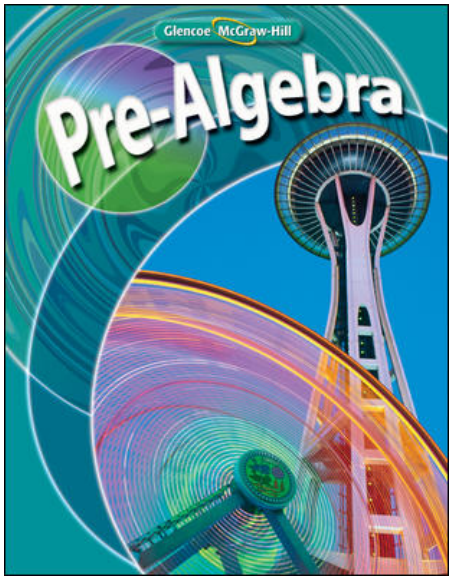
Glencoe

Academic Content Standards
Grade Seven

Ohio



Pre-Algebra

STANDARDS	PAGE REFERENCES
Number, Number Sense and Operations Standard	
Number and Number Systems	
1. Demonstrate an understanding of place value using powers of 10 and write large numbers in scientific notation.	**Student Edition:** 214-218, 222, 244 #75, #76, 318 #73, 797, 820 #3, 825 #2 *Practice Test* 223 *Standardized Test Practice* 224 #2, #5, 225 #12, 287 #11 **Teacher Wraparound Edition** AE 215; DI 215; FMC 216
2. Explain the meaning of exponents that are negative or 0.	**Student Edition:** 209-213 *Practice Test* 223 **Teacher Wraparound Edition** AE 210; FMC 181; PA 213; TNT 218
3. Describe differences between rational and irrational numbers; e.g., use technology to show that some numbers (rational) can be expressed as terminating or repeating decimals and others (irrational) as non-terminating and non-repeating decimals.	**Student Edition:** 228-229, 234-236, 238 #55, 469-474, 490 #51-#54, 504 *Mid-Chapter Quiz* 482 #11-#14 **Teacher Wraparound Edition** A 474; AE 236, 470; DI 235, 470; FMC 235, 471; I&C 236

STANDARDS	PAGE REFERENCES
Meaning of Operations	
4. Use order of operations and properties to simplify numerical expressions involving integers, fractions and decimals.	**Student Edition:** 32-36, 41 #52-#57, 43-47, 53 #43-#46, 59 #62, 70 #15-#21, 109 #33, 196-197, 761 *Algebra Lab* 99 #14 *Mid-Chapter Quiz* 48 #5-#10 *Practice Test* 73 #5-#7 *Standardized Test Practice* 75 #9 **Teacher Wraparound Edition** A 36; AA 119; AE 33, 44; FMC 33, 45; PC 24F; TNT 33
5. Explain the meaning and effect of adding, subtracting, multiplying and dividing integers; e.g., how adding two integers can result in a lesser value.	**Student Edition:** 86-87, 93-97, 100-104, 106-110 *Algebra Lab* 84-85, 92, 99, 105 *Mid-Chapter Quiz* 98 *Practice Test* 119
Computation and Estimation	
6. Simplify numerical expressions involving integers and use integers to solve real-life problems.	**Student Edition:** 32-34, 41 #52-#57, 89, 94 #3, 96, 103, 109, 117-118 *Mid-Chapter Quiz* 48 #5-#10, 98 #14 *Practice Test* 119 *Standardized Test Practice* 120 #1, #2, 286 #1 **Teacher Wraparound Edition** AE 33, 88
7. Solve problems using the appropriate form of a rational number (fraction, decimal or percent).	**Student Edition:** 230 #4, 231 #6, 232 #57, 247 #5, 269 #4, 271, 315 #5, 325, 332-336 *Cross-Curricular Project* 177 *Mid-Chapter Quiz* 256 #6 *Standardized Test Practice* 286 #2
8. Develop and analyze algorithms for computing with percents and integers, and demonstrate fluency in their use.	**Student Edition:** 86 #1, 101, 106 *Algebra Lab* 84-85, 92, 99, 105 *Concept Summary* 108, 324 *Key Concept* 93, 100, 101, 322 *Spreadsheet Lab* 337 **Teacher Wraparound Edition** FMC 87, 94, 101

