



Geometry

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STANDARDS		PAGE REFERENCES
<u>GRADE 9</u>		
<u>Standard 1: Number and Operation</u>		
Students in Grade 9 deepen their understanding of real numbers by applying properties of rational numbers and exponents and by identifying exact and approximate roots without simplification. Students use positive and negative numbers, absolute value, fractions, decimals, percentages, and scientific notation. Students use the proper order of operations and perform operations with rational numbers. Students apply number sense to everyday situations and judge reasonableness of answers.		
Goal 1.1: Understand and use numbers.		
Objective(s): By the end of Grade 9, the student will be able to:		
9.M.1.1.1	Apply properties of rational numbers. (347.01.b)	Student Edition: 94-100, 106 #31-#34, 119 #39-#46, 122 #8, 173 #10, 588 #3, 734-735 Teacher Wraparound Edition: A 100; DI 96
9.M.1.1.2	Use positive and negative numbers, absolute value, fractions, decimals, percentages, and scientific notation, including application in real world situations. (347.01.a)	Student Edition: 5 #5-#12, 11 #60-#65, 43 #58-#62, 734-735, 736
9.M.1.1.3	Apply properties of exponents. (347.01.c)	Student Edition: 5 #11-#12, 122 #1, 233 #9, 281 #11-#13, 746-747, 748-749

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9.M.1.1.4	Identify exact and approximate roots without simplification.	Student Edition: 58 #2, 122 #1, 341 #9-#12, 398 #5, 744-745
9.M.1.1.5	Solve problems using number theory concepts (factors, multiples, primes). (347.01.d)	Student Edition: 750-751
9.M.1.1.6	Use appropriate vocabulary.	Student Edition: 25 #1, 71 #1, 84 #2, 147 #1, 149 #53, 164 #33, 284 #1, 296 #56-#58, 704 #1 Teacher Wraparound Edition: A 297
Goal 1.2: Perform computations accurately.		
Objective(s): By the end of Grade 9, the student will be able to:		
9.M.1.2.1	Use the order of operations and perform operations with rational numbers. (347.02.a)	Student Edition: 5 #9-#12, 138 #55-#59, 338 #1, 341 #9-#12, 734-735, 736
Goal 1.3: Estimate and judge reasonableness of results.		
Objective(s): By the end of Grade 9, the student will be able to:		
9.M.1.3.1	Apply number sense to everyday situations and judge reasonableness of results. (347.03.a)	Student Edition: 19 #56, 27 #50-#53, 48 #11, 73 #41-#44, 137 #42, 143 #39-#41, 149 #46-#49, 157 #61, 233 #11, 390 #47
9.M.1.3.2	Identify that error accumulates in a computation when there is rounding. (349.05.b)	Student Edition: 19 #52-#55
Standard 2: Concepts and Principles of Measurement		
Students in Grade 9 formulate and use proportions, ratios, and scaling. Students apply concepts of rates and direct and indirect measurements. Students evaluate given measurement formulas for two- and three-dimensional objects.		
Goal 2.1: Understand and use U.S. customary and metric measurements.		
Objective(s): By the end of Grade 9, the student will be able to:		
9.M.2.1.1	Given the formulas, find the circumference, perimeter, or area of triangles, circles, and quadrilaterals, and the volume and surface area of rectangular prisms and cylinders. (349.01.a)	Student Edition: 522-528, 535 #59-#62, 581 #11-#16, 587 #3, 732-733 Teacher Wraparound Edition: DI 525; GA 524; ICE 523, 524, 525; TNT 524

