



Pre-Algebra

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STANDARDS	PAGE REFERENCES
<p>Standard 1: Number and Computation – The student uses numerical and computational concepts and procedures in a variety of situations.</p>	
<p>Benchmark 1: Number Sense – The student demonstrates number sense for real numbers and simple algebraic expressions in a variety of situations.</p>	
<p>1. knows, explains, and uses equivalent representations for rational numbers and simple algebraic expressions including integers, fractions, decimals, percents, and ratios; rational number bases with integer exponents; rational numbers written in scientific notation with integer exponents; time; and money (2.4.K1a) (\$).</p>	<p>Student Edition: 37-41, 52 #26-#27, 129-133, 199 #36, 214-218, 222, 228-233, 234-238, 282, 292-296, 305 #26, #27, 313-318, 327, 349, 350, 796 #2, #3, 797, 798, 799 <i>Algebra Lab</i> 185 <i>Practice Test</i> 223, 285, 319, 353 <i>Spreadsheet Lab</i> 42 <i>Standardized Test Practice</i> 224 #2, #5, 225 #12, 286 #5, 287 #11, 355 #11 Teacher Wraparound Edition: AE 315; DI 229, 303; FMC 216, 293, 303; I 130; PA 184, 233, 297; PC 290H</p>
<p>2. compares and orders rational numbers, the irrational number pi, and algebraic expressions (2.4.K1a) (\$), e.g., which expression is greater $-3n$ or $3n$? It depends on the value of n. If n is positive, $3n$ is greater. If n is negative, $-3n$ is greater. If n is zero, they are equal.</p>	<p>Student Edition: 78-83, 108, 110 #35, 117, 183 #56-#58, 230-232, 258-259, 272 #55-#58, 467 #36, 472 #30-#32 <i>Practice Test</i> 119 Teacher Wraparound Edition: COT 79; FMC 76E, 101, 226E</p>

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3. explains the relative magnitude between rational numbers, the irrational number π , and algebraic expressions (2.4.K1a).	Student Edition: 205 #10, 207 #52, 212 #47, 237 #49, 438 #35-#37, 469-470, 471 #4, 797 #14 Teacher Wraparound Edition: CON 216; DI 215; T 203
4. recognizes and describes irrational numbers (2.4.K1a), e.g., $\sqrt{2}$ is a non-repeating, non-terminating decimal; or π (π) is a non-terminating decimal.	Student Edition: 237 #49, 469-474 Teacher Wraparound Edition: FMC 460E, 471
5. ▲ knows and explains what happens to the product or quotient when (2.4.K1a): a. a positive number is multiplied or divided by a rational number greater than zero and less than one, e.g., if 24 is divided by $\frac{1}{3}$, will the answer be larger than 24 or smaller than 24? Explain. b. a positive number is multiplied or divided by a rational number greater than one c. a nonzero real number is multiplied or divided by zero (For purposes of assessment, an explanation of division by zero will not be expected.)	Student Edition: 100-104, 106-110, 239-244, 245-249, 282, 283, 795, 798 <i>Algebra Lab</i> 99, 105 <i>Mid-Chapter Quiz</i> 256 Teacher Wraparound Edition: FMC 101, 107; PA 244; PC 76H
6. explains and determines the absolute value of real numbers (2.4.K1a).	Student Edition: 78-83, 90 #55, 117 Teacher Wraparound Edition: DI 80; FMC 80; PA 83
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: 234, 236, 469, 504 <i>Mid-Chapter Quiz</i> 482 Teacher Wraparound Edition: A 474; DI 235
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.K1I). (For the purpose of assessment, irrational numbers will not be included.)	Student Edition: 469-474, 504 <i>Mid-Chapter Quiz</i> 482 Teacher Wraparound Edition: A 474; DI 470

