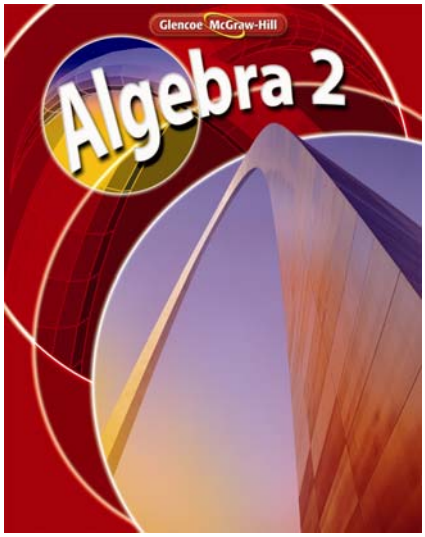
Glencoe

Curricular Standards for
Mathematics Education
Ninth and Tenth Grades

Kansas



Algebra 2

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STANDARDS	PAGE REFERENCES
Standard 1: Number and Computation **The student uses numerical and computational concepts and procedures in a variety of situations.**	
Benchmark 1: Number Sense – The student demonstrates number sense for real numbers and algebraic expressions in a variety of situations.	
1. knows, explains, and uses equivalent representations for real numbers and algebraic expressions including integers, fractions, decimals, percents, ratios; rational number bases with integer exponents; rational numbers written in scientific notation; absolute value; time; and money (2.4.K1a) **($)**, e.g., ¯4/2 = (¯2); $a^{(-2)}\ b^{(3)} = b^3/a^2$.	**Student Edition:** 11-27, 28 Example 2, 312-317, 415-421, 636 **Teacher Wraparound Edition:** A 313-315, 416; FM 313; PE 417
2. compares and orders real numbers and/or algebraic expressions and explains the relative magnitude between them (2.4.K1a) **($)**, e.g., will $(5n)^2$ always, sometimes, or never be larger than 5n? The student might respond with $(5n)^2$ is greater than 5n if n > 1 and $(5n)^2$ is smaller than 5 if o < n < 1.	**Student Edition:** 33-38, 41-47, 399 Example 3, 402-405, 514 Example 7, 515 #16-#22, 537 *Study Tip* 510 **Teacher Wraparound Edition:** AE 42-43, 539; FM 404

Codes used for Teacher Wraparound Edition pages are the initial caps of headings on that page.

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3. knows and explains what happens to the product or quotient when a real number is multiplied or divided by (2.4.K1a): a. a rational number greater than zero and less than one, b. a rational number greater than one, c. a rational number less than zero.	**Student Edition:** 12, 13 Example 3 **Teacher Wraparound Edition:** AE 13; FM 14; PA 17
Benchmark 2: Number Systems and Their Properties – The student demonstrates an understanding of the real number system; recognizes, applies, and explains their properties, and extends these properties to algebraic expressions.	
1. explains and illustrates the relationship between the subsets of the real number system [natural (counting) numbers, whole numbers, integers, rational numbers, irrational numbers] using mathematical models (2.4.K1a), e.g., number lines or Venn diagrams.	**Student Edition:** 11-17, 261, 334, 499, 511 *Study Tip* 35, 43, 95, 97, 297 **Teacher Wraparound Edition:** AE 12 Also see Glencoe's *Algebra 1* © 2008.
2. identifies all the subsets of the real number system [natural (counting) numbers, whole numbers, integers, rational numbers, irrational numbers] to which a given number belongs (2.4.K1m).	**Student Edition:** 11-17 **Teacher Wraparound Edition:** AE 12 Also see Glencoe's *Algebra 1* © 2008.