STANDARDS		PAGE REFERENCES
9.M.2.1.2	Solve problems involving circumference, perimeter, or area of triangles, circles, and rectangles.	<p>Student Edition: 522-528, 535 #59-#62, 581 #11-#16, 587 #3, 732-733</p> <p>Teacher Wraparound Edition: DI 525; GA 524; ICE 523, 524, 525; TNT 524</p>
Goal 2.2: Apply the concepts of rates, ratios, and proportions.		
Objective(s): By the end of Grade 9, the student will be able to:		
9.M.2.2.1	Use rates, ratios, proportions, and map scales in problem-solving situations. (349.03.a)	<p>Student Edition: 282-287, 291 ex 3, 297 #70-#72, 300 ex 3, 306 #53-#56, 333 #10-#17</p> <p>Teacher Wraparound Edition: A 287; DI 283, 285; TNT 283</p>
9.M.2.2.2	Apply concepts of rates and direct and indirect measurements.	<p>Student Edition: 300 ex 3, 301 #9, 303 #32, 304 #39, 337 #19, 372 ex 3, 373 #7, 379 ex 3, 381 #32-#34</p> <p>Teacher Wraparound Edition: ICE 300, 372, 379</p>
9.M.2.2.3	Construct equivalent units, comparable units, and conversions. (349.02.a)	<p>Student Edition: 730-731</p>
Goal 2.3: Apply dimensional analysis.		
Objective(s): By the end of Grade 9, the student will be able to:		
9.M.2.3.1	Use customary and metric units and their relationship to one another and to real world applications involving length, area, capacity, weight, time, and temperature. (349.04.a)	<p>Student Edition: 46-50, 522-528, 649-654, 655-659, 660-665, 666-670, 671-676, 688-694, 696-701, 732-733</p> <p>Teacher Wraparound Edition: ICE 47, 523, 524, 525</p>
Goal 2.4: Apply appropriate techniques and tools to determine measurements.		
Objective(s): By the end of Grade 9, the student will be able to:		
9.M.2.4.1	Determine and use appropriate units. (349.01.a)	<p>Student Edition: 730-731</p>
9.M.2.4.2	Approximate error in measurement situations.	<p>Student Edition: 19 #52-#55</p>

STANDARDS		PAGE REFERENCES
Standard 4: Concepts and Principles of Geometry		
Students in Grade 9 represent linear relationships using tables, graphs, and mathematical symbols. Students interpret attributes of linear relationships such as slope, rate of change, and intercepts.		
Goal 4.1: Apply concepts of size, shape, and spatial relationships.		
Objective(s): By the end of Grade 9, the student will be able to:		
9.M.4.1.1	Recognize congruency and similarity of two-dimensional figures. (351.01.a)	Student Edition: 463-469, 470-475, 476-482, 707-713 Teacher Wraparound Edition: A 475; DI 473; GS 477; TT 478
9.M.4.1.2	Recognize similarity as it relates to size variations in two-dimensional objects. (351.01.b)	Student Edition: 289-297, 298-306, 323 #44-#45, 334 #25-#26 Teacher Wraparound Edition: A 306; DI 293; ICE 290, 291, 292, 300
Goal 4.2: Apply the geometry of right triangles.		
Objective(s): By the end of Grade 9, the student will be able to:		
9.M.4.2.1	Given the Pythagorean Theorem, calculate a missing side length of a right triangle where the legs and hypotenuse are natural numbers. (351.02.c)	Student Edition: 350-356, 363 #45-#50, 370 #72-#75, 393 #13-#15, 397 #7-#9 <i>Geometry Activity</i> 349 Teacher Wraparound Edition: A 356; DI 352
Goal 4.3: Apply graphing in two dimensions.		
Objective(s): By the end of Grade 9, the student will be able to:		
9.M.4.3.1	Identify attributes of the Cartesian Coordinate System, such as quadrants, origin, and axes. (351.03.a)	Student Edition: 21-27, 36 #52-#54, 43 #50-#55, 47 ex 3, 55 #20-#27, 139-144, 154 #11, 169 #23-#26
9.M.4.3.2	Graph scatter plots and identify informal trend lines (e.g., eyeball fit lines).	Student Edition: 404 <i>WebQuest</i> 23
9.M.4.3.3	Identify positive and negative correlations.	Student Edition: 404 <i>WebQuest</i> 23

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Goal 4.4: Represent and graph linear relationships.		
Objective(s): By the end of Grade 9, the student will be able to:		
9.M.4.4.1	Create graphs and equations for linear relationships.	Student Edition: 141 ex 4, 145-150, 157 #47-#50, 164 #39-#43, 169 #27-#28, 171 #1 Teacher Wraparound Edition: A 150; DI 146; ICE 141, 146
9.M.4.4.2	Represent linear relationships using tables, graphs, and mathematical symbols.	Student Edition: 141 ex 4, 145-150, 157 #47-#50, 164 #39-#43, 169 #27-#28, 171 #1 Teacher Wraparound Edition: A 150; DI 146; ICE 141, 146
9.M.4.4.3	Interpret attributes of linear relationships such as slope, rate of change, and intercepts.	Student Edition: 139-144, 157 #51-#56, 169 #23-#26 Teacher Wraparound Edition: ICE 140, 141
Standard 5: Data Analysis, Probability, and Statistics		
Students in Grade 9 interpret and use basic statistical concepts including mean, median, mode, range, and distribution of data, including outliers. Students make predictions and draw conclusions based on statistical measures and students make predictions based on randomness, chance, equally likely events, and probability. Students find probabilities based on dependent, independent, and compound events and students make predictions based on randomness, chance, equally likely events, and probability.		
Goal 5.1: Represent data with a variety of formats.		
Objective(s): By the end of Grade 9, the student will be able to:		
9.M.5.1.1	Analyze and interpret tables, charts, and graphs, including scatter plots, broken line graphs, and box-and-whisker plots. (352.01.a)	Student Edition: 20, 296 #56-#58, 626 #20-#23, 653 #34-#36 <i>WebQuest</i> 164
Goal 5.2: Collect, organize, and display data.		
Objective(s): By the end of Grade 9, the student will be able to:		
9.M.5.2.1	Collect, organize, and display data in tables, charts, and graphs. (352.02.a)	Student Edition: 791 #2-#4 <i>WebQuest</i> 23 Teacher Wraparound Edition: A 627

