



Pre-Algebra

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STANDARDS	PAGE REFERENCES
Number, Number Sense and Operations Standard	
<i>Number and Number Systems</i>	
1. Use scientific notation to express large numbers and small numbers between 0 and 1.	Student Edition: 214-218, 222 <i>Practice Test</i> 223 <i>Standardized Test Practice</i> 224 #2, #5, 225 #12, 287 #11
2. Recognize that natural numbers, whole numbers, integers, rational numbers and irrational numbers are subsets of the real number system.	Student Edition: 234-238, 282, 469-474, 490 #51-#54, 504 <i>Mid-Chapter Quiz</i> 482 #11-#14
<i>Meaning of Operations</i>	
3. Apply order of operations to simplify expressions and perform computations involving integer exponents and radicals.	Student Edition: 32-36, 37-41, 182, 195 #67, 206 #45-#48, 213 #70, 220 <i>Mid-Chapter Quiz</i> 48 #5-#10 <i>Standardized Test Practice</i> 286 #1

STANDARDS	PAGE REFERENCES
<p>4. Explain and use the inverse and identity properties and use inverse relationships (addition/subtraction, multiplication/division, squaring/square roots) in problem solving situations.</p>	<p>Student Edition: 44, 71, 130(c), 136-140, 140 #3, #4, 245-249, 283, 420-423, 424-428, 464-468, 711, 719 #33 <i>Algebra Lab</i> 55 #12, 462-463 <i>Mid-Chapter Quiz</i> 482 #1, #11-#14 <i>Practice Test</i> 285, 455</p>
<i>Computation and Estimation</i>	
<p>5. Determine when an estimate is sufficient and when an exact answer is needed in problem situations, and evaluate estimates in relation to actual answers; e.g., very close, less than, greater than.</p>	<p>Student Edition: 28 #3, 88 #5, 94 #3, 108 #4, 125 #2, 154 #3, 240 #4, 343-347, 467 #29, #30, 610-611 #4, 707 #2 <i>Spreadsheet Lab</i> 168 <i>Standardized Test Practice</i> 355 #7</p>
<p>6. Estimate, compute and solve problems involving rational numbers, including ratio, proportion and percent, and judge the reasonableness of solutions.</p>	<p>Student Edition: 292-296, 302-306, 308-312, 328-331, 799, 811 #3 <i>Algebra Lab</i> 307 <i>Mid-Chapter Quiz</i> 319 <i>Practice Test</i> 353 #15-#18 <i>Reading Math</i> 301</p>
<p>7. Find the square root of perfect squares, and approximate the square root of non-perfect squares as consecutive integers between which the root lies; e.g., $\sqrt{130}$ is between 11 and 12.</p>	<p>Student Edition: 464-468, 474 #62-#65, 504, 781, 802 <i>Algebra Lab</i> 462-463 <i>Mid-Chapter Quiz</i> 482 #5-#8 <i>Practice Test</i> 507</p>
<p>8. Add, subtract, multiply, divide and compare numbers written in scientific notation.</p>	<p>Student Edition: 214-218, 222, 797 #10-#15 <i>Practice Test</i> 223 <i>Standardized Test Practice</i> 224 #2, #5, 225 #12</p>
Measurement Standard	
<i>Measurement Units</i>	
<p>1. Compare and order the relative size of common U.S. customary units and metric units; e.g., mile and kilometer, gallon and liter, pound and kilogram.</p>	<p>Student Edition: 243 #51-#62, 295 #31-#38, 753-756, 771</p>
<p>2. Use proportional relationships and formulas to convert units from one measurement system to another; e.g., degrees Fahrenheit to degrees Celsius.</p>	<p>Student Edition: 109 #33, 144 #40-#42, 162-167, 172, 291, 304 #3, 308-312 <i>Mid-Chapter Quiz</i> 319</p>