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<p>3. names, uses, and describes these properties with the rational number system and demonstrates their meaning including the use of concrete objects (2.4.K1a) (\$):</p> <p>a. commutative, associative, distributive, and substitution properties [commutative: $a + b = b + a$ and $ab = ba$; associative: $a + (b + c) = (a + b) + c$ and $a(bc) = (ab)c$; distributive: $a(b + c) = ab + ac$; substitution: if $a = 2$, then $3a = 3 \times 2 = 6$];</p> <p>b. identity properties for addition and multiplication and inverse properties of addition and multiplication (additive identity: $a + 0 = a$, multiplicative identity: $a \cdot 1 = a$, additive inverse: $+5 + -5 = 0$, multiplicative inverse: $8 \times 1/8 = 1$);</p> <p>c. symmetric property of equality, e.g., $7 + 2 = 9$ has the same meaning as $9 = 7 + 2$;</p> <p>d. addition and multiplication properties of equalities, e.g., if $a = b$, then $a + c = b + c$;</p> <p>e. addition property of inequalities, e.g., if $a > b$, then $a + c > b + c$;</p> <p>f. zero product property, e.g., if $ab = 0$, then $a = 0$ and/or $b = 0$.</p>	<p>Student Edition: 43-47, 53 #37-#40, 59 #62, 71, 83 #83-#85, 88, 103 #58, 130, 136-137, 143, 245, 435-439 <i>Algebra Lab</i> 85 <i>Mid-Chapter Quiz</i> 48, 440 <i>Practice Test</i> 73, 173 <i>Standardized Test Practice</i> 75</p> <p>Teacher Wraparound Edition: A 46; AE 246; FMC 24E, 45, 137, 259</p>
<p>Benchmark 3: Estimation – The student uses computational estimation with real numbers in a variety of situations.</p>	
<p>1. estimates real number quantities using various computational methods including mental math, paper and pencil, concrete objects, and/or appropriate technology (2.4.K1a) (\$).</p>	<p>Student Edition: 28, 36 #63, 47 #60, 53 #33, 89 #41, 97 #60, 215 #3, 233 #60, 331 #43, 343-347, 352, 466 #4 <i>Algebra Lab</i> 307 <i>Standardized Test Practice</i> 120 #4</p> <p>Teacher Wraparound Edition: CMC 28</p>
<p>2. uses various estimation strategies and explains how they were used to estimate real number quantities and simple algebraic expressions (2.4.K1a) (\$).</p>	<p>Student Edition: 28, 47 #60, 89 #41, 131 #3, 154 #3, 215 #3, 265 #4, 328, 343-347, 352, 743, 744, 746, 794 #11, #12 <i>Algebra Lab</i> 307 <i>Standardized Test Practice</i> 120 #4</p>
<p>3. knows and explains why a decimal representation of the irrational number pi is an approximate value (2.4.K1c).</p>	<p>Student Edition: 237 #49, 469, 551-552 <i>Study Tip</i> 599</p>

STANDARDS	PAGE REFERENCES
4. knows and explains between which two consecutive integers an irrational number lies (2.4.K1a).	Student Edition: 465, 467 #32, #35, 470 <i>Algebra Lab</i> 491
Benchmark 4: Computation –The student models, performs, and explains computation with rational numbers, the irrational number pi, and algebraic expressions 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: 28, 53 #33, 97 #60, #61, 140 #40, 184 #66, 401 #36, 428 #39
2. performs and explains these computational procedures with rational numbers (2.4.K1a): <ol style="list-style-type: none"> ▲N addition, subtraction, multiplication, and division of integers ▲N order of operations (evaluates within grouping symbols, evaluates powers to the second or third power, multiplies or divides in order from left to right, then adds or subtracts in order from left to right); approximation of roots of numbers using calculators; multiplication or division to find: <ol style="list-style-type: none"> a percent of a number, e.g., what is 0.5% of 10? percent of increase and decrease, e.g., if two coins are removed from ten coins, what is the percent of decrease? percent one number is of another number, e.g., what percent of 80 is 120? a number when a percent of the number is given, e.g., 15% of what number is 30? addition of polynomials, e.g., $(3x - 5) + (2x + 8)$. simplifies algebraic expressions in one variable by combining like terms or using the distributive property (2.4.K1a), e.g., $\sqrt{3}(x - 4)$ is the same as $\sqrt{3}x + 12$. 	Student Edition: 32-36, 41 #52-#57, 70, 86-90, 93-97, 100-104, 106-110, 124-128, 129-133, 181, 322-326, 332-336, 338-342, 350-351, 352, 465-467, 706-709 <i>Algebra Lab</i> 84-85, 92, 99, 105 <i>Key Concepts</i> 69 <i>Mid-Chapter Quiz</i> 98, 714 <i>Start Smart</i> 12-13 Teacher Wraparound Edition: A 36; AA 119; AE 323, 333; FMC 33, 87, 101, 107, 131, 707; PA 128; T 32
3. finds factors and common factors of simple monomial expressions (2.4.K1d), e.g., given the monomials $10m^2n^3$ and $15a^2mn^2$ some common factors would be $5m$, $5mn^2$, and n^2 .	Student Edition: 188, 195 #63-#66

