

GLENCOE CORRELATION
PRE-ALGEBRA
COLORADO
Content Standards Mathematics Grades 9-12

OBJECTIVES	PAGE REFERENCES
STANDARD 1: Students develop number sense and use numbers and number relationships in problem-solving situations and communicate the reasoning used in solving these problems. In order to meet this standard, a student will	
<ul style="list-style-type: none"> construct and interpret number meanings through real-world experiences* and the use of hands-on materials; 	SE: 12-13, 205-209, 441-445 <i>Foldables Study Organizer 55</i> TWE: DI 207, 352, 442 IE 351
<ul style="list-style-type: none"> represent and use numbers in a variety of equivalent forms (<i>for example, fractions, decimals, percents, exponents*, scientific notation*</i>); 	SE: 200-204, 206, 281-285, 442 TWE: SC 206
<ul style="list-style-type: none"> know the structure and properties of the real number system* (<i>for example, primes*, factors, multiples, relationships among sets of numbers</i>); and 	SE: 148-152, 159-163, 164-168, 441-445 <i>Study Guide and Review 484</i> TWE: OA 445 SN 443
<ul style="list-style-type: none"> use number sense, including estimation and mental arithmetic, to determine the reasonableness of solutions. 	SE: 6-8, 71, 121, 127, 187, 473, 534, 586 TWE: OA 10
GRADES 9-12 As students in grades 9-12 extend their knowledge, what they know and are able to do includes	
<ul style="list-style-type: none"> demonstrating meanings for real numbers, absolute value*, and scientific notation using physical materials and technology in problem-solving situations; 	SE: 175, 190 TWE: DI 59 OA 61 OLP 60 RM 441
<ul style="list-style-type: none"> developing, testing, and explaining conjectures about properties of number systems and sets of numbers; and 	SE: 25, 175, 204, 445 <i>Algebra Activity 368, 392, 512, 640</i> <i>Spreadsheet Investigation 137</i> TWE: DI 25
<ul style="list-style-type: none"> using number sense to estimate and justify the reasonableness of solutions to problems involving real numbers. 	SE: 6-8, 71, 121, 127, 187, 473, 534, 586 TWE: OA 10
STANDARD 2 Students use algebraic methods to explore, model, and describe patterns and functions involving numbers, shapes, data, and graphs in problem-solving situations and communicate the reasoning used in solving these problems. In order to meet this standard, a student will	
<ul style="list-style-type: none"> identify, describe, analyze, extend, and create a wide variety of patterns in numbers, shapes, and data; 	SE: 7-9, 16, 74, 84, 102, 167 <i>Getting Started 55</i> <i>Study Guide and Review 47-48</i> TWE: DI 8 IE 7
<ul style="list-style-type: none"> describe patterns using mathematical language; 	SE: 167 <i>Study Guide and Review 47</i>

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<ul style="list-style-type: none"> • solve problems and model real-world situations using patterns and functions; 	SE: 7, 369-372, 687, 690-691, 693 TWE: IE 7 OA 373
<ul style="list-style-type: none"> • compare and contrast different types of functions; and 	SE: 376, 379, 383, 687-690 TWE: DI 688 IE 688
<ul style="list-style-type: none"> • describe the connections among representations of patterns and functions, including words, tables, graphs, and symbols. 	SE: 7, 369, 687-688, 692 <i>Algebra Activity</i> 368 <i>Reading Mathematics</i> 380 <i>Study Guide and Review</i> 47
GRADES 9-12 As students in grades 9-12 extend their knowledge, what they know and are able to do includes	
<ul style="list-style-type: none"> • modeling real-world phenomena (<i>for example, distance-versus-time relationships, compound interest, amortization tables, mortality rates</i>) using functions, equations, inequalities, and matrices*; 	SE: 28, 264-268, 308, 687, 691 <i>Spreadsheet Investigation</i> 303 TWE: DI 688
<ul style="list-style-type: none"> • representing functional relationships using written explanations, tables, equations, and graphs, and describing the connections among these representations; 	SE: 369-372, 381-384, 687, 690-691, 695-696 <i>Reading Mathematics</i> 380 TWE: IE 382 OA 373, 379
<ul style="list-style-type: none"> • solving problems involving functional relationships using graphing calculators and/or computers as well as appropriate paper-and-pencil techniques; 	SE: 377, 399 <i>Algebra Activity</i> 368 <i>Graphing Calculator Investigation</i> 374, 402-403
<ul style="list-style-type: none"> • analyzing and explaining the behaviors, transformations*, and general properties of types of equations and functions (<i>for example, linear, quadratic*, exponential*</i>); and 	SE: 153, 375, 407, 687-691, 692-696 <i>Graphing Calculator Investigation</i> 374 TWE: DI 405
<ul style="list-style-type: none"> • interpreting algebraic equations and inequalities geometrically and describing geometric relationships algebraically. 	SE: 98-99, 103, 106, 111, 120, 132-136, 342-343, 464 <i>Algebra Activity</i> 108-109 <i>Study Guide and Review</i> 361
STANDARD 3: Students use data collection and analysis, statistics, and probability in problem-solving situations and communicate the reasoning used in solving these problems. In order to meet this standard, a student will	
<ul style="list-style-type: none"> • solve problems by systematically collecting, organizing, describing, and analyzing data using surveys, tables, charts, and graphs; 	SE: 376, 447, 606-611, 612-616, 617-621, 623-628 <i>Algebra Activity</i> 309 <i>Graphing Calculator Investigation</i> 622, 629
<ul style="list-style-type: none"> • make valid inferences, decisions, and arguments based on data analysis; and 	SE: 240, 630-633 <i>Algebra Activity</i> 39, 180, 237, 253, 275, 386, 392 <i>Reading Mathematics</i> 634
<ul style="list-style-type: none"> • use counting techniques, experimental probability, or theoretical probability, as appropriate, to represent and solve problems involving uncertainty. 	SE: 310-314, 635-639 <i>Graphing Calculator Investigation</i> 315 <i>Study Guide and Review</i> 611 TWE: IE 311, 636