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STANDARDS	PAGE REFERENCES
3. ▲ names, uses, and describes these properties with the real number system and demonstrates their meaning including the use of concrete objects (2.4.K1a) **($)**: a. commutative (a + b = b + a and ab = ba), associative [a + (b + c) = (a + b) + c and a(bc) = (ab)c], distributive [a (b + c) = ab + ac], and substitution properties (if a = 2, then 3a = 3 x 2 = 6); b. identity properties for addition and multiplication and inverse properties of addition and multiplication (additive identity: a + 0 = a, multiplicative identity: a • 1 = a, additive inverse: $^{+}5 + ^{-}5 = 0$, multiplicative inverse: 8 x 1/8 = 1); c. symmetric property of equality (if a = b, then b = a); d. addition and multiplication properties of equality (if a = b, then a + c = b + c and if a = b, then ac = bc) and inequalities (if a > b, then a + c > b + c and if a > b, and c > 0 then ac > bc); e. zero product property (if ab = 0, then a = 0 and/or b = 0).	**Student Edition:** 12-15, 19-22, 33-34, 253-255, 321-322, 352 **Teacher Wraparound Edition:** AE 13; FM 14, 20, 322
4. uses and describes these properties with the real number system (2.4.K1a) **($)**: a. transitive property (if a = b and b = c, then a = c), b. reflexive property (a = a).	**Student Edition:** 19, 22 #5, 23 #29, 48 #65 *Practice Test* 53 #11, #14 **Teacher Wraparound Edition:** AE 19
Benchmark 3: Estimation – The student uses computational estimation with real numbers in a variety of situations.	
1. estimates real number quantities using various computational methods including mental math, paper and pencil, concrete objects, and/or appropriate technology (2.4.K1a) ($).	**Student Edition:** 25 #64, 203 b, 239-240, 248-250, 297 Example 4, 404 Example 3, 467-468 Example 4, 763 Example 5 *Graphing Calculator Lab* 252 #2-#3 **Teacher Wraparound Edition:** AE 248

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STANDARDS	PAGE REFERENCES
2. uses various estimation strategies and explains how they were used to estimate real number quantities and algebraic expressions (2.4.K1a) ($).	**Student Edition:** 25 #64, 203 b, 239-240, 248-250, 297 Example 4, 404 Example 3, 467-468 Example 4, 763 Example 5 *Graphing Calculator Lab* 252 #2-#3 **Teacher Wraparound Edition:** AE 248
3. knows and explains why a decimal representation of an irrational number is an approximate value (2.4.K1a).	**Student Edition:** 11, 16 #52, 404 **Teacher Wraparound Edition:** AE 404
4. knows and explains between which two consecutive integers an irrational number lies (2.4.K1a).	**Student Edition:** 11, 12 Example 1c Also see Glencoe's *Algebra 1* © 2008.
Benchmark 4: Computation – The student models, performs, and explains computation with real numbers and polynomials in a variety of situations.	
1. computes with efficiency and accuracy using various computational methods including mental math, paper and pencil, concrete objects, and appropriate technology (2.4.K1a) **($)**.	**Student Edition:** 12, 14 Example 4, 253-257, 320-323, 325-329, 384-389, 418, 444 **Teacher Wraparound Edition:** AE 254-255, 321-322, 326-327, 385-387, 418; FM 327
2. performs and explains these computational procedures (2.4.K1a): a. **N** addition, subtraction, multiplication, and division using the order of operations b. multiplication or division to find **($)**: i. a percent of a number, e.g., what is 0.5% of 10? ii. percent of increase and decrease, e.g., a college raises its tuition form $1,320 per year to $1,425 per year. What percent is the change in tuition? iii. percent one number is of another number, e.g., 89 is what percent of 82? iv. a number when a percent of the number is given, e.g., 80 is 32% of what number? c. manipulation of variable quantities within an equation or inequality (2.4.K1d), e.g., 5x – 3y = 20 could be written as 5x – 20 = 3y *or* 5x(2x + 3) = 8 could be written as 8/(5x) = 2x + 3;	**Student Edition:** 6-10, 27-31, 33-35, 44 Example 6, 538 Example 4, 546 Example 3, 549 #18, 550 #38 *Study Tip* 172 **Teacher Wraparound Edition:** AE 7

