



IDAHO
Mathematics Standards Grades 9 Through 12
Algebra 1 © 2003

OBJECTIVES	PAGE REFERENCES
347. BASIC ARITHMETIC, ESTIMATION, AND ACCURATE COMPUTATIONS	
01. Understand and use numbers.	
a. Understand and use positive and negative numbers, fractions, decimals, percentages, and scientific notation.	SE: 68-69, 144, 175 #25, 425-427, 429 #43, 430 #64-67, 456 #49-51, 469 #19, 802-803
b. Understand properties of the real number system.	SE: 68-70, 72 #62, 73-75, 76 #1, 78 #65, 79-81, 82 #55, 84-85, 86 #3, 104-106
c. Understand properties of roots, exponents, and logarithms.	SE: 103-106, 425-427, 533-535, 539-541, 543 #50, 546-549, 554-558, 561-563, 567-570, 586-589
d. Use number theory concepts (e.g., divisibility rules, factors, multiples, primes) to solve problems.	SE: 41 #47-49, 68-70, 79-81, 103-106, 153 #42-43, 336 #51-52, 474-477, 493 #55, 508-510
02. Perform computations accurately.	
a. Use the proper order of operations. Perform operations with real numbers.	SE: 11-13, 14 #40, 15 #44, 17, 58, 73-75, 79-80, 84-85, 140 #67-70, 181
b. Use graphs, matrices, and sequences to represent and solve problems.	SE: 43-45, 50-52, 55 #17, 218-220, 233-235, 715-717 <i>Algebra Activity 49</i> <i>Graphing Calculator Investigation 224-225</i> <i>Spreadsheet Investigation 56</i>
03. Estimate and judge reasonableness of results.	
a. Apply number sense to everyday situations.	SE: 16-18, 52, 142-144, 147 #51-52, 535, 609 #46-47, 614 #40-42, 616-618, 623-627 <i>Study Tip 50</i>
348. MATHEMATICAL REASONING AND PROBLEM SOLVING	
01. Understand and use a variety of problem-solving skills.	
a. Use a variety of methods, including common mathematical formulas, to solve problems drawn from daily life.	SE: 50-52, 76 #16, 82 #50, 87 #55, 94 #39-41, 133 #56-57, 606-607, 609 #46-47, 620 #31 <i>Algebra Activity 49</i>
02. Use reasoning skills to recognize problems and express them mathematically.	
a. Use inductive and deductive reasoning to set up a problem.	SE: 37-39, 41 #30-35, 42 #50, 240-243, 244 #12-13, 245 #34, 539-541, 605-607, 629 #61-62 <i>Reading Mathematics 239</i>
b. Use logic to make mathematical proofs.	SE: 38-39, 40 #10-12, 41 #30-35, 605-607, 616-618 <i>Reading Mathematics 239</i>
c. Make and evaluate logical arguments.	SE: 37-39, 40 #10-12, 41 #30-35, 42 #50, 61, 616-618, 629 #61-62 <i>Algebra Activity 102</i> <i>Reading Mathematics 239</i>

