



Geometry

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STANDARDS	PAGE REFERENCES
Grades 9-10	
Standard 1: Number and Operation	
Standard 1: Students understand and use basic and advanced concepts of number and number systems.	
Benchmark Expectations	
NUMBERS, NUMBER RELATIONSHIPS, AND NUMBER SYSTEMS	
9-10.1.1. Express numbers between one-billionth and one billion in fraction, decimal, and verbal form; express numbers of all magnitudes in scientific notation	Student Edition: 13-20, 21-27 <i>Pre-Requisite Skills</i> 778-779, 790-791, 798-799 Teacher Wraparound Edition: AE 22, 23; I 23; PA 23
9-10.1.2. Describe the hierarchal relationships (e.g., integers are rationals) among subsets of the real number system; i.e., reals, rationals, irrationals, integers, wholes, and naturals	See Glencoe <i>Algebra 1</i> © 2008. Student Edition: 46-52
9-10.1.3 Identify the properties of the real number system; i.e., commutative, associative, distributive, closure, inverse, and identity properties	Student Edition: 78 ex 1, 80 #9-#14, 85 ex 2, 90 #56-#61, 111, 112 ex 1 – ex 2, 114 #1-#3, 115 #8-#17, 117 #36-#37, 123 #19-#22, 135 #30-#33 Teacher Wraparound Edition: AE 79, 112; PA 82; TNT 79

STANDARDS	PAGE REFERENCES
9-10.1.4. Represent a set of data in a matrix	Student Edition: 798-799
OPERATIONS AND THEIR PROPERTIES	
9-10.1.5. Use the order of operations and properties of exponents to simplify an algebraic expression	Student Edition: 5 #11-#13, 123 #18, 727 #6-#9, 780, 792-793, 794-795
9-10.1.6. Analyze the effects of multiplication, division, raising to a power, and extracting a root on the magnitudes of quantities; e.g., when will the square root of a number be greater than the number itself, or what will happen to the magnitude of a number when you multiply it by a negative number?	Student Edition: 5 #6-#9, 778-779
9-10.1.7. Apply basic properties of exponents to simplify algebraic expressions; i.e., power of a product, power of a power, products and quotients of powers, zero and negative exponents	Student Edition: 5 #11-#13, 123 #18, 727 #6-#9, 780, 792-793, 794-795
COMPUTATIONAL FLUENCY AND ESTIMATION	
9-10.1.8. Apply estimation skills to predict realistic solutions to problems	Student Edition: 19 #48-#51, 20 #56-#58, 22 ex 2, 47 #44-#49, 441 ex 1, 442 ex 2, 444 #4, 445 #34 Teacher Wraparound Edition: AE 22, 441, 442
9-10.1.9. Select and use a computational technique (i.e., mental calculation, paper-and-pencil, or technology) to solve problems involving real numbers	Student Edition: 5 #6-#15, 778-779, 780, 846 #3
9-10.1.10. Explain the reasonableness of a problem's solution and the process used to obtain it	Student Edition: 19 #48-#51, 20 #56-#58, 22 ex 2, 47 #44-#49, 441 ex 1, 442 ex 2, 444 #4, 445 #34 Teacher Wraparound Edition: AE 22, 441, 442
9-10.1.11. Add, subtract, and perform scalar multiplication on matrices	Student Edition: 798-799