STANDARDS	PAGE REFERENCES
<i>Use Measurement Techniques and Tools</i>	
3. Use appropriate levels of precision when calculating with measurements.	Student Edition: <i>Reading Math</i> 614
4. Derive formulas for surface area and volume and justify them using geometric models and common materials. For example, find: <ol style="list-style-type: none"> the surface area of a cylinder as a function of its height and radius; that the volume of a pyramid (or cone) is one-third of the volume of a prism (or cylinder) with the same base area and height. 	Student Edition: 583-588, 589-594, 597-601, 602-606, 616-618, 631 #34-#36, 786-787, 804 <i>Geometry Lab</i> 582, 596 <i>Mid-Chapter Quiz</i> 595 <i>Practice Test</i> 619 <i>Standardized Test Practice</i> 621
5. Determine surface area for pyramids by analyzing their parts.	Student Edition: 602-606, 613 #37, 618, 804 #10 <i>Practice Test</i> 619 #11 <i>Standardized Test Practice</i> 621 #6
6. Solve and determine the reasonableness of the results for problems involving rates and derived measurements, such as velocity and density, using formulas, models and graphs.	Student Edition: 162-167, 172, 179 #25, 213 #70, 241 #6, 292-296, 349, 471 #4, 481 #62, 587 #29, 591 #4, 804 <i>Geometry Lab</i> 582 <i>Mid-Chapter Quiz</i> 319 <i>Reading Math</i> 301 <i>Spreadsheet Lab</i> 168
7. Apply proportional reasoning to solve problems involving indirect measurements or rates.	Student Edition: 241 #6, 292-296, 297-300, 302-306, 308-312, 322-326, 349, 350, 353 #23, 354 #1, 497-502, 610 #4 <i>Algebra Lab</i> 307 <i>Mid-Chapter Quiz</i> 256 #12, 319 <i>Practice Test</i> 507
8. Find the sum of the interior and exterior angles of regular convex polygons with and without measuring the angles with a protractor.	With the definition of <i>convex</i> provided, the following references including exterior angles could be used to meet this standard. Student Edition: 540-543 Ex 32-34 Also see Glencoe's <i>Geometry</i> © 2008 Lesson 6-1.

STANDARDS	PAGE REFERENCES
<p>9. Demonstrate understanding of the concepts of perimeter, circumference and area by using established formulas for triangles, quadrilaterals, and circles to determine the surface area and volume of prisms, pyramids, cylinders, spheres and cones. (Note: Only volume should be calculated for spheres and cones.)</p>	<p>Student Edition: 132 #48, #49, 133 #60, 163-167, 172, 183 #59, #60, 244, 271 #41, 427 #26-#28, #35, 545-550, 551-556, 567, 583-588, 589-594, 597-601, 602-606, 616-618, 807, 808, 817 #18, 821 <i>Mid-Chapter Quiz</i> 146, 595 <i>Practice Test</i> 173 #24, 223 #15, 455 #12, 569 <i>Spreadsheet Lab</i> 168, 563 <i>Standardized Test Practice</i> 174 #2, 225 #10, 570, 571, 620</p>
<p>10. Use conventional formulas to find the surface area and volume of prisms, pyramids and cylinders and the volume of spheres and cones to a specified level of precision.</p>	<p>Student Edition: 583-588, 589-594, 597-601, 602-606, 804 #8, #13 <i>Standardized Test Practice</i> 621</p>
<p>Geometry and Spatial Sense Standard</p>	
<p><i>Characteristics and Properties</i></p>	
<p>1. Make and test conjectures about characteristics and properties (e.g., sides, angles, symmetry) of two-dimensional figures and three-dimensional objects.</p>	<p>Student Edition: 476, 489 #34, #40, #41, 497(h), 502 #37, 518-523, 535 #28, #29, 539(d) <i>Algebra Lab</i> 484 <i>Activity 2</i></p>
<p>2. Recognize the angles formed and the relationship between the angles when two lines intersect and when parallel lines are cut by a transversal.</p>	<p>Student Edition: 512-517, 565 <i>Mid-Chapter Quiz</i> 537 #4, #5 <i>Practice Test</i> 569</p>
<p>3. Use proportions in several forms to solve problems involving similar figures (part-to-part, part-to-whole, corresponding sides between figures).</p>	<p>Student Edition: 497-502, 506, 519-523, 803 <i>Practice Test</i> 507</p>
<p><i>Spatial Relationships</i></p>	
<p>4. Represent and analyze shapes using coordinate geometry; e.g., given three vertices and the type of quadrilateral, find the coordinates of the fourth vertex.</p>	<p>Student Edition: 113 #9, 524-530, 566, 803 <i>Practice Test</i> 119 #33 <i>Standardized Test Practice</i> 174 #6</p>