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Continued from previous cell. d. simplification of radical expressions (without rationalizing denominators) including square roots of perfect square monomials and cube roots of perfect cubic monomials; e. simplification or evaluation of real numbers and algebraic monomial expressions raised to a whole number power and algebraic binomial expressions squared or cubed; f. simplification of products and quotients of real number and algebraic monomial expressions using the properties of exponents; g. matrix addition **($)**, e.g., when computing (with one operation) a building's expenses (data) monthly, a matrix is created to include each of the different expenses; then at the end of the year, each type of expense for the building is totaled; h. scalar-matrix multiplication **($)**, e.g., if a matrix is created with everyone's salary in it, and everyone gets a 10% raise in pay; to find the new salary, the matrix would be multiplied by 1.1.	**Student Edition:** 172, 180-181 Example 5, 182 #12, 208-214, 320-324, 402-414 *Foldables* 224 *Study Tip* 218 **Teacher Wraparound Edition:** AE 321; DI 210; FC 209
3. finds prime factors, greatest common factor, multiples, and the least common multiple of algebraic expressions (2.4.K1b).	**Student Edition:** 254, 349, 350 Example 1, 442, 450-451, 453 #1-#4, 454 #18-#21 **Teacher Wraparound Edition:** AE 350, 451

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STANDARDS	PAGE REFERENCES
Standard 2: Algebra **The student uses algebraic concepts and procedures in a variety of situations.**	
Benchmark 1: Patterns – The student recognizes, describes, extends, develops, and explains the general rule of a pattern in a variety of situations.	
• identifies, states, and continues the following patterns using various formats including numeric (list or table), algebraic (symbolic notation), visual (picture, table, or graph), verbal (oral description), kinesthetic (action), and written o arithmetic and geometric sequences using real numbers and/or exponents (2.4.K1a); e.g., radioactive half-lives; o patterns using geometric figures (2.4.K1h); o algebraic patterns including consecutive number patterns or equations of functions, e.g., n, n + 1, n + 2, ... or f(n) = 2n – 1 (2.4.K1c,e); o special patterns (2.4.K1a), e.g., Pascal's triangle and the Fibonacci sequence.	**Student Edition:** 60-64, 622-627, 629-634, 636-640, 643-648, 650-654, 658-662, 664-668 *Algebra Lab* 663 *Graphing Calculator Lab* 642 *Spreadsheet Lab* 657 **Teacher Wraparound Edition** AE 60, 623, 631, 638, 646, 659
2. generates and explains a pattern (2.4.K1f).	**Student Edition:** 60-64, 622-627, 629-634, 636-641, 643-648, 650-654, 658-662, 664-668 *Algebra Lab* 663 *Graphing Calculator Lab* 642 *Spreadsheet Lab* 657 **Teacher Wraparound Edition** AE 60, 623, 631, 638; I 624
3. classifies sequences as arithmetic, geometric, or neither.	**Student Edition:** 622-627, 636-640 *Graphing Calculator Lab* 642 **Teacher Wraparound Edition:** FM 623, 637; PM 624

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4. defines (2.4.K1a): a. a recursive or explicit formula for arithmetic sequences and finds any particular term, b. a recursive or explicit formula for geometric sequences and finds any particular term.	**Student Edition:** 622-627, 636-640, 658-662 *Graphing Calculator Lab* 642 *Spreadsheet Lab* 657 **Teacher Wraparound Edition:** AE 623, 637, 659, 660
Benchmark 2: Variables, Equations, and Inequalities – The student uses variables, symbols, real numbers, and algebraic expressions to solve equations and inequalities in variety of situations.	
1. knows and explains the use of variables as parameters for a specific variable situation (2.4.K1f), e.g., the m and b in $y = mx + b$ or the h, k, and r in $(x – h)^2 + (y – k)^2 = r^2$.	**Student Edition:** 8 Example 2, 9 #23-#24, #33, 21 Example 6, 24 #46-#47, 79-80, 83 #13-#20, 574, 577 #4-#12 **Teacher Wraparound Edition:** AE 21; FM 575; I 80
2. manipulates variable quantities within an equation or inequality (2.4.K1e), e.g., $5x – 3y = 20$ could be written as $5x – 20 = 3y$ *or* $5x(2x + 3) = 8$ could be written as $8/(5x) = 2x + 3$.	**Student Edition:** 14, 16 #36-#43, 21 Example 6, 23 #37-#41, 24 #50-#51, 25 #68, 48 #68-#69 *Algebra Lab* 13 **Teacher Wraparound Edition:** AE 21; PA 21
3. solves (2.4.K1d) **($)**: a. **N** linear equations and inequalities both analytically and graphically; b. quadratic equations with integer solutions (may be solved by trial and error, graphing, quadratic formula, or factoring); c. ▲**N** systems of linear equations with two unknowns using integer coefficients and constants; d. radical equations with no more than one inverse operation around the radical expression; e. equations where the solution to a rational equation can be simplified as a linear equation with a nonzero denominator, e.g., $\frac{3}{(x+2)} = \frac{5}{(x-3)}$. f. equations and inequalities with absolute value quantities containing one variable with a special emphasis on using a number line and the concept of absolute value. g. exponential equations with the same base without the aid of a calculator or computer, e.g., $3^{x+2} = 3^5$.	**Student Edition:** 28-31, 43-47, 67 Example 2, 68 Example 4, 81, 102-105, 116-121, 123-128, 246-250, 255-257, 271-274, 277-282, 422-426, 501-502 Example 4, 504-505 *Graphing Calculator Lab* 507-208 *Reading Math* 245 **Teacher Wraparound Edition:** AE 28, 44, 68, 81, 117-118, 124, 247, 423