STANDARDS	PAGE REFERENCES
Standard 2: Geometry and Spatial Sense	
Standard 2: Student understands and applies geometric concepts and spatial relationships to represent and solve problems in mathematical and nonmathematical situations.	
Benchmark Expectations	
TWO- AND THREE-DIMENSIONAL SHAPES, GEOMETRIC PROPERTIES AND RELATIONSHIPS	
9-10.2.1. Identify the properties and attributes of two- and three-dimensional objects that distinguish one from another; e.g., a cylinder has two parallel circular bases	Student Edition: 325-330, 333-339, 340-346, 347 #12-#13, 348-354 <i>Graphing Calculator Lab</i> 332 <i>Reading Math</i> 331 Teacher Wraparound Edition: A 331, 332, 339; AE 334, 335, 336, 343, 350; DI 335, 354; EA 346; PA 339, 351; T 331, 332
9-10.2.2. Determine congruence and similarity among geometric objects	Student Edition: 388-396, 397-403, 404 #11-#13, 414 #36-#60, 422 #39-#40, 425 #12-#13, 427 #6-#8 Teacher Wraparound Edition: A 396; AE 389, 390, 391, 398, 399; DI 389; F 398; PA 396, 403
9-10.2.3. Use trigonometric relationships and the Pythagorean Theorem to determine side lengths and angle measures in right triangles	Student Edition: 440-446, 454 #42-#47, 462 #62-#63, 463 #4, 487 #15-#17, 491 #7-#8, 492 #3, 493 #8 <i>Geometry Lab</i> 439 Teacher Wraparound Edition: A 439, 446; AE 441, 442, 443; PA 443; T 439
9-10.2.4. Using given information, establish the validity of a conjecture using a two-column or paragraph proof	Student Edition: 78-82, 90 #56-#61, 97 #60-#62, 110 #1-#3, 133 #11-#13, 137 #1-#3 Teacher Wraparound Edition: A 82; AE 79, 80; PA 82; T 78; TNT 79
COORDINATE GEOMETRY	
9-10.2.5. Use Cartesian coordinates to determine distance, midpoint, and slope	Student Edition: 21-29, 38 #49-#51, 39 #7-#11, 47 #44-#49, 70 #15-#21, 73 #8-#10, 75 #7, 204 ex 4, 205 #7-#8, 206 #17-#20, 207 #37, 227 ex 2, 229 #2-#3, 230 #9-#12, 252 ex 3 Teacher Wraparound Edition: AE 22, 23, 24, 204, 227, 252; DI 24; I 23

STANDARDS	PAGE REFERENCES
9-10.2.6. Use distance, midpoint, and slope to determine relationships between points, lines, and plane figures in the Cartesian coordinate system; e.g., determine whether a triangle is scalene, isosceles, or equilateral given the coordinates of its vertices	Student Edition: 21-29, 38 #49-#51, 39 #7-#11, 47 #44-#49, 70 #15-#21, 73 #8-#10, 75 #7, 204 ex 4, 205 #7-#8, 206 #17-#20, 207 #37, 227 ex 2, 229 #2-#3, 230 #9-#12, 252 ex 3 Teacher Wraparound Edition: AE 22, 23, 24, 204, 227, 252; DI 24; I 23
TRANSFORMATION AND SYMMETRY	
9-10.2.7. Identify and perform transformations of objects in the plane using sketches (translations, reflections, rotations, and dilations) and coordinates (translations, reflections, and dilations)	Student Edition: 497-503, 504-509, 510-517, 518 #10, 524 #38-#41, 525-532, 544 #11-#13, 546 #31-#32, 547 #7-#9, 548 #2, 549 #7 <i>Geometry Lab</i> 496 Teacher Wraparound Edition: AE 498, 499, 505, 511, 527, 528; F 512
9-10.2.8. Describe the effects of combining basic transformations in a plane; e.g., two reflections over parallel lines results in a translation	Student Edition: 505 ex 3, 512 ex 2, 513 #3-#4, 514 #10-#12, 515 #19-#20, 517 #41-#43 <i>Geometry Software Lab</i> 511-512 Teacher Wraparound Edition: AE 506, 512; F 506; GL 511
VISUALIZATION, SPATIAL REASONING, AND GEOMETRIC MODELING	
9-10.2.9. Construct plane figures using traditional and/or technological tools; i.e., congruent segments, congruent angles, angle and segment bisectors, perpendicular and parallel lines	Student Edition: <i>Construction</i> 16, 25, 33, 35, 48, 172, 182, 186, 225, 234, 266, 268, 341, 350, 409, 413
9-10.2.10. Recognize images of the same object shown from different perspectives; i.e., a two-dimensional image of a three-dimensional object	Student Edition: 680-685, 686, 693, 697 #37-#38, 698 #1, 700, 706 <i>Geometry Lab</i> 67 Teacher Wraparound Edition: A 67; AE 681; PA 682; T 693, 700; TNT 622
9-10.2.11. Use geometric models to find solutions to problems in mathematics and other disciplines; e.g., art and architecture	Student Edition: 18 #41, 27 #46-#49, 46 #33, 81 #33-#35, 89 #42-#44, 95 #25-#26, 116 #26-#27, 169 #33-#34, 168 #11-#13, 176 #6, 206 #27, 237 ex 3, 276 #28-#31, 300 #29-#30, 305 ex 4, 306 #5, 322 #31, 338 #17 Teacher Wraparound Edition: AE 237, 305