STANDARDS	PAGE REFERENCES
<i>Transformations and Symmetry</i>	
5. Draw the results of translations, reflections, rotations and dilations of objects in the coordinate plane, and determine properties that remain fixed; e.g., lengths of sides remain the same under translations.	Student Edition: 524-530, 541-543, 566 <i>Geometry Lab</i> 531, 544 <i>Mid-Chapter Lab</i> 537 <i>Spreadsheet Lab</i> 563 <i>Standardized Test Practice</i> 571
<i>Visualization and Geometric Models</i>	
6. Draw nets for a variety of prisms, pyramids, cylinders and cones.	Student Edition: 597, 598, 600, 602, 603, 604 <i>Geometry Lab</i> 582, 596
Patterns, Functions and Algebra Standard	
<i>Use Patterns, Relations and Functions</i>	
1. Relate the various representations of a relationship; i.e., relate a table to graph, description and symbolic form.	Student Edition: 27, 29, 158-161, 180, 184 #68, 203, 209, 359-363, 365-369, 384-389, 397-401, 409, 410 <i>Mid-Chapter Quiz</i> 48 <i>Practice Test</i> 413 <i>Standardized Test Practice</i> 414-415
2. Generalize patterns and sequences by describing how to find the n th term.	Student Edition: 27, 29, 158-161, 167 #45, #46, 172, 180, 184 #68, 297, 737 #9 <i>Practice Test</i> 173 #23 <i>Standardized Test Practice</i> 75 #7, 415 #11
3. Identify functions as linear or nonlinear based on information given in a table, graph or equation.	Student Edition: 365-369, 397-402, 409, 411, 720-725, 734, 806 <i>Practice Test</i> 413 <i>Standardized Test Practice</i> 414, 415
<i>Use Algebraic Representations</i>	
4. Extend the uses of variables to include covariants where y depends on x .	Student Edition: 365-369, 397-402, 409, 411, 720-725, 726-730, 734 <i>Graphing Calculator Lab</i> 364, 395-396, 731 <i>Practice Test</i> 413, 735

STANDARDS	PAGE REFERENCES
5. Use physical models to add and subtract monomials and polynomials, and to multiply a polynomial by a monomial.	Student Edition: 706-709, 710-713, 716-719, 733, 734 <i>Algebra Lab</i> 705, 715 <i>Mid-Chapter Quiz</i> 714 <i>Practice Test</i> 735
6. Describe the relationship between the graph of a line and its equation, including being able to explain the meaning of slope as a constant rate of change and y -intercept in real-world problems.	Student Edition: 365-369, 371-375, 376-381, 384-389, 391-394 <i>Algebra Lab</i> 383 <i>Graphing Calculator Lab</i> 395 <i>Mid-Chapter Quiz</i> 382
7. Use symbolic algebra (equations and inequalities), graphs and tables to represent situations and solve problems.	Student Edition: 136-140, 141-145, 147-151, 153-157, 171, 397-402, 411, 420-423, 424-428, 430-434, 435-439, 441-445, 446-450, 452-454 <i>Algebra Lab</i> 134-135, 418-419 <i>Mid-Chapter Quiz</i> 146, 440 <i>Standardized Test Practice</i> 174-175, 457
8. Write, simplify and evaluate algebraic expressions (including formulas) to generalize situations and solve problems.	Student Edition: 32-36, 37-41, 45-46, 71, 104, 109 #33, 129-133, 145, 170, 196-200, 221 <i>Mid-Chapter Quiz</i> 48, 98, 146, 202 <i>Practice Test</i> 73, 119, 173 <i>Reading Math</i> 31, 201
9. Solve linear equations and inequalities graphically, symbolically and using technology.	Student Edition: 136-140, 141-145, 147-151, 153-157, 170-171, 365-369, 420-423, 424-428, 430-434, 435-439, 441-445, 446-450, 452-454 <i>Algebra Lab</i> 134-135, 418-419 <i>Mid-Chapter Quiz</i> 440 <i>Practice Test</i> 173, 413, 455
10. Solve 2 by 2 systems of linear equations graphically and by simple substitution.	Student Edition: 372 #2, 374 #11, 397 (with explanation) <i>Graphing Calculator Lab</i> 395-396 <i>Mid-Chapter Quiz</i> 382 #12
11. Interpret the meaning of the solution of a 2 by 2 system of equations; i.e., point, line, no solution.	See Glencoe's <i>Algebra 1</i> © 2008 Lesson 5-1.

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12. Solve simple quadratic equations graphically; e.g., $y = x^2 - 16$.	Student Edition: 726-730, 734 <i>Graphing Calculator Lab</i> 731 <i>Practice Test</i> 735 <i>Standardized Test Practice</i> 737
13. Compute and interpret slope, midpoint and distance given a set of ordered pairs.	Student Edition: 384-389, 410, 492-496, 506 <i>Algebra Lab</i> 383 <i>Practice Test</i> 413 <i>Standardized Test Practice</i> 414, 509
<i>Analyze Change</i>	
14. Differentiate and explain types of changes in mathematical relationships, such as linear vs. nonlinear, continuous vs. noncontinuous, direct variation vs. inverse variation.	Student Edition: 363, 365-369, 371-375, 376-381, 409-410, 720-725, 734 <i>Graphing Calculator Lab</i> 390 <i>Mid-Chapter Quiz</i> 382 <i>Practice Test</i> 735 <i>Standardized Test Practice</i> 414
15. Describe and compare how changes in an equation affects the related graphs; e.g., for a linear equation changing the coefficient of x affects the slope and changing the constant affects the intercepts.	Student Edition: 365-369, 371-375, 376-381, 384-389, 391-394, 409-411 <i>Graphing Calculator Lab</i> 390, 395-396 <i>Practice Test</i> 413 <i>Standardized Test Practice</i> 415
16. Use graphing calculators or computers to analyze change; e.g., interest compounded over time as a nonlinear growth pattern.	Student Edition: 325 #26 <i>Cross-Curricular Project</i> 289 <i>Graphing Calculator Lab</i> 390, 395-396 <i>Spreadsheet Lab</i> 337

