



**IDAHO**  
**Mathematics Standards Grades 9 Through 12**  
***Algebra: Concepts and Applications* © 2004**

OBJECTIVES	PAGE REFERENCES
<b>347. BASIC ARITHMETIC, ESTIMATION, AND ACCURATE COMPUTATIONS</b>	
<b>01. Understand and use numbers.</b>	
a. Understand and use positive and negative numbers, fractions, decimals, percentages, and scientific notations.	SE: 52-57, 64-69, 70-74, 82-85, 94-99, 100-103, 198-203, 204-209, 352-356
b. Understand properties of the real number system.	SE: 8-13, 14-18, 19-23, 26, 63 #41-44, 85 #57, 428-433 TWE: OEA 13, 23 <i>Enrichment Workbook 2</i>
c. Understand properties of roots, exponents, and logarithms.	SE: 336-340, 341-345, 347-351, 352-356, 357-361, 362-365 <i>Math in the Workplace</i> 346 TWE: OEA 340, 351, 356
d. Use number theory concepts (e.g., divisibility rules, factors, multiples, primes) to solve problems.	SE: 167-168, 169 #38, 336, 357-361, 362-365, 366-371, 420-425, 433 #42-53, 470 Ex4, 568-569 Ex4
<b>02. Perform computations accurately.</b>	
a. Use the proper order of operations. Perform operations with real numbers.	SE: 8-13, 14-18, 23 #46-47, 43 #28, 103 #42, 145 #58, 176-179, 336-340, 345 #59 TWE: EC 13
b. Use graphs, matrices, and sequences to represent and solve problems.	SE: 253 Ex8, 302-307, 310-315, 320 #31, 554-559 <i>Investigation</i> 80-81, 110-111, 308-309, 494-495, 578-579
<b>03. Estimate and judge reasonableness of results.</b>	
a. Apply number sense to everyday situations.	SE: 23 #41, 69 #67-71, 78 #46, 85 #46, 99 #51, 103 #36, 109 #34, 170 #42, 197 #17 <i>Enrichment Workbook 10</i>
<b>348. MATHEMATICAL REASONING AND PROBLEM SOLVING</b>	
<b>01. Understand and use a variety of problem-solving skills.</b>	
a. Use a variety of methods, including common mathematical formulas, to solve problems drawn from daily life.	SE: 122-127, 130 Ex4, 131 #33, 149 #16, 161 Ex4, 170 #39, 174 #42, 197 #16, 202 #41 <i>Investigation</i> 152-153
<b>02. Use reasoning skills to recognize problems and express them mathematically.</b>	
a. Use inductive and deductive reasoning to set up a problem.	SE: 269 #34, 340 #44, 345 #49 <i>Graphing Calculator Exploration</i> 317 <i>Hands-On Algebra</i> 324 <i>Investigation</i> 30-31, 262-263
b. Use logic to make mathematical proofs.	SE: <i>Investigation</i> 30-31 See Glencoe's <i>Geometry</i> page 94 or <i>Geometry: Concepts and Applications</i> page 649.