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Benchmark 3: Functions – The student analyzes functions in a variety of situations.	
1. evaluates and analyzes functions using various methods including mental math, paper and pencil, concrete objects, and graphing utilities or other appropriate technology (2.4.K1a,d-f).	**Student Edition:** 58-63, 95-101, 236-243, 286-290, 392-393 Example 2, 397-401, 457-463, 473-477 *Graphing Calculator Lab* 284-285, 293, 464 *Reading Math* 65 **Teacher Wraparound Edition** AE 59-60, 95-97, 237-238, 287-288, 392, 399, 459
2. matches equations and graphs of constant and linear functions and quadratic functions limited to $y = ax^2 + c$ (2.4.K1d,f).	**Student Edition:** 39 #69, 46 #33-#38, 60 Example 3A, 72, 98, 102-105, 236-243, 247-250, 286-292 *Graphing Calculator Lab* 284-285 **Teacher Wraparound Edition:** AE 72, 103, 237-238, 248, 287-289; I 73
3. determines whether a graph, list of ordered pairs, table of values, or rule represents a function (2.4.K1e-f).	**Student Edition:** 60-63, 95-100, 238, 241 #1-#6, 251 #52-#54 *Graphing Calculator Lab* 293 *Reading Math* 65 **Teacher Wraparound Edition:** AE 60, 96-98, 238; PA 98
4. determines x- and y-intercepts and maximum and minimum values of the portion of the graph that is shown on a coordinate plane (2.4.K1f).	**Student Edition:** 238-243 *Mid-Chapter Quiz* 267 #8 *Study Guide and Review* 303 5-1 **Teacher Wraparound Edition:** AE 239; DI 240; I 239
5. identifies domain and range of: a. relationships given the graph or table (2.4.K1e-f), b. linear, constant, and quadratic functions given the equation(s) (2.4.K1d).	**Student Edition:** 58-59, 63 #44, #48, #52, 97 Example 2, 239 Example 3c, 385-386, 391, 397, 498-499 *Geometry Software Lab* 511 *Study Tip* 95, 238 **Teacher Wraparound Edition:** AE 59, 239, 499
6. ▲ recognizes how changes in the constant and/or slope within a linear function changes the appearance of a graph (2.4.K1f) **($)**.	**Student Edition:** 72-75, 287, 288 Example 2 *Graphing Calculator Lab* 73, 78, 284-285 **Teacher Wraparound Edition:** AE 74, 288; FM 287

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7. uses function notation.	**Student Edition:** 61, 66 Example 1, 95-100, 236-242, 392-395, 460-461 *Graphing Calculator Lab* 464 **Teacher Wraparound Edition:** T 236
8. evaluates function(s) given a specific domain **($)**.	**Student Edition:** 58-59, 63 #44, #48, #52, 97 Example 2, 239 Example 3c, 385-386, 391, 397, 498-499 *Geometry Software Lab* 511 *Study Tip* 95, 238 **Teacher Wraparound Edition:** AE 59, 239, 499
9. describes the difference between independent and dependent variables and identifies independent and dependent variables **($)**.	**Student Edition:** 61 Also see Glencoe's *Algebra 1* © 2008.

