 139–144, 154, 263–268, 269–276, 277–281, 297, 321, 338, 342, 347, 389, 393–398, 401–403, 410, 420–421, 424, 477, 666, 667, 670–675, 776, 789
9.3.2.5 Use technology tools to examine theorems, make and test conjectures, perform constructions and develop mathematical reasoning skills in multi-step problems. The tools may include compass and straight edge, dynamic geometry software, design software or Internet applets.	See <i>UCSMP Geometry</i> : PE: 44–50, 51, 97–98, 145–146, 147, 150, 161, 165–171, 184–188, 210–215, 216–222, 229, 269–270, 287, 317–318, 324, 339–340, 381–383, 414, 417, 422, 426–427, 433, 436, 441, 470, 480, 482, 493, 528, 535, 541, 546, 552, 615–616, 694–695, 722, 774, 781, 783, 791, 837–838, 860–863, 866, 888 TE: 44–50, 51, 97, 150, 165–171, 184–188, 210–215, 216–222, 441, 888

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Geometry & Measurement Know and apply properties of geometric figures to solve real-world and mathematical problems and to logically justify results in geometry.	
9.3.3.1 Know and apply properties of parallel and perpendicular lines, including properties of angles formed by a transversal, to solve problems and logically justify results.	See <i>UCSMP Geometry</i> : PE: 35–37, 145–150, 159–164, 165–171, 270–275, 277–281, 283–285 TE: 35–37, 145–150, 159–164, 165–171, 270–275, 277–281, 282–284
9.3.3.2 Know and apply properties of angles, including corresponding, exterior, interior, vertical, complementary and supplementary angles, to solve problems and logically justify results.	See <i>UCSMP Geometry</i> : PE: 112–119, 126–132, 154–155, 288–295, 310–311, 324–330, 781–785 TE: 112–119, 126–132, 154, 288–295, 310, 324–330, 781–785
9.3.3.3 Know and apply properties of equilateral, isosceles and scalene triangles to solve problems and logically justify results.	See <i>UCSMP Geometry</i> : PE: 47–50, 91–93, 316–323, 380–385, 386–392, 393–399, 400–405, 406–412 TE: 47–50, 91–93, 316–323, 380–385, 386–392, 393–399, 400–405, 406–412
9.3.3.4 Apply the Pythagorean Theorem and its converse to solve problems and logically justify results.	See <i>UCSMP Geometry</i> : PE: 480–486, 493, 505, 507, 676–681, 685, 686, 687, 702, 753, 786–792, 846 TE: 480–486, 507, 676–681, 702, 753, 786–792
9.3.3.5 Know and apply properties of right triangles, including properties of 45-45-90 and 30-60-90 triangles, to solve problems and logically justify results.	See <i>UCSMP Geometry</i> : PE: 487–493, 499, 662, 762, 798, 800–806 TE: 487–493, 800–806

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9.3.3.6 Know and apply properties of congruent and similar figures to solve problems and logically justify results.	See <i>UCSMP Geometry</i> : PE: 252–256, 257–262, 263–268, 269–276, 296, 380–385, 386–392, 393–399, 400–405, 406–412, 413–418, 731–737, 738–744, 750–755, 756–763, 764, 774–780, 793–799, 814 TE: 252–256, 257–262, 263–268, 269–276, 296, 380–385, 386–392, 393–399, 400–405, 406–412, 413–418, 731–737, 738–744, 750–755, 756–763, 764, 774–780, 793–799, 814
9.3.3.7 Use properties of polygons—including quadrilaterals and regular polygons—to define them, classify them, solve problems and logically justify results.	See <i>UCSMP Geometry</i> : PE: 89–94, 101, 288–295, 297, 331–338, 339–344, 345–350, 356–362, 368, 419–425, 426–430, 431–435, 694–699 TE: 89–94, 101, 288–295, 297, 331–338, 339–344, 345–350, 368, 419–425, 426–430, 431–435, 694–699
9.3.3.8 Know and apply properties of a circle to solve problems and logically justify results.	See <i>UCSMP Geometry</i> : PE: 494–499, 500–505, 704, 798, 824–830, 836, 837–843, 844–851, 852–858, 859–865, 866–871, 872–878 TE: 494–499, 500–505, 704, 824–830, 837–843, 844–851, 852–858, 859–865, 866–871, 872–878
Geometry & Measurement Solve real-world and mathematical geometric problems using algebraic methods.	
9.3.4.1 Understand how the properties of similar right triangles allow the trigonometric ratios to be defined, and determine the sine, cosine and tangent of an acute angle in a right triangle.	See <i>UCSMP Geometry</i> : PE: 800–806, 807–813 TE: 800–806, 807–813