STANDARDS	PAGE REFERENCES
9. Represent and solve problem situations that can be modeled by and solved using concepts of absolute value, exponents and square roots (for perfect squares).	**Student Edition:** 78-83, 90 #55, 97 #65, 117, 180-184, 203, 209-213, 214-218, 464-468, 504, 781, 802 *Algebra Lab* 185, 208, 462-463 *Mid-Chapter Quiz* 202 #3-#4, 482 #10 **Teacher Wraparound Edition** AE 465; DI 181, 215; FMC 76E, 80, 466; PA 83, 218; PC 178H
Measurement Standard	
Measurement Units	
1. Select appropriate units for measuring derived measurements; e.g., miles per hour, revolutions per minute.	**Student Edition:** 241 #6, 265 #4, 294 #4, 296 #51, 591 #4b *Mid-Chapter Quiz* 48 #3, 202 #30, 319 #2, 482 #21
2. Convert units of area and volume within the same measurement system using proportional reasoning and a reference table when appropriate; e.g., square feet to square yards, cubic meters to cubic centimeters.	**Student Edition:** 206 #36-#37, 213 #62, 309 #1, 587 #26-#28, #30, #31
Use Measurement Techniques and Tools	
3. Estimate a measurement to a greater degree of precision than the tool provides.	**Student Edition:** 40 #31-#32, 51 #4, 211 #35, #36, 241 #6, 380 #5-#6, 499 *Algebra Lab* 307 *Reading Math* 614 **Teacher Wraparound Edition** AE 499; DI 328, 499
4. Solve problems involving proportional relationships and scale factors; e.g., scale models that require unit conversions within the same measurement system.	**Student Edition:** 294 #4, 308-312, 350, 499 #2 **Teacher Wraparound Edition** A 306; AE 309
5. Analyze problem situations involving measurement concepts, select appropriate strategies, and use an organized approach to solve narrative and increasingly complex problems.	**Student Edition:** 296 #49, 305 #31, 309 #1, 325 #26, 425 #2, 428 #39 *Algebra Lab* 507 *Cross-Curricular Project* 177 **Teacher Wraparound Edition** AA 569

STANDARDS	PAGE REFERENCES
6. Use strategies to develop formulas for finding area of trapezoids and volume of cylinders and prisms.	**Student Edition:** 200 #55, 547 #3, 550 #31, 583, 587 #30, #32, 804 *Cross-Curricular Project* 459 *Mid-Chapter Quiz* 595 #12-#14 **Teacher Wraparound Edition** FMC 546; PC 572H; TNT 547, 585
7. Develop strategies to find the area of composite shapes using the areas of triangles, parallelograms, circles and sectors.	**Student Edition:** 558-562, 568, 588 #41 *Cross-Curricular Project* 459 *Practice Test* 569 *Standardized Test Practice* 620 #3, 736 #5 **Teacher Wraparound Edition** AA 569; AE 559, 560
8. Understand the difference between surface area and volume and demonstrate that two objects may have the same surface area, but different volumes or may have the same volume, but different surface areas.	**Student Edition:** 601 #25 **Teacher Wraparound Edition** AA 619; I 603
9. Describe what happens to the surface area and volume of a three- dimensional object when the measurements of the object are changed; e.g., length of sides are doubled.	**Student Edition:** 587 #33, 601 #25, 612 #29 *Geometry Lab* 582 *Practice Test* 619 #14 **Teacher Wraparound Edition** AA 619
Geometry and Spatial Sense Standard	
Characteristics and Properties	
1. Use proportional reasoning to describe and express relationships between parts and attributes of similar and congruent figures.	**Student Edition:** 497-502, 506, 518-523, 530 #34-#37, 536 #35, #36, 565, 608-613, 618 *Geometry Lab* 607 *Mid-Chapter Quiz* 537 #6 *Practice Test* 507 #20 *Standardized Test Practice* 620 #4 **Teacher Wraparound Edition** A 502; AA 507; AE 499, 520; FMC 498; I 498; PA 502, 523