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GRADES 9-12	
As students in grades 9-12 extend their knowledge, what they know and are able to do includes	
<ul style="list-style-type: none"> designing and conducting a statistical experiment to study a problem, and interpreting and communicating the results using the appropriate technology (<i>for example, graphing calculators, computer software</i>); 	SE: 610 <i>Algebra Activity</i> 656-657 <i>Graphing Calculator Investigation</i> 629 TWE: DI 611 OA 611 TT 615
<ul style="list-style-type: none"> analyzing statistical claims for erroneous conclusions or distortions; 	SE: 630-633 <i>Reading Mathematics</i> 634 TWE: DI 632 IE 631 OA 633
<ul style="list-style-type: none"> fitting curves to scatter plots, using informal methods or appropriate technology, to determine the strength of the relationship between two data sets and to make predictions; 	SE: 40-44, 68, 409-413 <i>Algebra Activity</i> 39 <i>Graphing Calculator Investigation</i> 243 <i>Study Guide and Review</i> 50 <i>Web Quest</i> 422 TWE: IE 410
<ul style="list-style-type: none"> drawing conclusions about distributions of data based on analysis of statistical summaries (<i>for example, the combination of mean and standard deviation, and differences between the mean and median</i>); 	SE: 238-242, 248, 252, 618 <i>Algebra Activity</i> 237 <i>Getting Started</i> 605 <i>Graphing Calculator Investigation</i> 243 TWE: IE 239
<ul style="list-style-type: none"> using experimental and theoretical probability to represent and solve problems involving uncertainty (<i>for example, the chance of playing professional sports if a student is a successful high school athlete</i>); and 	SE: 310-314, 333, 338, 672, 677 <i>Algebra Activity</i> 309 <i>Graphing Calculator Investigation</i> 315 <i>Study Guide and Review</i> 320 TWE: IE 311 OA 314
<ul style="list-style-type: none"> solving real-world problems with informal use of combinations and permutations* (<i>for example, determining the number of possible meals at a restaurant featuring a given number of side dishes</i>). 	SE: 641-645, 649 <i>Extra Practice</i> 754 <i>Study Guide and Review</i> 661 TWE: IE 642
STANDARD 4:	
Students use geometric concepts, properties, and relationships in problem-solving situations and communicate the reasoning used in solving these problems.	
In order to meet this standard, a student will	
<ul style="list-style-type: none"> connect various physical objects with their geometric representation; 	SE: 449-450, 455-456, 461, 463, 472-474, 477, 481, 502-504 <i>Algebra Activity</i> 505 TWE: OA 451
<ul style="list-style-type: none"> connect mathematical concepts from across the standards with their geometric representations; 	SE: 441, 445, 460-464 <i>Algebra Activity</i> 458-459, 465, 476
<ul style="list-style-type: none"> recognize, draw, describe, and analyze geometric shapes in one, two, and three dimensions; 	SE: 439, 453-457, 500-501, 516, 556-561 <i>Algebra Activity</i> 512, 518-519 <i>Geometry Activity</i> 562
<ul style="list-style-type: none"> make, investigate, and test conjectures about geometric ideas; and 	SE: 471, 473 <i>Algebra Activity</i> 512, 583