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Goal 5.3: Apply simple statistical measurements.		
Objective(s): By the end of Grade 9, the student will be able to:		
9.M.5.3.1	Interpret and use basic statistical concepts, including mean, median, mode, range, and distribution of data, including outliers. (352.03.a)	Student Edition: 144 #45, 183 #45, 245 #35-#36, 254 #60
9.M.5.3.2	Make predictions and draw conclusions based on statistical measures. (352.05.a)	Student Edition: 404 <i>WebQuest</i> 23
Goal 5.4: Understand basic concepts of probability.		
Objective(s): By the end of Grade 9, the student will be able to:		
9.M.5.4.1	Find probabilities based on dependent, independent, and compound events.	This standard can be met in Glencoe's <i>Algebra 2</i> © 2005 Student Edition: 632-635
9.M.5.4.2	Contrast experimental and theoretical probability. (352.04.a)	Student Edition: 164 #35, 549 #7, 550 #31-#34 Teacher Wraparound Edition: A 627; DI 624
Goal 5.5: Make predictions or decisions based on data.		
Objective(s): By the end of Grade 9, the student will be able to:		
9.M.5.5.1	Make predictions based on randomness, chance, equally likely events, and probability. (352.04.c)	Teacher Wraparound Edition: DI 624
9.M.5.5.2	Use appropriate tools/technology to conduct simulations and employ graphical models to make predictions or decisions based on data. (352.05.a)	Student Edition: <i>WebQuest</i> 23
9.M.5.5.3	Design, conduct, and interpret results of statistical experiments. (352.05.b)	Student Edition: 404 <i>Geometry Activity</i> 406 <i>Spreadsheet Activity</i> 288 <i>WebQuest</i> 164 Teacher Wraparound Edition: A 627; GA 406; TS 401

STANDARDS	PAGE REFERENCES
<u>GRADE 10</u>	
<u>Standard 1: Number and Operation</u>	
<p>Students in Grade 10 deepen their understanding of real numbers by applying properties of rational numbers and exponents and by identifying exact and approximate roots without simplification. Students use positive and negative numbers, absolute value, fractions, decimals, percentages, and scientific notation. Students use the proper order of operations and perform operations with rational numbers. Students apply number sense to everyday situations and judge reasonableness of answers.</p>	
Goal 1.1: Understand and use numbers.	
Objective(s): By the end of Grade 10, the student will be able to:	
10.M.1.1.1 Apply properties of rational numbers. (347.01.b)	Student Edition: 94-100, 106 #31-#34, 119 #39-#46, 122 #8, 173 #10, 588 #3, 734-735 Teacher Wraparound Edition: A 100; DI 96
10.M.1.1.2 Use positive and negative numbers, absolute value, fractions, decimals, percentages, and scientific notation, including application in real world situations. (347.01.a)	Student Edition: 5 #5-#12, 11 #60-#65, 43 #58-#62, 734-735, 736
10.M.1.1.3 Apply properties of exponents. (347.01.c)	Student Edition: 5 #11-#12, 122 #1, 233 #9, 281 #11-#13, 746-747, 748-749
10.M.1.1.4 Identify exact and approximate roots without simplification.	Student Edition: 58 #2, 122 #1, 341 #9-#12, 398 #5, 744-745
10.M.1.1.5 Solve problems using number theory concepts (factors, multiples, primes). (347.01.d)	Student Edition: 750-751
10.M.1.1.6 Use appropriate vocabulary.	Student Edition: 25 #1, 71 #1, 84 #2, 147 #1, 149 #53, 164 #33, 284 #1, 296 #56-#58, 704 #1 Teacher Wraparound Edition: A 297
Goal 1.2: Perform computations accurately.	
Objective(s): By the end of Grade 10, the student will be able to:	
10.M.1.2.1 Use the order of operations and perform operations with rational numbers. (347.02.a)	Student Edition: 5 #9-#12, 138 #55-#59, 338 #1, 341 #9-#12, 734-735, 736