OBJECTIVES	PAGE REFERENCES
c. Make and evaluate logical arguments.	SE: 193 #53, 217 #37, 301 #48, 307 #18, 314 #1, 321 #33, 360 #3, 364 #1, 425 #57, 473 #27
<b>03. Apply appropriate technology and models to find solutions to problems.</b>	
a. Understand the purpose and capabilities of appropriate technology.	SE: 464-465 <i>Graphing Calculator Exploration</i> 105, 214, 272, 317, 338-339, 421, 491
b. Understand the nature and use of mathematical models.	SE: 117-121, 122, 146-151, 219-223, 224-229, 399 <i>Hands-On Algebra</i> 220, 224, 434-435 <i>Investigation</i> 152-153
<b>04. Communicate results using appropriate terminology and methods.</b>	
a. Select the appropriate means to communicate mathematical information.	SE: 38-43, 74 #49, 79 #50, 104-109, 125 #1, 170 #42, 289 #30, 321 #33, 425 #57 <i>Enrichment Workbook</i> 16
<b>349. CONCEPTS AND PRINCIPLES OF MEASUREMENT</b>	
<b>01. Understand and use customary and metric measurements.</b>	
a. Determine length, area, capacity, weight, time, and temperature, with appropriate units.	SE: 12 #53, 27 #6, 164 #48, 174 #36, 190 Ex3, 340 #42, 393 #43, 404 #53, 623 #37 <i>Preparing for Standardized Tests</i> 596-597
<b>02. Apply concepts of rates and other derived or indirect measurements.</b>	
a. Understand equivalent units, comparable units, and conversions.	SE: 190-193, 203 #46-47, 217 #42-43, 267 Ex6, 268 #28-30, 301 #53
<b>03. Apply the concepts of ratios and proportions.</b>	
a. Understand and use proportions, ratios, and scaling.	SE: 188-193, 194-197, 198-203 <i>Hands-On Activity</i> 194 TWE: OEA 203 <i>Enrichment Workbook</i> 28, 30
<b>04. Apply dimensional analysis.</b>	
1. Understand units and their relationship to one another and to real-world applications.	SE: 190-193, 203 #46-47, 217 #42-43, 267 Ex6, 268 #28-30, 301 #53
<b>05. Perform error analysis.</b>	
a. Understand tolerance, precision, and their applications.	SE: 24-25 Ex1, 161 Ex4, 191 Ex6, 253 Ex8, 292 Ex4, 368-369 Ex4, 480 Ex3, 513-514 Ex3, 521-522 Ex3, 532 #3
b. Understand that error accumulates in a computation when there is rounding at intermediate steps.	See Glencoe's <i>Geometry</i> page 378 or <i>Geometry: Concepts and Applications</i> TWE page 480.
<b>350. CONCEPTS AND LANGUAGE OF ALGEBRA</b>	
<b>01. Use algebraic symbolism as a tool to represent mathematical relationships.</b>	
a. Understand and use variables, expressions, equations, and inequalities.	SE: 4-7, 117-121, 122-127, 128-131, 160-164, 165-170, 171-175, 188-193, 366-371, 519-523
<b>02. Evaluate algebraic expressions.</b>	
a. Understand and use procedures for operating on algebraic expressions.	Multiplying polynomials and factoring: SE: 388-393, 394-398, 399-404, 405-409, 428-433, 434-439, 440-444, 445-449 <i>Hands-On Algebra</i> 400, 434-435

OBJECTIVES	PAGE REFERENCES
<b>03. Solve algebraic equations and inequalities.</b>	
a. Understand and use appropriate procedures to solve linear equations and inequalities such as $3x - 4 = 2$ or $3x - 4 > 2$ .	SE: 117-121, 122-127, 128-131, 160-164, 165-170, 171-175, 188-193, 366-371, 514-518, 519-523
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: 468-473, 474-477, 478-482, 483-487 <i>Graphing Calculator Exploration</i> 471 <i>Hands-On Algebra</i> 478-479 <i>Math in the Workplace</i> 488 TWE: OEA 473, 487 <i>Enrichment Workbook</i> 67
<b>04. Solve simple linear systems of equations or inequalities.</b>	
a. Understand and use appropriate procedures to solve simple linear systems of equations and inequalities such as $x + y = 7$ $2x + 3y = 21$ or $x + y < 7$ $2x + 3y \geq 21$ .	SE: 550-553, 554-559, 560-565, 566-571, 572-577, 586-590 <i>Graphing Calculator Exploration</i> 551, 588 <i>Hands-On Algebra</i> 560 <i>Math in the Workplace</i> 591
<b>351. CONCEPTS AND PRINCIPLES OF GEOMETRY</b>	
<b>01. Apply concepts of size, shape, and spatial relationships.</b>	
a. Understand congruence and similarity as they apply to reflection, rotation, and translation.	SE: 69 #61, 77-79
b. Understand scaling as it relates to size variations in one, two, and three-dimensional objects, while shape is maintained.	SE: 194-197, 571 #50 <i>Hands-On Algebra</i> 194 <i>Investigation</i> 410-411
<b>02. Apply the geometry of right triangles.</b>	
a. Understand the basic concepts of right triangle trigonometry (e.g., basic trigonometry ratios such as sine, cosine, and tangent).	See Glencoe's <i>Algebra 1</i> page 623.
b. Use trigonometric ratio methods to solve problems.	See Glencoe's <i>Algebra 1</i> page 623.
c. Know and apply the Pythagorean Theorem to solve real world problems.	SE: 366-371, 606 <i>Investigation</i> 372-373 TWE: FA 368 RA 369
<b>03. Apply graphing in two dimensions.</b>	
a. Understand concepts of the Cartesian Coordinate System.	SE: 58-63, 244-249, 250-255, 284-289, 302-307 <i>Graphing Calculator Exploration</i> 61 <i>Investigation</i> 308-309 TWE: FA 59 RA 61 <i>Enrichment Workbook</i> 44
b. Understand the characteristics and uses of vectors.	See Glencoe's <i>Geometry</i> page 498 or <i>Geometry: Concepts and Applications</i> page 74.