STANDARDS	PAGE REFERENCES
Standard 3: Data Analysis, Statistics, and Probability	
Standard 3: Students use data collection and analysis techniques, statistical methods, and probability to solve problems.	
Benchmark Expectations	
DATA COLLECTION, DISPLAY, AND INTERPRETATION	
9-10.3.1. Construct appropriate displays of given data; i.e., circle graphs, bar graphs, histograms, stem-and-leaf plots, box-and-whisker plots, and scatter plots	Student Edition: 567 #29-#31, 851 #18, 856 #8
9-10.3.2. Interpret a given visual representation (i.e., circle graphs, bar graphs, histograms, stem-and-leaf plots, box-and-whisker plots, and scatter plots) of a set of data	Student Edition: 567 #29-#31, 851 #18, 856 #8
9-10.3.3. Identify the variable, sample, and population in a well-designed study; e.g., in an exit poll for a tax increase, the variable is the outcome of the vote, the sample is the set of people surveyed, the population is the set of all voters	See Glencoe <i>Algebra 1</i> © 2008. Student Edition: 642-647
PROBABILITY	
9-10.3.4. Determine the number of possible outcomes for a given event, using appropriate counting techniques; e.g., fundamental counting principle, factorials, combinations, permutations	Student Edition: 300 #29
9-10.3.5. Calculate experimental and theoretical probabilities with and without replacement	Student Edition: 587 #19, 665-671, 674 #23-#24, 675 #11-#13, 847 #19, 856 #9
9-10.3.6. Calculate probabilities of compound events using addition and multiplication rules	Student Edition: 587 #19, 665-671, 674 #23-#24, 675 #11-#13, 847 #19, 856 #9

STANDARDS		PAGE REFERENCES
STATISTICAL METHODS		
9-10.3.7.	Calculate measures of central tendency and spread; i.e., mean, median, mode, range, and quartiles	Student Edition: 565 ex 3, 567 #9, 670 #19-#22, 843 #9, 847 #17-#18, 851 #19-#20, 856 #8 <i>Cross-Curricular Project 23</i>
9-10.3.8	Discuss relationships among measures of central tendency and spread; i.e., mean, median, mode, range, and quartiles	Student Edition: 565 ex 3, 567 #9, 670 #19-#22, 843 #9, 847 #17-#18, 851 #19-#20, 856 #8 <i>Cross-Curricular Project 23</i>
PREDICTIONS, DATA ANALYSIS, AND INFERENCES		
9-10.3.9.	Select two points and approximate an equation for the line of best fit (if appropriate) for a set of data	Student Edition: 565 ex 3, 567 #9, 670 #19-#22, 843 #9, 847 #17-#18, 851 #19-#20, 856 #8 <i>Cross-Curricular Project 23</i>
9-10.3.10.	Identify the trend of a set of data and estimate the strength of the correlation between two variables; e.g., strong vs. weak, positive vs. negative	Student Edition: 565 ex 3, 567 #9, 670 #19-#22, 843 #9, 847 #17-#18, 851 #19-#20, 856 #8 <i>Cross-Curricular Project 23</i>
Standard 4: Measurement		
Standard 4: Students use concepts and tools of measurement to describe and quantify the world..		
Benchmark Expectations		
MEASURABLE ATTRIBUTES, MEASUREMENT SYSTEMS AND UNITS		
9-10.4.1.	Select appropriate units and scales for problem situations involving measurement	Student Edition: 14 ex 3, 17 #5-#6, 18 #16-#21, 19 #48-#51, 20 #56-#58, 69 #14 <i>Study Tip 14</i> Teacher Wraparound Edition: AE 14; PA 14
9-10.4.2.	Describe the effects of scalar change on the area and volume of a figure; e.g., the effect of doubling one or more edges of a solid on its surface area and volume	Student Edition: 55 #25-#30, 56 #40-#44, 635 #27-#29, 645 #42-#43, 655 #43-#47, 690 #29-#33, 709 #28, 716 #33-#35, 734 #26, 741 #22, 748 #39, 753 ex 2, 754 #3-#5, 756 #39 <i>Spreadsheet Lab 736, 752</i> Teacher Wraparound Edition: A 736; AE 753; T 736