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9.3.4.2 Apply the trigonometric ratios sine, cosine and tangent to solve problems, such as determining lengths and areas in right triangles and in figures that can be decomposed into right triangles. Know how to use calculators, tables or other technology to evaluate trigonometric ratios.	See <i>UCSMP Geometry</i> : PE: 800–806, 807–813 TE: 800–806, 807–813
9.3.4.3 Use calculators, tables or other technologies in connection with the trigonometric ratios to find angle measures in right triangles in various contexts.	See <i>UCSMP Geometry</i> : PE: 800–806, 807–813 TE: 800–806, 807–813
9.3.4.4 Use coordinate geometry to represent and analyze line segments and polygons, including determining lengths, midpoints and slopes of line segments.	See <i>UCSMP Geometry</i> : PE: 13–18, 84, 163, 193, 218, 221, 228, 670–675, 676–679, 688–693, 708 TE: 13–18, 162–163, 165, 219, 670–675, 678, 688–693, 708
9.3.4.5 Know the equation for the graph of a circle with radius r and center (h, k) , $(x - h)^2 + (y - k)^2 = r^2$, and justify this equation using the Pythagorean Theorem and properties of translations.	See <i>UCSMP Geometry</i> : PE: 682–687 TE: 682–687
9.3.4.6 Use numeric, graphic and symbolic representations of transformations in two dimensions, such as reflections, translations, scale changes and rotations about the origin by multiples of 90° , to solve problems involving figures on a coordinate grid.	See <i>UCSMP Geometry</i> : PE: 120–125, 151–158, 172, 184–188, 189–195, 196–201, 202–209, 210–215, 216–222, 223–229, 241, 277–281, 559–563, 718–725 TE: 120–125, 151–158, 172, 184–188, 189–195, 196–201, 202–209, 210–215, 216–222, 223–229, 241, 277–281, 559–563, 718–725
9.3.4.7 Use algebra to solve geometric problems unrelated to coordinate geometry, such as solving for an unknown length in a figure involving similar triangles, or using the Pythagorean Theorem to obtain a quadratic equation for a length in a geometric figure.	Algebra is used throughout the <i>UCSMP Geometry</i> program. Representative pages: PE: 14–17, 133–138, 676–681, 685, 686, 687, 702, 720, 721, 753 TE: 14–17, 133–138, 676–681, 702, 720, 753, 757

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Data Analysis & Probability Display and analyze data; use various measures associated with data to draw conclusions, identify trends and describe relationships.	
9.4.1.1 Describe a data set using data displays, including box-and-whisker plots; describe and compare data sets using summary statistics, including measures of center, location and spread. Measures of center and location include mean, median, quartile and percentile. Measures of spread include standard deviation, range and inter-quartile range. Know how to use calculators, spreadsheets or other technology to display data and calculate summary statistics.	See <i>UCSMP Algebra</i> : PE: 47–54, 191–192, 290–292 TE: 47–54, 191–192, 290–292
9.4.1.2 Analyze the effects on summary statistics of changes in data sets.	See <i>UCSMP Algebra</i> : PE: 50–51 TE: 50–51
9.4.1.3 Use scatterplots to analyze patterns and describe relationships between two variables. Using technology, determine regression lines (line of best fit) and correlation coefficients; use regression lines to make predictions and correlation coefficients to assess the reliability of those predictions.	See <i>UCSMP Algebra</i> : PE: 27–28, 37–41, 369–370, 374–380, 419–423 TE: 27–28, 37–41, 369–370, 374–380, 419–423
9.4.1.4 Use the mean and standard deviation of a data set to fit it to a normal distribution (bell-shaped curve) and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets and tables to estimate areas under the normal curve.	See <i>UCSMP Algebra</i> : PE: 50–51, 396–397, 414–415 TE: 50–51, 396–397, 414–415