STANDARDS	PAGE REFERENCES
2. Determine sufficient (not necessarily minimal) properties that define a specific two-dimensional figure or three-dimensional object. For example: a. Determine when one set of figures is a subset of another; e.g., all squares are rectangles. b. Develop a set of properties that eliminates all but the desired figure; e.g., only squares are quadrilaterals with all sides congruent and all angles congruent.	**Student Edition:** 478, 497-502, 505, 506, 518-523, 532-536, 576-577, 579, 802 *Mid-Chapter Quiz* 482 #26-#29, 537 *Practice Test* 507 #20 *Standardized Test Practice* 508 #1, 620 #5 **Teacher Wraparound Edition** FMC 477, 498; I 478; PA 502; PC 510H
3. Use and demonstrate understanding of the properties of triangles. For example: a. Use Pythagorean Theorem to solve problems involving right triangles. b. Use triangle angle sum relationships to solve problems.	**Student Edition:** 476-481, 485-490, 492-496, 505, 506, 802 *Algebra Lab* 483-484 *Mid-Chapter Quiz* 482 #22-#25 *Practice Test* 507 *Standardized Test Practice* 509 #13 **Teacher Wraparound Edition** I 498; PA 490
4. Determine necessary conditions for congruence of triangles.	**Student Edition:** 518-523, 530 #34-#37, 565, 803 *Mid-Chapter Quiz* 537 #7 **Teacher Wraparound Edition** I 519; PA 523
5. Apply properties of congruent or similar triangles to solve problems involving missing lengths and angle measures.	**Student Edition:** 497-502, 506, 518-523, 565, 581 #37, 803 **Teacher Wraparound Edition** AE 519, 520; I 519; PA 502
Spatial Relationships	
6. Determine and use scale factors for similar figures to solve problems using proportional reasoning.	**Student Edition:** 498, 608-613, 618 *Geometry Lab* 607 **Teacher Wraparound Edition** TNT 610
Transformations and Symmetry	
7. Identify the line and rotation symmetries of two-dimensional figures to solve problems.	**Student Edition:** *Geometry Lab* 531 **Teacher Wraparound Edition** A 531

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8. Perform translations, reflections, rotations and dilations of two-dimensional figures using a variety of methods (paper folding, tracing, graph paper).	**Student Edition:** 524-530, 536 #34, 566, 580 *Geometry Lab* 544 *Spreadsheet Lab* 563 *Standardized Test Practice* 571 #12 **Teacher Wraparound Edition** DI 525; FMC 526; PA 530
Visualization and Geometric Models	
9. Draw representations of three-dimensional geometric objects from different views.	**Student Edition:** 577-579, 581 #33, 600 #1-#3, #7-#16 *Geometry Lab* 574 **Teacher Wraparound Edition** DI 577
Patterns, Functions and Algebra Standard	
Use Patterns, Relations and Functions	
1. Represent and analyze patterns, rules and functions with words, tables, graphs and simple variable expressions.	**Student Edition:** 27, 154 #3, 158-161, 172, 203, 297-300, 357, 767 *Algebra Lab* 99, 105 *Mid-Chapter Quiz* 319 #6-#7 *Practice Test* 173 #23, 353 #5 *Standardized Test Practice* 121 #9, 224 #6, #8, 415 #11, 456 #4, 737 #12 **Teacher Wraparound Edition** A 99; PA 59; PC 226H, 356H
2. Generalize patterns by describing in words how to find the next term.	**Student Edition:** 27, 29, 154 #3, 158-161, 194 #43-#44, 203, 767 *Practice Test* 173 #23 *Standardized Test Practice* 121 #9, 174 #1, 224 #6, 415 #11, 456 #3
3. Recognize and explain when numerical patterns are linear or nonlinear progressions; e.g., 1, 3, 5, 7... is linear and 1, 3, 4, 8, 16... is nonlinear.	**Student Edition:** 27, 161 #34, 357, 720-721 *Cross-Curricular Project* 623, 722 *Graphing Calculator Lab* 364, 395 *Standardized Test Practice* 456 #3, #4

STANDARDS	PAGE REFERENCES
Use Algebraic Representations	
4. Create visual representations of equation-solving processes that model the use of inverse operations.	**Student Edition:** 136-139, 141-145, 268-272, 284, 420-423, 711 *Algebra Lab* 134-135, 418-419 *Mid-Chapter Quiz* 146 #11-#14 **Teacher Wraparound Edition** AA 173; FMC 137, 711; I 142
5. Represent linear equations by plotting points in the coordinate plane.	**Student Edition:** 365-369, 409 *Mid-Chapter Quiz* 382 #8, #9 *Practice Test* 413 #4, #5 **Teacher Wraparound Edition** AE 367; PA 369; TNT 366
6. Represent inequalities on a number line or a coordinate plane.	**Student Edition:** 432-434, 437 #7-#10, 443, 446-448, 453, 454 *Mid-Chapter Quiz* 440 #11 *Practice Test* 455 **Teacher Wraparound Edition** A 433; AE 443; FMC 432; PA 428, 450
7. Justify that two forms of an algebraic expression are equivalent, and recognize when an expression is simplified; e.g., $4m = m + m + m + m$ or $a \bullet 5 + 4 = 5a + 4$.	**Student Edition:** 45 #4, 46 #38-#46, 53 #37-#40, 66 #37, 102 #12-#14, 103 #33-#44, 129-133, 170, 347 #24-#27, 765 *Mid-Chapter Quiz* 48 #21-#24 *Practice Test* 173 #3-#6 *Study Tip* 130 **Teacher Wraparound Edition** AE 45; FMC 131; PA 133
8. Use formulas in problem-solving situations.	**Student Edition:** 51 #8, #9, 96 #48, #49, 109 #30, #31, 162-167, 172, 334 #5, 423 #37, 797 #3, 800 **Teacher Wraparound Edition** PA 104