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Benchmark 4: Models – The student develops and uses mathematical models to represent and justify mathematical relationships found in a variety of situations involving tenth grade knowledge and skills.	
1. knows, explains, and uses mathematical models to represent and explain mathematical concepts, procedures, and relationships. Mathematical models include: a. process models (concrete objects, pictures, diagrams, number lines, hundred charts, measurement tools, multiplication arrays, division sets, or coordinate grids) to model computational procedures, algebraic relationships, and mathematical relationships and to solve equations (1.1.K1-3, 1.2.K1, 1.2.K3-4, 1.3.K1-4, 1.4.K1, 1.4.K2a-b, 2.1.K1a, 2.1.K1d, 2.1.K2, 2.2.K4, 2.3.K1, 3.2.K1-3, 3.2.K6, 3.3.K1-4, 4.2.K3-4) **($)**; b. factor trees to model least common multiple, greatest common factor, and prime factorization (1.4.K3); c. algebraic expressions to model relationships between two successive numbers in a sequence or other numerical patterns (2.1.K1c); d. equations and inequalities to model numerical and geometric relationships (1.4.K2c, 2.2.K3, 2.3.K1-2, 3.2.K7) **($)**; e. function tables to model numerical and algebraic relationships (2.1.K1c, 2.2.K2, 2.3.K1, 2.3.K3, 2.3.K5) **($)**; f. coordinate planes to model relationships between ordered pairs and equations and inequalities and linear and quadratic functions (2.2.K1, 2.3.K1-6, 3.4.K1-8) **($)**; g. constructions to model geometric theorems and properties (3.1.K2, 3.1.K6); h. two- and three-dimensional geometric models (geoboards, dot paper, coordinate plane, nets, or solids) and real-world objects to model perimeter, area, volume, and surface area, properties of two- and three-dimensional figures, and isometric views of three-dimensional figures (2.1.K1b, 3.1.K1-8, 3.2.K1, 3.2.K4-5, 3.3.K1-4);	**Student Edition:** 8 Example 3, 21 Example 6, 26 #79, 34-35, 47 #44-#45, 58-63, 72 Example 2, 185-191, 339-341, 372 #30-#31, 483 Example 5, 622-627, 636-641, 643, 658-662 *Algebra Lab* 13 *Graphing Calculator Lab* 136, 252 *Reading Math* 65 **Teacher Wraparound Edition:** AE 35, 637

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Continued from cell above. i. scale drawings to model large and small real-world objects; j. Pascal's Triangle to model binomial expansion and probability; k. geometric models (spinners, targets, or number cubes), process models (concrete objects, pictures, diagrams, or coins), and tree diagrams to model probability (4.1.K1-3); l. frequency tables, bar graphs, line graphs, circle graphs, Venn diagrams, charts, tables, single and double stem-and-leaf plots, scatter plots, box-and-whisker plots, histograms, and matrices to organize and display data (4.2.K1, 4.2.K5-6) **($)**; m. Venn diagrams to sort data and show relationships (1.2.K2).	**Student Edition:** 261, 664-665, 684 Example 1, 686 Example 4, 690-694, 699-701, 704 Example 1, 708 #38-#41, 712, 714 #39-#41, 741, 762-767, 768-773, 785-786, 881-887 *Algebra Lab* 703 *Get Ready* 683 *Reading Math* 696 **Teacher Wraparound Edition:** AE 786; PT 664
Standard 3: Geometry **The student uses geometric concepts and procedures in a variety of situations.**	
Benchmark 1: Geometric Figures and Their Properties – The student recognizes geometric figures and compares and justifies their properties of geometric figures in a variety of situations.	
1. recognizes and compares properties of two- and three-dimensional figures using concrete objects, constructions, drawings, appropriate terminology, and appropriate technology (2.4.K1h).	**Student Edition:** 8 Example 2, 21 Example 6, 26 #79, 367 #42-#43, 371 #7 Also see Glencoe's *Geometry* © 2008.
2. discusses properties of regular polygons related to (2.4.K1g-h): a. angle measures, b. diagonals.	**Student Edition:** 8 Example 2, 31 #60-#61, 69 #34, 759-767, 785-798 *Algebra Lab* 775 *Practice Test* 435 #28 *Spreadsheet Lab* 758 **Teacher Wraparound Edition:** A 767 Also see Glencoe's *Geometry* © 2008.