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Data Analysis & Probability Explain the uses of data and statistical thinking to draw inferences, make predictions and justify conclusions.	
9.4.2.1 Evaluate reports based on data published in the media by identifying the source of the data, the design of the study, and the way the data are analyzed and displayed. Show how graphs and data can be distorted to support different points of view. Know how to use spreadsheet tables and graphs or graphing technology to recognize and analyze distortions in data displays.	See <i>UCSMP Transition Mathematics</i> : PE: 741–742, 743–744 TE: 740–741
9.4.2.2 Identify and explain misleading uses of data; recognize when arguments based on data confuse correlation and causation.	See <i>UCSMP Transition Mathematics</i> : PE: 741–742, 743–744 TE: 740–741
9.4.2.3 Design simple experiments and explain the impact of sampling methods, bias and the phrasing of questions asked during data collection.	See <i>UCSMP Transition Mathematics</i> : PE: 189, 527, 740–743, 750 TE: 59, 189, 527, 740–743
Data Analysis & Probability Calculate probabilities and apply probability concepts to solve real-world and mathematical problems.	
9.4.3.1 Select and apply counting procedures, such as the multiplication and addition principles and tree diagrams, to determine the size of a sample space (the number of possible outcomes) and to calculate probabilities.	See <i>UCSMP Algebra</i> : PE: 458–462 TE: 458–462
9.4.3.2 Calculate experimental probabilities by performing simulations or experiments involving a probability model and using relative frequencies of outcomes.	See <i>UCSMP Algebra</i> : PE: 282, 289 TE: 282, 289

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9.4.3.3 Understand that the Law of Large Numbers expresses a relationship between the probabilities in a probability model and the experimental probabilities found by performing simulations or experiments involving the model.	See <i>UCSMP Algebra</i> : PE: 289–290 TE: 289–290
9.4.3.4 Use random numbers generated by a calculator or a spreadsheet, or taken from a table, to perform probability simulations and to introduce fairness into decision making.	See <i>UCSMP Transition Mathematics</i> : PE: 740–744 TE: 740–744
9.4.3.5 Apply probability concepts such as intersections, unions and complements of events, and conditional probability and independence, to calculate probabilities and solve problems.	See <i>UCSMP Geometry</i> : PE: 502–503 TE: 500, 502
9.4.3.6 Describe the concepts of intersections, unions and complements using Venn diagrams. Understand the relationships between these concepts and the words AND, OR, NOT, as used in computerized searches and spreadsheets.	See <i>UCSMP Geometry</i> : PE: 69–71, 73–76, 83–88, 101, 102 TE: 69–71, 73–76, 79, 83–88, 101, 102
9.4.3.7 Understand and use simple probability formulas involving intersections, unions and complements of events.	See <i>UCSMP Geometry</i> : PE: 502–503 TE: 500, 502
9.4.3.8 Apply probability concepts to real-world situations to make informed decisions.	See <i>UCSMP Geometry</i> : PE: 503, 507 TE: 502, 507
9.4.3.9 Use the relationship between conditional probabilities and relative frequencies in contingency tables.	See <i>UCSMP Algebra</i> : PE: 289–294 TE: 289–294

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