STANDARDS	PAGE REFERENCES
Data Analysis and Probability Standard	
<i>Data Collection</i>	
<p>1. Use, create and interpret scatterplots and other types of graphs as appropriate.</p>	<p>Student Edition: 61-66, 72, 651-656, 693, 759-760 <i>Algebra Lab</i> 60, 273 <i>Cross-Curricular Project</i> 289 <i>Graphing Calculator Lab</i> 67-68 <i>Mid-Chapter Quiz</i> 658 <i>Practice Test</i> 73, 413 #19, #20, 695 <i>Spreadsheet Lab</i> 657 <i>Standardized Test Practice</i> 75, 175 #9</p>
<p>2. Evaluate different graphical representations of the same data to determine which is the most appropriate representation for an identified purpose; e.g., line graph for change over time, circle graph for part-to-whole comparison, scatterplot for relationship between two variants.</p>	<p>Student Edition: 61-66, 279 #21, 325 #27, #28, 347 #20, 375 #15, 403-407, 412, 555 #27-#29, 645, 651-656, 693, 759-760 <i>Algebra Lab</i> 60 <i>Cross-Curricular Project</i> 23, 289, 623 <i>Graphing Calculator Lab</i> 67-68 <i>Mid-Chapter Quiz</i> 382 #12, 658 <i>Practice Test</i> 73, 413, 695 <i>Spreadsheet Lab</i> 657 <i>Standardized Test Practice</i> 75, 175</p>
<p>3. Differentiate between discrete and continuous data and appropriate ways to represent each.</p>	<p>After definitions are provided, the following pages could be used to meet this standard. Student Edition: 651-656, 759 <i>Study Tip</i> 372 Also see Glencoe's <i>Algebra 1</i> © 2008 Lesson 1-9.</p>
<i>Statistical Methods</i>	
<p>4. Compare two sets of data using measures of center (mean, mode, median) and measures of spread (range, quartiles, interquartile range, percentiles).</p>	<p>Student Edition: 274-279, 284, 633-637, 642 #26, 653 <i>Algebra Lab</i> 273 <i>Graphing Calculator Lab</i> 280 <i>Practice Test</i> 285 #25 <i>Standardized Test Practice</i> 286 #6, 287 #13, 354 #4</p>

STANDARDS	PAGE REFERENCES
5. Explain the mean's sensitivity to extremes and its use in comparison with the median and mode.	Student Edition: 274-279, 284, 798 #11-#14 <i>Practice Test</i> 285 <i>Standardized Test Practice</i> 286 #6, 287 #13
6. Make conjectures about possible relationship in a scatterplot and approximate line of best fit.	Student Edition: 61-66, 72, 83, 151 #67, #68, 190 #63, #64, 403-407, 412, 474 #67, 794 #13, 800 #14, #15 <i>Algebra Lab</i> 60 <i>Graphing Calculator Lab</i> 67-68 <i>Practice Test</i> 73 #16, 413 <i>Standardized Test Practice</i> 74-75, 175, 415
7. Identify different ways of selecting samples, such as survey response, random sample, representative sample and convenience sample.	Student Edition: 343-347, 352, 799 <i>Algebra Lab</i> 273, 307
8. Describe how the relative size of a sample compared to the target population affects the validity of predictions.	Student Edition: 343-347, 352, 667 #4, 668 #22, 799 <i>Algebra Lab</i> 307 <i>Mid-Chapter Quiz</i> 319 #16
9. Construct convincing arguments based on analysis of data and interpretation of graphs.	Student Edition: 343-347, 655 #18, #19, 659-663, 667 #4, 693, 799 <i>Algebra Lab</i> 273, 307 <i>Practice Test</i> 353 #24 <i>Reading Math</i> 664
<i>Probability</i>	
10. Calculate the number of possible outcomes for a situation, recognizing and accounting for when items may occur more than once or when order is important.	Student Edition: 665-669, 670-674, 676-680, 693, 694, 805, 817 <i>Algebra Lab</i> 675, 688-689 <i>Practice Lab</i> 695 <i>Standardized Test Practice</i> 697
11. Demonstrate an understanding that the probability of either of two disjoint events occurring can be found by adding the probabilities for each and that the probability of one independent event following another can be found by multiplying the probabilities.	Student Edition: 682-687, 704 #42, #43, 709 #37-#39, 805