OBJECTIVES	PAGE REFERENCES
<b>352. DATA ANALYSIS, PROBABILITY, AND STATISTICS</b>	
<b>01. Understand data analysis.</b>	
a. Read and interpret tables, charts, and graphs (e.g., scatter plots, line graphs, 3-dimensional graphs, and pie charts).	SE: 32-37, 38-43, 74 #48, 85 #43, 104, 200-201 Ex6, 302-307 <i>Investigation</i> 210-211, 308-309 TWE: OEA 43 <i>Enrichment Workbook</i> 44
<b>02. Collect, organize, and display data.</b>	
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: 32-37, 38-43, 74 #48, 85 #43, 104, 200-201 Ex6, 302-307 <i>Investigation</i> 210-211, 308-309 TWE: OEA 43 <i>Enrichment Workbook</i> 44
<b>03. Apply simple statistical measurements.</b>	
a. Understand basic statistical concepts including mean (average), median, mode, range, and standard deviation.	SE: 104-109, 116 #41-42, 209 #38, 295 #50 <i>Graphing Calculator Exploration</i> 105 <i>Investigation</i> 210-211 <i>Preparing for Standardized Tests</i> 184-185 TWE: FA 108 FTC 106
<b>04. Understand basic concepts of probability.</b>	
a. Understand experimental and theoretical probability.	SE: 219-223 <i>Hands-On Algebra</i> 220 TWE: OEA 223
b. Distinguish between independent and dependent events.	SE: 224-229 <i>Hands-On Algebra</i> 224 TWE: OEA 229
c. Know that probability ranges from 0% to 100%. Understand randomness and chance.	SE: 219-223, 224-229 <i>Enrichment Workbook</i> 33
<b>05. Make predictions or decisions based on data.</b>	
a. Use appropriate technology to employ simulation techniques, curve fitting, correlation, and graphical models to make predictions or decisions based on data.	SE: 38-43, 302-307 <i>Graphing Calculator Exploration</i> 491 <i>Investigation</i> 308-309, 494-495 <i>Enrichment Workbook</i> 44
b. Design, conduct, and interpret results of statistical experiments.	SE: 104-109, 219-223, 224-229, 302-307 <i>Hands-On Algebra</i> 220, 224 <i>Investigation</i> 308-309
c. Analyze the effect of biased data on statistical predictions.	SE: 32-37
<b>353. FUNCTIONS AND MATHEMATICAL MODELS</b>	
<b>01. Understand the concept of functions.</b>	
a. Solve problems that involve varying quantities with variables, expressions, equations, inequalities, and absolute values.	SE: 122-127, 128-131, 160-164, 165-170, 171-175, 204-209, 366-371, 509-513, 514-518, 519-523
<b>02. Represent equations, inequalities, and functions in a variety of formats.</b>	
a. Represent a set of data in a table, as a graph, and as a mathematical relationship.	SE: 238-243, 244-249, 250-255, 256-261, 302-307 <i>Investigation</i> 262-263, 308-309 TWE: EC 249, 255 OEA 243

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<b>03. Apply functions to a variety of problems.</b>	
a. Model real-world phenomena using polynomial, rational, and basic exponential functions, noting restricted domains.	SE: 404 #57, 431 Ex6, 444 #43, 458-463, 465 Ex5, 475 Ex2, 480 Ex3, 493 #25 <i>Graphing Calculator Exploration</i> 491 <i>Hands-On Algebra</i> 489

### Codes Used for TWE Pages

EC	Extra Credit
FA	Family Activity
FTC	From the Classroom of...
OEA	Open-Ended Assessment
RA	Reteaching Activity