STANDARDS	PAGE REFERENCES
<p>Standard 2: Algebra – The student uses algebraic concepts and procedures in a variety of situations.</p>	
<p>Benchmark 1: Patterns – The student recognizes, describes, extends, develops, and explains the general rule of a pattern from a variety of situations.</p>	
<p>1. identifies, states, and continues a pattern presented in various formats including numeric (list or table), algebraic (symbolic notation), visual (picture, table, or graph), verbal (oral description), kinesthetic (action), and written using these attributes:</p> <ul style="list-style-type: none"> a. counting numbers including perfect squares, cubes, and factors and multiples with positive rational numbers (number theory) (2.4.K1a). b. rational numbers including arithmetic and geometric sequences (arithmetic: sequence of numbers in which the difference of two consecutive numbers is the same, geometric: a sequence of numbers in which each succeeding term is obtained by multiplying the preceding term by the same number) (2.4.K1a), e.g., $\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, \dots$; c. geometric figures (2.4.K1h); d. measurements (2.4.K1a); e. things related to daily life (\$); f. variables and simple expressions, e.g., $1 - x, 2 - x, 3 - x, 4 - x, \dots$; or x, x^2, x^3, \dots 	<p>Student Edition: 27, 29, 36, 101, 158-161, 180, 184 #71, 194 #43-#44, 217 #30, 297 <i>Algebra Lab</i> 208</p> <p>Teacher Wraparound Edition: AE 27, 159; DI 125</p>
<p>2. generates and explains a pattern (2.4.K1a).</p>	<p>Student Edition: 27, 29, 36, 101, 158-161, 180, 194 #43-#44, 217 #30</p> <p>Teacher Wraparound Edition: AE 159</p>
<p>3. generates a pattern limited to two operations (addition, subtraction, multiplication, division, exponents) when given the rule for the nth term (2.4.K1a), e.g., the n^{th} term is n^2+1, find the first 4 terms beginning with $n = 1$; the terms are 2, 5, 10, and 17.</p>	<p>Student Edition: 189 #39-#42</p> <p><i>Standardized Test Practice</i> 75 #7, 120 #6, 286 #7, 456 #3</p>
<p>4. states the rule to find the nth term of a pattern using explicit symbolic notation (2.4.K1a), e.g., given 2, 5, 8, 11, ...; find the rule for the nth term, the rule is $3n - 1$.</p>	<p>Student Edition: <i>Practice Test</i> 173 #23</p> <p><i>Standardized Test Practice</i> 174 #4, 456 #4, 737 #9</p>

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<p>5. describes the pattern when given a table of linear values and plots the ordered pairs on a coordinate plane (2.4.K1f-g), e.g., in the table below, the pattern could be described as the x-coordinates are increasing by three, while the y-coordinates are increasing by 6, or the x is doubled and one is added to find the y.</p> <table border="1" data-bbox="253 531 732 625"> <tr> <td>X</td> <td>2</td> <td>5</td> <td>8</td> <td>11</td> </tr> <tr> <td>Y</td> <td>5</td> <td>11</td> <td>17</td> <td>23</td> </tr> </table>	X	2	5	8	11	Y	5	11	17	23	<p>Student Edition: 365-369, 409 <i>Standardized Test Practice</i> 414 #1</p> <p>Teacher Wraparound Edition: AE 366; PA 369</p>
X	2	5	8	11							
Y	5	11	17	23							
<p>Benchmark 2: Variables, Equations, and Inequalities – The student uses variables, symbols, real numbers, and algebraic expressions to solve equations and inequalities in a variety of situations.</p>											
<p>1. identifies independent and dependent variables within a given situation.</p>	<p>The following reference can be used to meet this standard.</p> <p>Student Edition: <i>Reading Math</i> 365 Also see Glencoe’s <i>Algebra: Concepts and Applications</i> © 2006 page 264.</p>										
<p>2. simplifies algebraic expressions in one variable by combining like terms or using the distributive property (2.4.K1a), e.g., $-3(x - 4)$ is the same as $-3x + 12$.</p>	<p>Student Edition: 124-128, 129-133, 140 #45-#50, 170 <i>Practice Test</i> 173 #3-#6</p> <p>Teacher Wraparound Edition: AE 125; FMC 126, 131; PA 128, 133</p>										
<p>3. solves (2.4.K1a,e) (\$):</p> <ol style="list-style-type: none"> ▲ one- and two-step linear equations in one variable with rational number coefficients and constants intuitively and/or analytically; one-step linear inequalities in one variable with rational number coefficients and constants intuitively, analytically, and graphically; ▲ N systems of given linear equations with whole number coefficients and constants graphically. 	<p>Student Edition: 365-369, 391-394, 409, 435-439, 441-445 <i>Graphing Calculator Lab</i> 395-396 <i>Mid-Chapter Quiz</i> 440 #19-#24 <i>Practice Test</i> 413 #8-#9, 455 #19-#24 <i>Standardized Test Practice</i> 414 #5, 457 #14</p> <p>Teacher Wraparound Edition: AA 413; AE 436, 442; FMC 367; PA 115, 369</p>										