STANDARDS	PAGE REFERENCES
9-10.4.3. Use approximations to compare the standard and metric systems of measurement; e.g., a five-kilometer race is about three miles long	Student Edition: 776-777, 855 #2
9-10.4.4. Given a conversion factor, convert between standard and metric measurements	Student Edition: 776-777, 855 #2
MEASUREMENT TOOLS, TECHNIQUES, AND FORMULAS	
9-10.4.5. Use methods necessary to achieve a specified degree of precision and accuracy (i.e., appropriate number of significant digits) in measurement situations	Student Edition: 14 ex 3, 17 #5-#6, 18 #16-#21, 19 #48-#51, 20 #56-#58, 69 #14 <i>Study Tip 14</i> Teacher Wraparound Edition: AE 14; PA 14
9-10.4.6. Employ estimation techniques to evaluate reasonableness of results in measurement situations	Student Edition: 14 ex 3, 17 #5-#6, 18 #16-#21, 19 #48-#51, 20 #56-#58, 69 #14 <i>Study Tip 14</i> Teacher Wraparound Edition: AE 14; PA 14
9-10.4.7. Use unit analysis to track units during computations	Student Edition: 776-777
9-10.4.8. Given a formula list, compute the area of a regular polygon	Student Edition: 630-636, 638-647, 650 ex 1, 653 #1-#2, 655 #45, 656 #55-#57, 657 #5-#11, 663 #38-#39, 671 #37-#39 <i>Geometry Lab 648</i> <i>Graphing Calculator Lab 637</i> Teacher Wraparound Edition: A 636, 647, 656; AE 631, 632, 639, 640, 641, 650; PA 647
9-10.4.9. Given a formula list, compute the surface area and volume of a right prism, right cylinder, right pyramid, right cone, and sphere	Student Edition: 686-691, 693-697, 698 #9-#10, 699-705, 706-710, 728-735, 737-742 Teacher Wraparound Edition: A 691, 697, 705; AE 687, 688, 694, 700, 701, 707, 708; DI 707; F 695; PA 694

STANDARDS	PAGE REFERENCES
9-10.4.10. Apply indirect measurement techniques to solve problems involving irregular shapes or inaccessible objects; e.g., calculate the distance across a lake, triangulate an irregular region to find its approximate area	Student Edition: 400 ex 3, 401 #11-#13, 460 #9, 461 #50-#51, 463 #5, 464-470, 474 #5, 476 #28, 477 #40-#41, 489 #27-#30, 491 #20, 503 #5, 509 #47, 563-569, 570-577, 578-586, 776-777 Teacher Wraparound Edition: A 470; AE 465, 466, 474; PA 465; T 464
Standard 5: Algebra, Functions and Patterns	
Standard 5: Students use algebraic concepts, functions, patterns, and relationships to solve problems.	
Benchmark Expectations	
PATTERNS, RELATIONS, AND FUNCTIONS	
9-10.5.1. Given the explicit and/or the recursive definition of a sequence, generate a specific term (explicit formula only) or a specified number of terms	Student Edition: 78, 80 #2, 90 #56-#61 <i>Geometry Lab</i> 320 <i>Graphing Calculator Lab</i> 387 Teacher Wraparound Edition: AE 79, 80; FL 320; PA 82; T 387; TNT 79
9-10.5.2. Express relations and functions using a variety of representations; i.e., numeric, graphic, symbolic, and verbal	Student Edition: 165-170, 176 #7, 179 #39-#42, 193 #19-#23, 195 #12-#15 <i>Geometry Lab</i> 171 <i>Graphing Calculator Lab</i> 180 Teacher Wraparound Edition: A 170; AE 166, 167; T 180
9-10.5.3. Determine whether a relation is a function by examining various representations of the relation; e.g., table, graph, equation, set of ordered pairs	See Glencoe <i>Algebra 1</i> © 2008. Student Edition: 149-154
9-10.5.4. Perform the operations of addition, subtraction, multiplication, and division on algebraic functions; e.g., given $f(x) = 2x$ and $g(x) = 5x - 7$, find $f(x) + g(x)$	Student Edition: 5 #11-#13, 123 #18, 727 #6-#9, 780, 792-793, 794-795