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03. Apply appropriate technology and models to find solutions to problems.	
a. Understand the purpose and capabilities of appropriate technology.	SE: <i>Graphing Calculator Investigation</i> 204, 224-225, 278-279, 306-307, 375, 531-532, 553, 729-730 <i>Spreadsheet Investigation</i> 56, 232
b. Understand the nature and use of mathematical models.	SE: 274, 460, 540, 611-612, 616-618 <i>Algebra Activity</i> 49, 127, 271, 525, 622
04. Communicate results using appropriate terminology and methods.	
a. Select the appropriate means to communicate mathematical information.	SE: 43-45, 50-52, 88-90, 298-301, 524-526, 722-724, 737-739 <i>Algebra Activity</i> 743-744 <i>Graphing Calculator Investigation</i> 224-225 <i>Reading Mathematics</i> 263
349. CONCEPTS AND PRINCIPLES OF MEASUREMENT	
01. Understand and use U.S. customary and metric measurements.	
a. Determine length, area, capacity, weight, time, and temperature, with appropriate units.	SE: 142, 448 #62, 605-607, 611-612, 614 #37, 616-618, 623-627, 629 #61-62, 630 #63-64, 663 #38-39
02. Apply concepts of rates and other derived or indirect measurements.	
a. Understand equivalent units, comparable units, and conversions.	SE: 167-168, 169 #40, 656 #4, 658 #35-37, 661 #5, 663 #40-41
03. Apply the concepts of ratios and proportions.	
a. Understand and use proportions, ratios, and scaling.	SE: 157 #5, 159 #33, 264-267, 269 #52-53, 309, 609 #46-47, 614 #37, 618, 620 #31-32, 626
04. Apply dimensional analysis.	
1. Understand units and their relationship to one another and to real-world applications.	SE: 167-168, 169 #40, 656 #4, 658 #35-37, 661 #5, 663 #40-41
05. Perform error analysis.	
a. Understand tolerance, precision, and their applications.	SE: 349 #13, 350 #51, 351 #53, 731-733, 734 #4-5, 737-739, 741 #36-38
b. Understand that error accumulates in a computation when there is rounding at intermediate steps.	See <i>Tips for New Teachers</i> in Glencoe's <i>Geometry</i> © 2004 page 611.
350. CONCEPTS AND LANGUAGE OF ALGEBRA	
01. Use algebraic symbolism as a tool to represent mathematical relationships.	
a. Understand and use variables, expressions, equations, and inequalities.	SE: 6-7, 44, 120-123, 126-131, 135-137, 155-157, 318-321, 332-334, 339-341, 352-355
02. Evaluate algebraic expressions.	
a. Understand and use procedures for operating on algebraic expressions.	SE: 11-13, 14 #38-39, 28 #5, 30 #27-28, 31 #52-53, 32-34, 35 #42-43, 649-650 <i>Reading Mathematics</i> 665
03. Solve algebraic equations and inequalities.	
a. Understand and use appropriate procedures to solve linear equations and inequalities such as $3x - 4 = 2$ or $3x - 4 > 2$.	SE: 128-131, 135-137, 142-144, 149-151, 218-220, 272-274, 280-283, 286-288, 318-320, 332-334

OBJECTIVES	PAGE REFERENCES
b. Use appropriate procedures to simplify and solve polynomial equations and inequalities such as $x^2 + 3x = 7$ or $x^2 + 3x \leq 7$.	SE: 439-440, 442 #36-40, 444-445, 448 #63, 452-454, 456 #53, 458-461, 666-668 <i>Algebra Activity</i> 437-438, 450-451
04. Solve simple linear systems of equations or inequalities.	
a. Understand and use appropriate procedures to solve simple linear systems of equations and inequalities such as $x + y = 7$ $2x + 3y = 21$ or $x + y < 7$ $2x + 3y > 21$.	SE: 369-371, 373 #46-47, 374 #58, 376-378, 379 #10, 382-384, 387-390, 394-396 <i>Graphing Calculator Investigation</i> 375 <i>Spreadsheet Investigation</i> 368
351. CONCEPTS AND PRINCIPLES OF GEOMETRY	
01. Apply concepts of size, shape, and spatial relationships.	
a. Understand congruence and similarity as they apply to reflection, rotation, and translation.	SE: 197-200, 201 #11-16, 202 #39, 203 #44-46, 211 #57-59, 247, 415 #71-73
b. Understand scaling as it relates to size variations in one, two, and three-dimensional objects, while shape is maintained.	SE: 157 #4, 159 #33, 269 #52-53, 609 #46-47, 614 #40-42, 616-618, 620 #31-32 <i>Algebra Activity</i> 626
02. Apply the geometry of right triangles.	
a. Understand the basic concepts of right triangle trigonometry (e.g., basic trigonometry ratios such as sine, cosine, and tangent).	SE: 623-626, 629 #61-62, 630 #63-64, 636 <i>Algebra Activity</i> 622
b. Use trigonometric ratio methods to solve problems.	SE: 623-625, 627 #4-5, 629 #61-62, 630 #63-64, 636 <i>Algebra Activity</i> 626
c. Know and apply the Pythagorean Theorem to solve real-world problems.	SE: 605-607, 608 #13-18, 609 #46-47, 610 #52, 611-612, 613 #11-12, 614 #37, 634
03. Apply graphing in two dimensions.	
a. Understand concepts of the Cartesian Coordinate System.	SE: 43-45, 46 #6-8, 192-194, 218-220, 256-259, 264-267, 272-274, 280-283 <i>Graphing Calculator Investigation</i> 204, 224-225
b. Understand the characteristics and uses of vectors.	See Glencoe's <i>Geometry</i> © 2004 Lesson 9-6 pages 498-505.
352. DATA ANALYSIS, PROBABILITY, AND STATISTICS	
01. Understand data analysis.	
a. Read and interpret tables, charts, and graphs (e.g., scatter plots, line graphs, 3-dimensional graphs, and pie charts).	SE: 43-45, 50-52, 53 #6-9, 55 #17, 62, 218-220, 223 #75-78, 806-809 <i>Algebra Activity</i> 49 <i>Graphing Calculator Investigation</i> 224-225
02. Collect, organize, and display data.	
b. Collect and organize data, and display the data in tables, charts, and graphs (e.g., scatter diagrams, frequency tables, bar graphs, or pie charts).	SE: 43-45, 50-52, 205-207, 212-214, 218-223, 722-724, 737-739 <i>Algebra Activity</i> 49 <i>Graphing Calculator Investigation</i> 224-225 <i>Spreadsheet Investigation</i> 56