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3. recognizes and describes the symmetries (point, line, plane) that exist in three-dimensional figures (2.4.K1h).	**Student Edition:** 237-238, 241-243, 286 Example 1, 288-289 Example 3, 567-572 **Teacher Wraparound Edition:** AE 237, 568 Also see Glencoe's *Geometry* © 2008.
4. recognizes that similar figures have congruent angles, and their corresponding sides are proportional (2.4.K1h).	**Student Edition:** 187 Example 3, 760 Also see Glencoe's *Geometry* © 2008.
5. uses the Pythagorean Theorem to (2.4.K1h): a. determine if a triangle is a right triangle, b. find a missing side of a right triangle.	**Student Edition:** 563, 582, 761 Example 2, 776-777 Example 1, 780, 793, 881-882 *Get Ready* 757 Example 2 Also see Glencoe's *Geometry* © 2008.
6. recognizes and describes (2.4.K1g-h): a. congruence of triangles using: Side-Side-Side (SSS), Angle-Side-Angle (ASA), Side-Angle-Side (SAS), and Angle-Angle-Side (AAS); b. the ratios of the sides in special right triangles: 30°-60°-90° and 45°-45°-90°.	**Student Edition:** 761 *Spreadsheet Lab* 758 Also see Glencoe's *Geometry* © 2008.
7. recognizes, describes, and compares the relationships of the angles formed when parallel lines are cut by a transversal (2.4.K1h).	See Glencoe's *Geometry* © 2008.
8. recognizes and identifies parts of a circle: arcs, chords, sectors of circles, secant and tangent lines, central and inscribed angles (2.4.K1h).	**Student Edition:** 574-579, 772 #34-#35 Also see Glencoe's *Geometry* © 2008.
Benchmark 2: Measurement and Estimation – The student estimates, measures and uses geometric formulas in a variety of situations.	
1. determines and uses real number approximations (estimations) for length, width, weight, volume, temperature, time, distance, perimeter, area, surface area, and angle measurement using standard and nonstandard units of measure (2.4.K1a) **($)**.	**Student Edition:** 197 Example 4 Also see Glencoe's *Geometry* © 2008.

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2. selects and uses measurement tools, units of measure, and level of precision appropriate for a given situation to find accurate real number representations for length, weight, volume, temperature, time, distance, area, surface area, mass, midpoint, and angle measurements (2.4.K1a) **($)**.	**Student Edition:** 768, 772 #34-#35, 773 #56 Also see Glencoe's *Geometry* © 2008.
3. approximates conversions between customary and metric systems given the conversion unit or formula (2.4.K1a).	**Student Edition:** 761-766, 768-773, 776-783, 792 #42-#47 *Algebra Lab* 775 *Study Guide and Review* 813 13-2 **Teacher Wraparound Edition** AE 761-764, 769-771, 777-778; FC 771
4. states, recognizes, and applies formulas for (2.4.K1h) **($)**: a. perimeter and area of squares, rectangle, and triangles; b. circumference and area of circles; volume of rectangular solids.	See Glencoe's *Geometry* © 2008.
5. uses given measurement formulas to find perimeter, area, volume, and surface area of two- and three-dimensional figures (regular and irregular) (2.4.K1h).	**Student Edition:** 8 Example 2, 9 #23, 21 Example 6, 26 #79, 31 #60-#61, 69 #34, 244 #93 *Practice Test* 435 #28 Also see Glencoe's *Geometry* © 2008.
6. recognizes and applies properties of corresponding parts of similar and congruent figures to find measurements of missing sides (2.4.K1a).	**Student Edition:** 760 Also see Glencoe's *Geometry* © 2008.
7. knows, explains, and uses ratios and proportions to describe rates of change (2.4.K1d) **($)**, e.g., miles per gallon, meters per second, calories per ounce, or rise over run.	**Student Edition:** 71-77, 79-84, 87-88 Example, 274 #57-#58, 465-468, 544-546, 636-638, 878-880 *Review Vocabulary* 11 **Teacher Wraparound Edition:** AE 466-467; T 71 Also see Glencoe's *Geometry* © 2008.