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9. Recognize a variety of uses for variables; e.g., placeholder for an unknown quantity in an equation, generalization for a pattern, formula.	**Student Edition:** 37-41, 49-53, 158-161, 162-167, 172, 423 #37, 796 *Key Concept* 136, 137, 141 *Mid-Chapter Quiz* 146 #16 *Practice Test* 173 #23 *Reading Math* 152 *Study Tip* 418 **Teacher Wraparound Edition** AE 159; FMC 164
Analyze Change	
10. Analyze linear and simple nonlinear relationships to explain how a change in one variable results in the change of another.	**Student Edition:** 359-369, 371-375, 376-381, 720-725 *Algebra Lab* 358 *Mid-Chapter Quiz* 382 #16 *Practice Test* 413 #6 **Teacher Wraparound Edition** A 375; FMC 367, 373
11. Use graphing calculators or computers to analyze change; e.g., distance-time relationships.	**Student Edition:** *Graphing Calculator Lab* 364, 390, 395 *Spreadsheet Lab* 168, 337
Data Analysis and Probability Standard	
Data Collection	
1. Read, create and interpret box-and-whisker plots, stem-and-leaf plots, and other types of graphs, when appropriate.	**Student Edition:** 61-66, 127 #45-#47, 217 #34-#36, 555 #27-#29, 626-631, 633-637, 638-642, 651-656, 663 #17, 797 #6, 805 *Algebra Lab* 60 *Graphing Calculator Lab* 632, 643, 657 *Mid-Chapter Quiz* 658 *Practice Test* 695 #10, #11 **Teacher Wraparound Edition** AA 695; PC 624H

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2. Analyze how decisions about graphing affect the graphical representation; e.g., scale, size of classes in a histogram, number of categories in a circle graph.	**Student Edition:** 325 #27, #28, 347, 555 #27-#29, 644-649, 651-656, 659-663, 667, 693, 797 #6 *Algebra Lab* 273 *Graphing Calculator Lab* 643, 650 *Practice Test* 695 *Spreadsheet Lab* 557 *Standardized Test Practice* 696 #3, 697 #14 **Teacher Wraparound Edition** AA 695; DI 652; PC 624H
Statistical Methods	
3. Analyze a set of data by using and comparing combinations of measures of center (mean, mode, median) and measures of spread (range, quartile, interquartile range), and describe how the inclusion or exclusion of outliers affects those measures.	**Student Edition:** 274-279, 284, 296 #54, 300 #28, #29, 633-637, 642 #26, #27 *Graphing Calculator Lab* 280 *Practice Test* 285 #24 *Standardized Test Practice* 287 #13, 354 #4 **Teacher Wraparound Edition** AE 275-276, 634, 635; FMC 277, 634; PA 637, 649
4. Construct opposing arguments based on analysis of the same data, using different graphical representations.	**Student Edition:** 61-66, 213 #75, #76, 628-631, 638-641, 644-648, 651-656, 691-693, 805 *Cross-Curricular Project* 623 *Graphing Calculator Lab* 67-68, 643 *Spreadsheet Lab* 657 *Standardized Test Practice* 75 #13 **Teacher Wraparound Edition** PC 624H
5. Compare data from two or more samples to determine how sample selection can influence results.	**Student Edition:** 287, 343, 345 #4, 346 #13, #14, 648 #2, #3, #25 *Algebra Lab* 273, 307 *Cross-Curricular Project* 289, 623 **Teacher Wraparound Edition** A 347; AA 307; DI 44, 344; PC 624H

STANDARDS	PAGE REFERENCES
6. Identify misuses of statistical data in articles, advertisements, and other media.	**Student Edition:** 659-663, 669 #41, 674 #35, 693 *Cross-Curricular Project* 623 *Practice Test* 695 #12 *Reading Math* 664 **Teacher Wraparound Edition** A 649, 663; PA 663; T 664
Probability	
7. Compute probabilities of compound events; e.g., multiple coin tosses or multiple rolls of number cubes, using such methods as organized lists, tree diagrams and area models.	**Student Edition:** 682-687, 694 **Teacher Wraparound Edition** FMC 684
8. Make predictions based on theoretical probabilities, design and conduct an experiment to test the predictions, compare actual results to predicted results, and explain differences.	**Student Edition:** 666-667