STANDARDS		PAGE REFERENCES
Goal 1.3: Estimate and judge reasonableness of results.		
Objective(s): By the end of Grade 10, the student will be able to:		
10.M.1.3.1	Apply number sense to everyday situations and judge reasonableness of results. (347.03.a)	Student Edition: 19 #56, 27 #50-#53, 48 #11, 73 #41-#44, 137 #42, 143 #39-#41, 149 #46-#49, 157 #61, 233 #11, 390 #47
10.M.1.3.2	Identify that error accumulates in a computation when there is rounding. (349.05.b)	Student Edition: 19 #52-#55
Standard 2: Concepts and Principles of Measurement		
Students in Grade 10, given relative formulas, determine length, distance, area, surface area, capacity, and weight, with appropriate unit labels. Students formulate and use proportions, ratios, and scaling. Students apply concepts of rates and direct and indirect measurements. Students evaluate given measurement formulas for two- and three-dimensional objects.		
Goal 2.1: Understand and use U.S. customary and metric measurements.		
Objective(s): By the end of Grade 10, the student will be able to:		
10.M.2.1.1	Given the formulas, find the circumference, perimeter, or area of triangles, circles, and quadrilaterals, the volume of spheres, non-oblique prisms, cylinders, and cones, and the surface area of spheres, non-oblique prisms, cylinders, and right square-based pyramids. (349.01.a)	Student Edition: 522-528, 535 #59-#62, 581 #11-#16, 587 #3, 732-733 Teacher Wraparound Edition: DI 525; GA 524; ICE 523, 524, 525; TNT 524
10.M.2.1.2	Solve problems involving circumference, perimeter, or area of triangles, circles, and rectangles.	Student Edition: 522-528, 535 #59-#62, 581 #11-#16, 587 #3, 732-733 Teacher Wraparound Edition: DI 525; GA 524; ICE 523, 524, 525; TNT 524
Goal 2.2: Apply the concepts of rates, ratios, and proportions.		
Objective(s): By the end of Grade 10, the student will be able to:		
10.M.2.2.1	Use rates, ratios, proportions, map scales, and scale factors (one- and two-dimensional) in problem-solving situations. (349.03.a)	Student Edition: 282-287, 291 ex 3, 297 #70-#72, 300 ex 3, 306 #53-#56, 333 #10-#17 Teacher Wraparound Edition: A 287; DI 283, 285; TNT 283

STANDARDS		PAGE REFERENCES
10.M.2.2.2	Apply concepts of rates and direct and indirect measurements.	Student Edition: 300 ex 3, 301 #9, 303 #32, 304 #39, 337 #19, 372 ex 3, 373 #7, 379 ex 3, 381 #32-#34 Teacher Wraparound Edition: ICE 300, 372, 379
10.M.2.2.3	Construct equivalent units, comparable units, and conversions. (349.02.a)	Student Edition: 730-731
Goal 2.3: Apply dimensional analysis.		
Objective(s): By the end of Grade 10, the student will be able to:		
10.M.2.3.1	Use customary and metric units and their relationship to one another and to real world applications involving length, area, capacity, weight, time, and temperature. (349.04.a)	Student Edition: 46-50, 522-528, 649-654, 655-659, 660-665, 666-670, 671-676, 688-694, 696-701, 732-733 Teacher Wraparound Edition: ICE 47, 523, 524, 525
Goal 2.4: Apply appropriate techniques and tools to determine measurements.		
Objective(s): By the end of Grade 10, the student will be able to:		
10.M.2.4.1	Determine and use appropriate units. (349.01.a)	Student Edition: 730-731
10.M.2.4.2	Approximate error in measurement situations.	Student Edition: 19 #52-#55
Standard 4: Concepts and Principles of Geometry		
Students in Grade 10 recognize congruency and similarity of two-dimensional figures. Students identify and use similarity as it relates to size variations in two- and three- dimensional objects. Given the Pythagorean Theorem, students calculate missing side lengths of right triangles without simplifying radicals. Students represent linear relationships using tables, graphs, and mathematical symbols. Students interpret attributes of linear relationships such as slope, rate of change, and intercepts. Students use logic to make and evaluate mathematical arguments.		
Goal 4.1: Apply concepts of size, shape, and spatial relationships.		
Objective(s): By the end of Grade 10, the student will be able to:		
10.M.4.1.1	Recognize and apply congruency and similarity of two-dimensional figures. (351.01.a)	Student Edition: 463-469, 470-475, 476-482, 707-713 Teacher Wraparound Edition: A 475; DI 473; GS 477; TT 478