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Benchmark 3: Transformational Geometry – The student recognizes and applies transformations on two- and three-dimensional figures in a variety of situations.	
1. describes and performs single and multiple transformations [refection, rotation, translation, reduction (contraction/shrinking), enlargement (magnification/growing)] on two- and three-dimensional figures (2.4.K1a).	**Student Edition:** 185-191, 214 #37-#41, 286-287 *Study Guide and Review* 226 4-4 **Teacher Wraparound Edition:** AE 186-188
2. recognizes a three-dimensional figure created by rotating a simple two-dimensional figure around a fixed line (2.4.K1a), e.g., a rectangle rotated about one of its edges generates a cylinder; an isosceles triangle rotated about a fixed line that runs from the vertex to the midpoint of its base generates a cone.	This standard falls outside the scope of this text.
3. generates a two-dimensional representation of a three-dimensional figure (2.4.K1a).	See Glencoe's *Geometry* © 2008.
4. determines where and how an object or a shape can be tessellated using single or multiple transformations and creates a tessellation (2.4.K1a).	See Glencoe's *Geometry* © 2008.
Benchmark 4: Geometry from an Algebraic Perspective – The student uses an algebraic perspective to analyze the geometry of two- and three-dimensional figures in a variety of situations.	
1. recognizes and examines two- and three-dimensional figures and their attributes including the graphs of functions on a coordinate plane using various methods including mental math, paper and pencil, concrete objects, and graphing utilities or other appropriate technology (2.4.K1f).	**Student Edition:** 79-83, 96-97, 102-103, 185-191, 214 #37-#41, 286-287 *Graphing Calculator Lab* 78, 97 *Study Guide and Review* 226 4-4 **Teacher Wraparound Edition:** AE 103, 186-188
2. determines if a given point lies on the graph of a given line or parabola without graphing and justifies the answer (2.4.K1f).	See Glencoe's *Algebra 1* © 2008.
3. calculates the slope of a line from a list of ordered pairs on the line and explains how the graph of the line is related to its slope (2.4.K1f).	**Student Edition:** 71-77, 79-84, 87, 453 Example 6, 475 Example 3 **Teacher Wraparound Edition:** AE 72, 80-81

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4. ▲ finds and explains the relationship between the slopes of parallel and perpendicular lines (2.4.K1f), e.g., the equation of a line 2x + 3y = 12. The slope of this line is -2/3. What is the slope of a line perpendicular to this line?	**Student Edition:** 73 Example 3, 74, 75 #30-#37 *Graphing Calculator Lab* 73, 78 **Teacher Wraparound Edition:** AE 73-74; PA 77
5. uses the Pythagorean Theorem to find distance (may use the distance formula) (2.4.K1f).	**Student Edition:** 563-564, 567, 574, 581, 586 #4, 590 **Teacher Wraparound Edition:** AE 564, 575, 592; FM 563
6. ▲ recognizes the equation of a line and transforms the equation into slope-intercept form in order to identify the slope and y-intercept and uses this information to graph the line (2.4.K1f).	**Student Edition:** 79-84, 96, 465 **Teacher Wraparound Edition:** AE 80; I 80 Also see Glencoe's *Geometry* © 2008.
7. recognizes the equation $y = ax^2 + c$ as a parabola; represents and identifies characteristics of the parabola including opens upward or opens downward, steepness (wide/narrow), the vertex, maximum and minimum values, and line of symmetry; and sketches the graph of the parabola (2.4.K1f).	**Student Edition:** 568-573, 598-601 *Foldables* 609 *Study Guide and Review* 610 10-2 **Teacher Wraparound Edition:** AE 568-571, 599
8. explains the relationship between the solution(s) to systems of equations and systems of inequalities in two unknowns and their corresponding graphs (2.4.K1f), e.g., for equations, the lines intersect in either one point, no points, or infinite points; and for inequalities, all points in double-shaded areas are solutions for both inequalities.	**Student Edition:** 116-121, 123, 130-134 *Study Guide and Review* 154 3-1, 155 3-3 *Graphing Calculator Lab* 156 **Teacher Wraparound Edition:** AE 117-118, 131-132
Standard 4: Data **The student uses concepts and procedures of data analysis in a variety of situations.**	
Benchmark 1: Probability – The student applies probability theory to draw conclusions, generate convincing arguments, make predictions and decisions, and analyze decisions including the use of concrete objects in a variety of situations.	
1. finds the probability of two independent events in an experiment, simulation, or situation (2.4.K1k) **($)**.	**Student Edition:** 684-687, 704-709, 736 *Algebra Lab* 703, 734 **Teacher Wraparound Edition:** AE 685, 704-705, 735; PA 689, 707