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<p>4. knows and describes the mathematical relationship between ratios, proportions, and percents and how to solve for a missing monomial or binomial term in a proportion (2.4.K1c), e.g., $\frac{2}{5} = \frac{1}{x + 2}$.</p>	<p>Student Edition: 292-296, 297-300, 302-306, 322-326, 349, 350 <i>Algebra Lab</i> 307 <i>Mid-Chapter Quiz</i> 319 #13, #14 <i>Practice Test</i> 353 <i>Standardized Test Practice</i> 354 #1</p> <p>Teacher Wraparound Edition: AE 303; DI 303; I 293</p>
<p>5. represents and solves algebraically (\$):</p> <ol style="list-style-type: none"> the number when a percent and a number are given, what percent one number is of another number, percent of increase or decrease, e.g., the price of a loaf of bread is \$2.00. With a coupon, the cost is \$1.00. What is the percent of decrease? 	<p>Student Edition: 322-326, 327-331, 332-336, 338-342, 350-352 <i>Practice Test</i> 353</p> <p>Teacher Wraparound Edition: AE 323, 333, 339; FMC 340; PA 342</p>
<p>6. evaluates formulas using substitution (\$).</p>	<p>Student Edition: 96 #48, 109 #33, 162-167, 242 #17, 271 #41, 334 #5, 423 #37</p> <p>Teacher Wraparound Edition: PA 104</p>
<p>Benchmark 3: Functions – The student recognizes, describes, and analyzes constant, linear, and nonlinear relationships in a variety of situations.</p>	
<p>1. recognizes and examines constant, linear, and nonlinear relationships using various methods including mental math, paper and pencil, concrete objects, and graphing utilities or appropriate technology (2.4.K1a,e-g) (\$).</p>	<p>Student Edition: 129, 376-381, 720-725, 734 <i>Practice Test</i> 735</p> <p>Teacher Wraparound Edition: DI 721; FMC 378</p>
<p>2. knows and describes the difference between constant, linear, and nonlinear relationships (2.4.K1g).</p>	<p>Student Edition: 129, 376-381, 720-725, 734 <i>Practice Test</i> 735</p> <p>Teacher Wraparound Edition: DI 721; FMC 378</p>
<p>3. explains the concepts of slope and x- and y-intercepts of a line (2.4.K1g).</p>	<p>Student Edition: 384-389, 391-394, 410, 411 <i>Algebra Lab</i> 383 <i>Practice Test</i> 413</p>
<p>4. recognizes and identifies the graphs of constant and linear functions (2.4.K1g) (\$).</p>	<p>Student Edition: 365-369</p>

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5. identifies ordered pairs from a graph, and/or plots ordered pairs using a variety of scales for the x- and y-axis (2.4.K1g).	Student Edition: 359-363 Teacher Wraparound Edition: PA 363
Benchmark 4: Models – The student generates and uses mathematical models to represent and justify mathematical relationships found in a variety of situations.	
1. knows, explains, and uses mathematical models to represent and explain mathematical concepts, procedures, and relationships. Mathematical models include: <ol style="list-style-type: none"> 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.K1-6, 1.2.K1, 1.2.K3, 1.3.K1-2, 1.3.K4, 1.4.K1-2, 2.1.K1a-b, 2.1.K1d-e, 2.1.K2-4, 2.2.K2-3, 3.1.K9, 3.2.K1-4, 3.3.K1-4, 3.4.K4, 4.2.K4-5) (\$); place value models (place value mats, hundred charts, base ten blocks, or unifix cubes) to compare, order, and represent numerical quantities and to model computational procedures (\$); fraction and mixed number models (fraction strips or pattern blocks) and decimal and money models (base ten blocks or coins) to compare, order, and represent numerical quantities (1.3.K3, 2.3.K6) (\$); factor trees to model least common multiple, greatest common factor, and prime factorization (1.4.K3); equations and inequalities to model numerical relationships (2.2.K3), (3.4.K2) (\$); function tables to model numerical and algebraic relationships (2.1.K5, 3.4.K2) (\$); coordinate planes to model relationships between ordered pairs and linear equations and inequalities (2.1.K5, 2.3.K1-5, 3.4.K2-3) (\$); 	Student Edition: 28, 54, 78-79, 83 #76, 97 #60, 111-113, 127 #45-#47, 129, 160 #31, 187 #2, 191, 206 #36, #37, 234, 235, 263, 271 #41, 308-312, 313, 432, 469, 476, 529 #20, 542 #24, #25, 551, 597, 605, 626, 638, 644, 668, 670, 685, 720 <i>Algebra Lab</i> 60, 84, 92, 185, 320-321, 358, 383, 462-463, 675 <i>Graphing Calculator Lab</i> 67, 364, 632, 643 <i>Practice Test</i> 285 #12 <i>Spreadsheet Lab</i> 657 Teacher Wraparound Edition: DI 309, 525; FMC 76E, 76F, 78E, 226E