OBJECTIVES	PAGE REFERENCES
03. Apply simple statistical measurements.	
a. Understand basic statistical concepts including mean (average), median, mode, range, and standard deviation.	SE: 50-52, 88-91, 93 #32-34, 298-301, 722-724, 731-733, 737-739 <i>Graphing Calculator Investigation</i> 306-307 <i>Reading Mathematics</i> 95 <i>Spreadsheet Investigation</i> 56
04. Understand basic concepts of probability.	
a. Understand experimental and theoretical probability.	SE: 782-784, 785 #9-12, 786 #22-24, 787 #22-24, 788 #42-44, 792
b. Distinguish between independent and dependent events.	SE: 769-772, 773 #9-12, 774 #28-31, 775 #44-47, 776 #53, 790-791
c. Know that probability ranges from 0% to 100%. Understand randomness and chance.	SE: 96-98, 100 #50, 769-772, 773 #13-15, 774 #32-34, 775 #44-47, 776 #53-54, 782-784, 785 #9-12 <i>Algebra Activity</i> 102
05. Make predictions or decisions based on data.	
a. Use appropriate technology to employ simulation techniques, curve fitting, correlation, and graphical models to make predictions or decisions based on data.	SE: 50-52, 298-299, 302 #10-13, 782-784, 785 #9-12, 786 #25-27, 787 #39-41, 792 <i>Graphing Calculator Investigation</i> 306-307, 729-730
b. Design, conduct, and interpret results of statistical experiments.	SE: 50-52, 298-299, 708-710, 722-724, 731-733, 735 #19-23, 737-739, 741 #30-31 <i>Algebra Activity</i> 743-744 <i>Reading Mathematics</i> 714
c. Analyze the effect of biased data on statistical predictions.	SE: 708-710, 711 #17, 721 #59, 745-746 <i>Reading Mathematics</i> 714 TWE: OEA 713
353. FUNCTIONS AND MATHEMATICAL MODELS	
01. Understand the concept of functions.	
a. Solve problems that involve varying quantities with variables, expressions, equations, inequalities, and absolute values.	SE: 6-7, 11-13, 128-130, 233-235, 256-259, 292-295, 318-320, 345-348 <i>Algebra Activity</i> 49 <i>Reading Mathematics</i> 10
02. Represent equations, inequalities, and functions in a variety of formats.	
a. Represent a set of data in a table, as a graph, and as a mathematical relationship.	SE: 43-45, 50-52, 205-207, 218-220, 264-266, 272-274, 292-295 <i>Algebra Activity</i> 49 <i>Graphing Calculator Investigation</i> 224-225 <i>Spreadsheet Investigation</i> 56
03. Apply functions to a variety of problems.	
a. Model real-world phenomena using polynomial, rational, and basic exponential functions, noting restricted domains.	SE: 218-220, 222 #54-56, 230 #45-48, 237 #47-49, 256-259, 260 #35-36, 261 #57, 524-527, 529 #44-46, 559 #36

Code Used for TWE Pages

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