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<ul style="list-style-type: none"> solve problems and model real-world situations using geometric concepts. 	SE: 438, 474, 479, 525, 541, 564, 575, 579, 584, 586
GRADES 9-12 As students in grades 9-12 extend their knowledge, what they know and are able to do includes	
<ul style="list-style-type: none"> finding and analyzing relationships among geometric figures using transformations (<i>for example, reflections, translations, rotations, dilations*</i>) in coordinate systems*; 	SE: 506-511 <i>Algebra Activity</i> 505, 512, 532 TWE: DI 508 IE 508, 509 OA 511
<ul style="list-style-type: none"> deriving and using methods to measure perimeter, area, and volume of regular and irregular geometric figures; 	SE: 335, 417, 520-525, 533-538, 539-543, 563-567, 568-572, 676 <i>Algebra Activity</i> 518-519 <i>Spreadsheet Investigation</i> 137
<ul style="list-style-type: none"> making and testing conjectures about geometric shapes and their properties, incorporating technology where appropriate; and 	SE: 471, 473 <i>Algebra Activity</i> 512, 583
<ul style="list-style-type: none"> using trigonometric ratios* in problem-solving situations (<i>for example, finding the height of a building from a given point, if the distance to the building and the angle of elevation are known</i>). 	SE: 477-481 <i>Algebra Activity</i> 476 <i>Graphing Calculator Investigation</i> 482 <i>Study Guide and Review</i> 486
STANDARD 5: Students use a variety of tools and techniques to measure, apply the results in problem-solving situations, and communicate the reasoning used in solving these problems. In order to meet this standard, a student will	
<ul style="list-style-type: none"> understand and apply the attributes of length, capacity*, weight, mass, time, temperature, perimeter, area, volume, and angle measurement in problem-solving situations; 	SE: 335, 417, 447, 524-525, 534, 539, 541, 571, 575, 581
<ul style="list-style-type: none"> make and use direct and indirect measurements to describe and compare real-world phenomena; 	SE: 471-475 <i>Study Guide and Review</i> 486 TWE: IE 472, 473 OA 475
<ul style="list-style-type: none"> understand the structure and use of systems of measurement; 	SE: 118, 168, 213, 263, 272, 592 <i>Prerequisite Skills</i> 718-721
<ul style="list-style-type: none"> describe and use rates of change (<i>for example, temperature as it changes throughout the day, or speed as the rate of change of distance over time</i>) and other derived measures; and 	SE: 393-397 <i>Algebra Activity</i> 392 <i>Extra Practice</i> 143 <i>Study Guide and Review</i> 426 TWE: IE 394, 395 OA 397
<ul style="list-style-type: none"> select appropriate units, including metric and U.S. customary, and tools (<i>for example, rulers, protractors, compasses, thermometers</i>) to measure to the degree of accuracy required to solve a given problem. 	SE: 118, 590-594 <i>Prerequisite Skills</i> 718-721 <i>Reading Mathematics</i> 589 TWE: IE 591
GRADES 9-12 As students in grades 9-12 extend their knowledge, what they know and are able to do includes	
<ul style="list-style-type: none"> measuring quantities indirectly using techniques of algebra, geometry, or trigonometry*; 	SE: 471-475 <i>Study Guide and Review</i> 486 TWE: IE 472, 473 OA 475

OBJECTIVES	PAGE REFERENCES
<ul style="list-style-type: none"> selecting and using appropriate techniques and tools to measure quantities in order to achieve specified degrees of precision, accuracy, and error (or tolerance) of measurements; and 	SE: 590-593 TWE: 591
<ul style="list-style-type: none"> determining the degree of accuracy of a measurement (<i>for example, by understanding and using significant digits</i>). 	SE: 590-594 <i>Reading Mathematics</i> 589 TWE: DI 591 IE 591 OA 594
STANDARD 6: Students link concepts and procedures as they develop and use computational techniques, including estimation, mental arithmetic, paper-and-pencil, calculators, and computers, in problem-solving situations and communicate the reasoning used in solving these problems. In order to meet this standard, a student will	
<ul style="list-style-type: none"> model, explain, and use the four basic operations - addition, subtraction, multiplication, and division - in problem-solving situations; 	SE: 64-68, 70-74, 75-79, 110-113, 115-119, 232-236, 244-245, 351-352 <i>Reading Mathematics</i> 69
<ul style="list-style-type: none"> develop, use, and analyze algorithms*; and 	SE: 6, 8, 34, 71, 98-99, 120-122, 131-136, 154 <i>Spreadsheet Investigation</i> 22, 137
<ul style="list-style-type: none"> select and apply appropriate computational techniques to solve a variety of problems and determine whether the results are reasonable. 	SE: 6-8, 66, 71, 116, 127, 187, 473, 534, 586
GRADES 9-12 As students in grades 9-12 extend their knowledge, what they know and are able to do includes	
<ul style="list-style-type: none"> using ratios, proportions, and percents in problem-solving situations; 	SE: 264-268, 270-274, 288-292, 293-297, 471 <i>Algebra Activity</i> 275, 286-287 TWE: IE 265, 271
<ul style="list-style-type: none"> selecting and using appropriate methods for computing with real numbers in problem-solving situations from among mental arithmetic, estimation, paper-and-pencil, calculator, and computer methods, and determining whether the results are reasonable; and 	SE: 8, 121, 209, 437-439, 478-489 <i>Graphing Calculator Investigation</i> 315 <i>Spreadsheet Investigation</i> 22, 137, 303, 452
<ul style="list-style-type: none"> describing the limitations of estimation, and assessing the amount of error resulting from estimation within acceptable limits. 	SE: 6-8, 66, 71, 116, 127, 187, 473, 534, 586

Codes Used for TWE Pages

DI	Daily Intervention
IE	In-Class Examples
OA	Open-Ended Assessment
OLP	Online Lesson Plans
RM	Resource Manager
SC	Skills Check
SN	Study Notebook
TT	Teacher to Teacher