STANDARDS	PAGE REFERENCES
<p>Continued from cell above...</p> <p>h. two- and three-dimensional geometric models (geoboards, dot paper, nets, or solids) and real-world objects to model perimeter, area, volume, surface area, and properties of two- and three-dimensional figures (2.1.K1c, 3.1.K1-6, 3.1.K8, 3.1.K10, 3.2.K5, 3.3.K4-5);</p> <p>h. scale drawings to model large and small real-world objects (3.3.K3-4);</p> <p>i. geometric models (spinners, targets, or number cubes), process models (coins, pictures, or diagrams), and tree diagrams to model probability (4.1.K1-5) (\$);</p> <p>j. 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, and histograms to organize and display data (4.2.K1, 4.2.K6) (\$);</p> <p>Venn diagrams to sort data and to show relationships (1.2.K2).</p>	<p>Student Edition: 28, 54, 78-79, 83 #76, 97 #60, 111-113, 127 #45-#47, 129, 160 #31, 187 #2, 191, 206 #36, #37, 234, 235, 263, 271 #41, 308-312, 313, 432, 469, 476, 529 #20, 542 #24, #25, 551, 597, 605, 626, 638, 644, 668, 670, 685, 720 <i>Algebra Lab</i> 60, 84, 92, 185, 320-321, 358, 383, 462-463, 675 <i>Graphing Calculator Lab</i> 67, 364, 632, 643 <i>Practice Test</i> 285 #12 <i>Spreadsheet Lab</i> 657</p> <p>Teacher Wraparound Edition: DI 309, 525; FMC 76E, 76F, 78E, 226E</p>
<p>Standard 3: Geometry – The student uses geometric concepts and procedures in a variety of situations.</p>	
<p>Benchmark 1: Geometric Figures and Their Properties – The student recognizes geometric figures and compares their properties in a variety of situations.</p>	
<p>1. recognizes and compares properties of two- and three-dimensional figures using concrete objects, constructions, drawings, appropriate terminology, and appropriate technology (2.4.K1h).</p>	<p>Student Edition: 295 #39, #40, 300, 427 #35, 497-502, 506, 518-523, 532-536, 575-580 <i>Standardized Test Practice</i> 508</p> <p>Teacher Wraparound Edition: A 581; AA 507; AE 498, 576; DI 499, 577; FMC 498, 520; PA 502, 523; T 497</p>