STANDARDS	PAGE REFERENCES
9-10.5.5. Identify the independent variable, dependent variable, domain, and range of a function	Student Edition: 156-163, 164 #13, 165-170, 193 #16-#22, 195 #12-#15, 197 #10, 785, 786-787 <i>Geometry Lab</i> 171 <i>Graphing Calculator Lab</i> 155
9-10.5.6. Draw graphs of linear and quadratic functions using paper and pencil, labeling key features; e.g., graph a line and label its x-intercept and y-intercept, graph a parabola and label its vertex and one point on each side of the vertex	Student Edition: 785
NUMERIC AND ALGEBRAIC REPRESENTATIONS	
9.10.5.7. Use algebraic expressions, equations, or inequalities involving one or two variables to represent relationships (e.g., given a verbal statement, write an equivalent algebraic expression or equation) found in various contexts (e.g., time and distance problems, mixture problems)	Student Edition: 77 #9-#14, 112 ex 2, 114 #4, 115 #18, 116 #22-#25, 123 #21, 135 #34-#35, 201 #1-#5, 379 #1-#4, 431 #1-#4, 553 #1-#4, 781-782 Teacher Wraparound Edition: AE 112
9.10.5.8. Manipulate algebraic expressions and equations using properties of real numbers; e.g., simplify, factor	Student Edition: 5 #11-#13, 123 #18, 727 #6-#9, 780, 792-793, 794-795
9.10.5.9. Solve linear equations and inequalities, systems of two linear equations or inequalities, and quadratic equations having rational solutions; e.g., factoring, quadratic formula	Student Edition: 273 ex 2, 274 #3, 275 #16-#18, 783-784 <i>Pre-Requisite Skills</i> 788-789 Teacher Wraparound Edition: AE 273
9.10.5.10. Solve a literal equation for a specified variable; e.g., solve $l = prt$ for r , or solve $7n + p = t$ for n	See Glencoe <i>Algebra 1</i> © 2008. Student Edition: 118-121

STANDARDS	PAGE REFERENCES
MATHEMATICAL MODELING	
9.10.5.11. Use essential quantitative relationships in a situation to determine whether the relationship can be modeled by a linear function; e.g., simple interest is linear, compound interest is not linear	Student Edition: 77 #9-#14, 273 ex 3, 274 #3, 275 #16-#18
9.10.5.12. Graphically represent the solution or solutions to an equation, inequality, or system	Student Edition: 788-789
9.10.5.13. Interpret a graphical representation of a real-world situation	Student Edition: 77 #9-#14, 273 ex 3, 274 #3, 275 #16-#18
9.10.5.14. Draw conclusions about a situation being modeled	Student Edition: 77 #9-#14, 273 ex 3, 274 #3, 275 #16-#18
RATES OF CHANGE	
9.10.5.15. Approximate and interpret rates of change from graphical and numerical data	Student Edition: 142-147, 149-154, 329 #31-#33, 336 ex 5, 343 ex 4, 344 #6, 345 #30-#31, 347 #12-#13, 350 ex 3, 354 #45-#46, 357 ex 3, 359 #3-#4, 360 #13-#16, 361 #25-#26, 364 ex 3 Teacher Wraparound Edition: AE 336, 343, 350, 357, 364