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STANDARDS	PAGE REFERENCES
2. finds the conditional probability of two dependent events in an experiment, simulation, or situation (2.4.K1k).	**Student Edition:** 686-687, 705-708, *Algebra Lab* 740 *Study Guide and Review* 747 12-4 **Teacher Wraparound Edition:** AE 686, 705-706; PA 689, 707
3. ▲ explains the relationship between probability and odds and computes one given the other (2.4.K1a,k).	See Glencoe's *Algebra 1* © 2008.
Benchmark 2: Statistics – The student collects, organizes, displays, explains, and interprets numerical (rational) and non-numerical data sets in a variety of situations.	
1. organizes, displays, and reads quantitative (numerical) and qualitative (non-numerical) data in a clear, organized, and accurate manner including a title, labels, categories, and rational number intervals using these **data displays** (2.4.K1l): a. frequency tables and line plots; b. bar, line, and circle graphs; c. Venn diagrams or other pictorial displays; d. charts and tables; e. stem-and-leaf plots (single and double); f. scatter plots; g. box-and-whiskers plots; h. histograms.	**Student Edition:** 72 Example 2, 86-91, 261, 684 Example 1, 699-701, 720-722, 885-890 *Graphing Calculator Lab* 92-94, 252, 346-347, 518-519 *Study Guide and Review* 109 **Teacher Wraparound Edition:** AE 72, 87, 699; RC 88
2. explains how the reader's bias, measurement errors, and display distortions can affect the interpretation of data.	**Student Edition:** 724, 741-743 **Teacher Wraparound Edition:** AE 742; DI 742 Also see Glencoe's *Algebra 1* © 2008.
3. calculates and explains the meaning of range, quartiles and interquartile range for a real number data set (2.4.K1a).	**Student Edition:** 889-890 Also see Glencoe's *Algebra 1* © 2008.
4. ▲ explains the effects of outliers on the measures of central tendency (mean, median, mode) and range and interquartile range of a real number data set (2.4.K1a).	**Student Edition:** 717-723, 725, 883-884 *Study Guide and Review* 748 12-6 **Teacher Wraparound Edition:** AE 718; PA 723 Also see Glencoe's *Algebra 1* © 2008.

STANDARDS	PAGE REFERENCES
5. ▲ approximates a line of best fit given a scatter plot and makes predictions using the graph or the equation of that line (2.4.K1k).	**Student Edition:** 87-91 *Graphing Calculator Lab* 92-94, 252, 346-347, 518-519 **Teacher Wraparound Edition:** AE 87-88 Also see Glencoe's *Algebra 1* © 2008.
6. compares and contrasts the dispersion of two given sets of data in terms of range and the shape of the distribution including (2.4.K1k): a. symmetrical (including normal), b. skew (left or right), c. bimodal, d. uniform (rectangular).	**Student Edition:** 718, 724 **Teacher Wraparound Edition:** FM 718 Also see Glencoe's *Algebra 1* © 2008.

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