STANDARDS	PAGE REFERENCES
<p>2. discusses properties of triangles and quadrilaterals related to (2.4.K1h):</p> <ul style="list-style-type: none"> a. sum of the interior angles of any triangle is 180°; b. sum of the interior angles of any quadrilateral is 360°; c. parallelograms have opposite sides that are parallel and congruent, opposite angles are congruent; d. rectangles have angles of 90°, sides may or may not be equal; e. rhombi have all sides equal in length, angles may or may not be equal; f. squares have angles of 90°, all sides congruent; g. trapezoids have one pair of opposite sides parallel and the other pair of opposite sides are not parallel; h. kites have two distinct pairs of adjacent congruent sides. 	<p>Student Edition: 518-523, 532-536 <i>Mid-Chapter Quiz</i> 537 <i>Standardized Test Practice</i> 509 #13</p> <p>Teacher Wraparound Edition: FMC 460F, 477, 520, 533; PA 536; PC 510H</p>
<p>3. recognizes and describes the rotational symmetries and line symmetries that exist in two-dimensional figures (2.4.K1h), e.g., draw a picture with a line of symmetry in it. Explain why it is a line of symmetry.</p>	<p>Student Edition: 524-530 Line of symmetry could be implemented with page 522 #21</p> <p>Teacher Wraparound Edition: AE 526</p>
<p>4. recognizes and uses properties of corresponding parts of similar and congruent triangles and quadrilaterals to find side or angle measures using standard notation for similarity (\sim) and congruence (\cong) (2.4.K1h).</p>	<p>Student Edition: 497-502, 506, 518-523 <i>Practice Test</i> 507 <i>Standardized Test Practice</i> 508 #1</p> <p>Teacher Wraparound Edition: AA 507; AE 519, 520; PA 502, 523</p>
<p>5. knows and describes Triangle Inequality Theorem to determine if a triangle exists (2.4.K1h).</p>	<p>This theorem could be introduced with the Pythagorean Theorem.</p> <p>Student Edition: 485-489</p>
<p>6. ▲ uses the Pythagorean theorem to (2.4.K1h):</p> <ul style="list-style-type: none"> a. determine if a triangle is a right triangle, b. find a missing side of a right triangle where the lengths of all three sides are whole numbers. 	<p>Student Edition: 485-491, 505, 802 <i>Algebra Lab</i> 483-484 <i>Practice Test</i> 507 #11-#14</p> <p>Teacher Wraparound Edition: FMC 460F, 487; PA 490</p>

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7. recognizes and compares the concepts of a point, line, and plane.	Student Edition: 476, 512-517, 580 <i>Practice Test 119 #20</i>
8. describes the intersection of plane figures, e.g., two circles could intersect at no point, one point, two points, or all points.	Student Edition: 524-530 <i>Standardized Test Practice 570 #1</i> Teacher Wraparound Edition: AE 526; DI 525
9. describes and explains angle relationships: a. when two lines intersect including vertical and supplementary angles; b. when formed by parallel lines cut by a transversal including corresponding, alternate interior, and alternate exterior angles.	Student Edition: 512-517, 523 #27, 540, 543 #31-#34, 817 #16 Teacher Wraparound Edition: A 517; AE 514; FMC 513, 541; I 513; PA 517
10. recognizes and describes arcs and semicircles as parts of a circle and uses the standard notation for arc (\frown) and circle (\odot) (2.4.K1h).	The following pages can be used to help meet this standard. Student Edition: 489 #34, 555 #30-#32
Benchmark 2: Measurement and Estimation – The student estimates, measures, and uses geometric formulas in a variety of situations.	
1. determines and uses rational number approximations (estimations) for length, width, weight, volume, temperature, time, perimeter, area, and surface area using standard and nonstandard units of measure (2.4.K1a) (\$).	Student Edition: 51 #4, 58 #37-#40, 88 #5, 162-167, 265 #4, 481 #62, 599 #2, #3, 601 #22 <i>Cross Curricular Project 177, 459</i> <i>Spreadsheet Lab 168</i>
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, perimeter, area, surface area, and angle measurements (2.4.K1a) (\$).	Student Edition: 58 #37-#40, 90 #55, 109 #33, 162-167, 190 #55-#57, 205 #10, 211 #34-#36, 217 #30, 236 #4, 244 #76, 423 #37, 481 #62, 529 #19, 587 #29, 757-758, 797 #2 <i>Cross Curricular Project 177, 459</i> <i>Reading Math 614</i> Teacher Wraparound Edition: AE 210

STANDARDS	PAGE REFERENCES
<p>3. converts within the customary system and within the metric system.</p>	<p>Student Edition: 144 #40-#42, 217 #30, 243 #51-#54, 294 #4, 295 #31-#38, 753-755 <i>Cross Curricular Project</i> 459 <i>Standardized Test Practice</i> 74 #6 Teacher Wraparound Edition: PA 588</p>
<p>4. estimates the measure of a concrete object in one system given the measure of that object in another system and the approximate conversion factor (2.4.K1a), e.g., a mile is about 2.2 kilometers; how far is 2 miles?</p>	<p>Student Edition: 243 #55-#62, 304 #3, #5, 381 #17, #18, 423 #37, 587 #31, 649 #33, #34 <i>Cross Curricular Project</i> 177, 459 <i>Mid-Chapter Quiz</i> 256 #6 Teacher Wraparound Edition: PA 588</p>
<p>5. uses given measurement formulas to find (2.4.K1h):</p> <ol style="list-style-type: none"> area of parallelograms and trapezoids; surface area of rectangular prisms, triangular prisms, and cylinders; volume of rectangular prisms, triangular prisms, and cylinders. 	<p>Student Edition: 200 #55, 545-550, 562 #32, 567, 583-588, 597-601, 616, 617, 786, 787 <i>Cross Curricular Project</i> 459 <i>Geometry Lab</i> 596 <i>Mid-Chapter Quiz</i> 595 #7, #8 <i>Practice Test</i> 569 #12, 619 <i>Standardized Test Practice</i> 696 #6 Teacher Wraparound Edition: AA 619; AE 546, 547, 585, 586, 599; FMC 546, 598; PC 572H</p>
<p>6. recognizes how ratios and proportions can be used to measure inaccessible objects (2.4.K1c), e.g., using shadows to measure the height of a flagpole.</p>	<p>Student Edition: 303-304 #2, 306 #40, 308-312, 471 #4, 497-502, 517 #39, 610-611 #4 <i>Algebra Lab</i> 307 <i>Cross Curricular Project</i> 459 <i>Practice Test</i> 507 Teacher Wraparound Edition: AE 309, 471, 499; DI 499; PA 550</p>
<p>7. calculates rates of change, e.g., speed or population growth.</p>	<p>Student Edition: 371-375, 376-381, 398 #3, 410 Teacher Wraparound Edition: A 375; AE 377</p>

STANDARDS	PAGE REFERENCES
Benchmark 3: Transformational Geometry – The student recognizes and applies transformations on geometric figures in a variety of situations.	
<p>1. identifies, describes, and performs single and multiple transformations [reflection, rotation, translation, reduction (contraction/shrinking), enlargement (magnification/growing)] on a two-dimensional figure (2.4.K1a).</p>	<p>Student Edition: 497, 524-530, 542 #24 <i>Cross Curricular Project</i> 459 <i>Spreadsheet Lab</i> 563 Teacher Wraparound Edition: DI 525; T 497</p>
<p>2. describes a reflection of a given two-dimensional figure that moves it from its initial placement (preimage) to its final placement (image) in the coordinate plane over the x- and y-axis (2.4.K1a,i).</p>	<p>Student Edition: 524, 526, 529 <i>Standardized Test Practice</i> 571 #12</p>
<p>3. draws (2.4.K1a):</p> <ol style="list-style-type: none"> three-dimensional figures from a variety of perspectives (top, bottom, sides, corners); a scale drawing of a two-dimensional figure; a two-dimensional drawing of a three-dimensional figure. 	<p>Student Edition: 310, 311 #5, #19, 312 #25, 577-578, 579, 580 #32, 597, 598, 600 #6, 602 <i>Geometry Lab</i> 574, 596 <i>Practice Test</i> 619 #1 Teacher Wraparound Edition: AE 577</p>
<p>4. determines where and how an object or a shape can be tessellated using single or multiple transformations (2.4.K1a).</p>	<p>Student Edition: 541 #3, 542 #26, #27 <i>Geometry Lab</i> 544</p>
Benchmark 4: Geometry from an Algebraic Perspective – The student uses an algebraic perspective to examine the geometry of two-dimensional figures in a variety of situations.	
<p>1. uses the coordinate plane to (2.4.K1a):</p> <ol style="list-style-type: none"> ▲ list several ordered pairs on the graph of a line and find the slope of the line; ▲ recognize that ordered pairs that lie on the graph of an equation are solutions to that equation; ▲ recognize that points that do not lie on the graph of an equation are not solutions to that equation; ▲ determine the length of a side of a figure drawn on a coordinate plane with vertices having the same x- or y-coordinates; solve simple systems of linear equations. 	<p>Student Edition: 365-369, 384-389, 403-407, 489 #35-#37, 492-496, 526-527 <i>Algebra Lab</i> 383 Teacher Wraparound Edition: AE 386, 405; GLE 367</p>

STANDARDS	PAGE REFERENCES
2. uses a given linear equation with integer coefficients and constants and an integer solution to find the ordered pairs, organizes the ordered pairs using a T-table, and plots the ordered pairs on a coordinate plane (2.4.K1e-g).	Student Edition: 365-369 Teacher Wraparound Edition: AE 366; PA 369
3. examines characteristics of two-dimensional figures on a coordinate plane using various methods including mental math, paper and pencil, concrete objects, and graphing utilities or other appropriate technology (2.4.A1g).	Student Edition: 502 #30
Standard 4: Data – The student uses concepts and procedures of data analysis in a variety of situations.	
Benchmark 1: Probability – The student applies the concepts of probability to draw conclusions, generate convincing arguments, and make predictions and decisions including the use of concrete objects in a variety of situations.	
1. knows and explains the difference between independent and dependent events in an experiment, simulation, or situation (2.4.K1j) (\$).	Student Edition: 682-687, 805 <i>Algebra Lab</i> 688-689 Teacher Wraparound Edition: DI 683
2. identifies situations with independent or dependent events in an experiment, simulation, or situation (2.4.K1j), e.g., there are three marbles in a bag. If you draw one marble and give it to your brother, and another marble and give it to your sister, are these independent events or dependent events?	Student Edition: 682-687 <i>Algebra Lab</i> 688-689 Teacher Wraparound Edition: DI 683
3. ▲ finds the probability of a compound event composed of two independent events in an experiment, simulation, or situation (2.4.K1j), e.g., what is the probability of getting two heads, if you toss a dime and a quarter?	Student Edition: 682-683, 685 #20, 686 #35 Teacher Wraparound Edition: DI 683
4. finds the probability of simple and/or compound events using geometric models (spinners or dartboards) (2.4.K1j).	Student Edition: 665-669, 671 #3, 682, 685 #1, #2, #8, #9 Teacher Wraparound Edition: PA 669
5. finds the odds of a desired outcome in an experiment or simulation and expresses the answer as a ratio (2/3 or 2:3 or 2 to 3) (2.4.K1j).	Student Edition: 665-669 Teacher Wraparound Edition: AE 666; FMC 667; PA 669

STANDARDS	PAGE REFERENCES
<p>6. describes the difference between probability and odds.</p>	<p>The following references describe probability. Student Edition: 665, 669 #38 Teacher Wraparound Edition: FMC 624F</p>
<p>Benchmark 2: Statistics – The student collects, organizes, displays, explains, and interprets numerical (rational) and non-numerical data sets in a variety of situations.</p>	
<p>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.K1k) (\$):</p> <ol style="list-style-type: none"> frequency tables; bar, line, and circle graphs; Venn diagrams or other pictorial displays; charts and tables; stem-and-leaf plots (single and double); scatter plots; box-and-whiskers plots; histograms. 	<p>Student Edition: 28 #3, 61-66, 72, 127 #45-#47, 191, 213 #75, 217 #34-#36, 271 #32, 469, 626-631, 638-642, 644 <i>Algebra Lab</i> 60, 273 <i>Cross Curricular Project</i> 23, 289, 623 <i>Graphing Calculator Lab</i> 67-68, 632, 643, 650 <i>Practice Test</i> 73 <i>Spreadsheet Lab</i> 657 <i>Standardized Test Practice</i> 75 #13, 175 #9 Teacher Wraparound Edition: AE 62, 627, 639, 640, 645, 646; DI 627; PC 624H</p>
<p>2. recognizes valid and invalid data collection and sampling techniques.</p>	<p>Student Edition: 343-347, 352, 659-663, 693, 805 <i>Algebra Lab</i> 273 <i>Cross Curricular Project</i> 623 <i>Practice Test</i> 353 #24 <i>Reading Math</i> 664 Teacher Wraparound Edition: DI 344; PA 656</p>
<p>3. ▲ determines and explains the measures of central tendency (mode, median, mean) for a rational number data set (2.4.K1a).</p>	<p>Student Edition: 274-279, 284 <i>Practice Test</i> 285 #25 <i>Standardized Test Practice</i> 287 #13, 354 #4 Teacher Wraparound Edition: AE 275, 276</p>

STANDARDS	PAGE REFERENCES
4. determines and explains the range, quartiles, and interquartile range for a rational number data set (2.4.K1a).	Student Edition: 633-637, 805 Teacher Wraparound Edition: FMC 635; PA 637
5. explains the effects of outliers on the median, mean, and range of a rational number data set (2.4.K1a).	Teacher Wraparound Edition: FMC 277
6. makes a scatter plot and draws a line that approximately represents the data, determines whether a correlation exists, and if that correlation is positive, negative, or that no correlation exists (2.4.K1k).	Student Edition: 403-407, 412, 428 #47 <i>Practice Test</i> 413 #19, #20 Teacher Wraparound Edition: DI 404; FMC 405; PA 407