STANDARDS		PAGE REFERENCES	
10.M.4.1.2	Recognize and use similarity as it relates to size variations in two- and three- dimensional objects. (351.01.b)	Student Edition: 289-297, 298-306, 323 #44-#45, 334 #25-#26	Teacher Wraparound Edition: A 306; DI 293; ICE 290, 291, 292, 300
Goal 4.2: Apply the geometry of right triangles.			
Objective(s): By the end of Grade 10, the student will be able to:			
10.M.4.2.1	Given the Pythagorean Theorem, calculate missing side lengths of right triangles without simplifying radicals. (351.02.c)	Student Edition: 350-356, 363 #45-#50, 370 #72-#75, 393 #13-#15, 397 #7-#9 <i>Geometry Activity</i> 349	Teacher Wraparound Edition: A 356; DI 352
Goal 4.3: Apply graphing in two dimensions.			
Objective(s): By the end of Grade 10, the student will be able to:			
10.M.4.3.1	Identify attributes of the Cartesian Coordinate System, such as quadrants, origin, and axes. (351.03.a)	Student Edition: 21-27, 36 #52-#54, 43 #50-#55, 47 ex 3, 55 #20-#27, 139-144, 154 #11, 169 #23-#26	
10.M.4.3.2	Graph scatter plots and identify informal trend lines (e.g., eyeball fit lines).	Student Edition: 404 <i>WebQuest</i> 23	
10.M.4.3.3	Identify positive and negative correlations.	Student Edition: 404 <i>WebQuest</i> 23	
Goal 4.4: Represent and graph linear relationships.			
Objective(s): By the end of Grade 10, the student will be able to:			
10.M.4.4.1	Create graphs and equations for linear relationships.	Student Edition: 141 ex 4, 145-150, 157 #47-#50, 164 #39-#43, 169 #27-#28, 171 #1	Teacher Wraparound Edition: A 150; DI 146; ICE 141, 146
10.M.4.4.2	Represent linear relationships using tables, graphs, and mathematical symbols.	Student Edition: 141 ex 4, 145-150, 157 #47-#50, 164 #39-#43, 169 #27-#28, 171 #1	Teacher Wraparound Edition: A 150; DI 146; ICE 141, 146

STANDARDS	PAGE REFERENCES
10.M.4.4.3 Interpret attributes of linear relationships such as slope, rate of change, and intercepts.	Student Edition: 139-144, 157 #51-#56, 169 #23-#26 Teacher Wraparound Edition: ICE 140, 141
Goal 4.5: Use reasoning skills.	
Objective(s): By the end of Grade 10, the student will be able to:	
10.M.4.5.1 Use logic to make and evaluate mathematical arguments. (348.02.b)	Student Edition: 62-66, 67-74, 75-80, 82-87, 89-93, 94-100, 101-106, 107-114, 115 #9-#11, 116 #12-#17, 117 #25-#29, 118 #30-38, 119 #43-#46, 120 #58 Teacher Wraparound Edition: ICE 63, 68, 69, 70, 76, 83, 90, 91, 95, 102, 103, 109
Standard 5: Data Analysis, Probability, and Statistics	
<p>Students in Grade 10 read, interpret, and use tables, charts, and graphs, including scatter plots, multiple broken line graphs, and box-and-whisker plots. Students interpret and use basic statistical concepts including mean, median, mode, range, and distribution of data, including outliers. Students make predictions and draw conclusions based on statistical measures and students make predictions based on randomness, chance, equally likely events, and probability. Students find probabilities based on dependent, independent, and compound events and students make predictions based on randomness, chance, equally likely events, and probability.</p>	
Goal 5.1: Represent data with a variety of formats.	
Objective(s): By the end of Grade 10, the student will be able to:	
9.M.5.1.1 Analyze and interpret tables, charts, and graphs, including scatter plots, broken line graphs, and box-and-whisker plots. (352.01.a)	Student Edition: 20, 296 #56-#58, 626 #20-#23, 653 #34-#36 <i>WebQuest</i> 164
Goal 5.2: Collect, organize, and display data.	
Objective(s): By the end of Grade 10, the student will be able to:	
10.M.5.2.1 Collect, organize, and display data in tables, charts, and graphs. (352.02.a)	Student Edition: 791 #2-#4 <i>WebQuest</i> 23 Teacher Wraparound Edition: A 627

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Goal 5.3: Apply simple statistical measurements.		
Objective(s): By the end of Grade 10, the student will be able to:		
10.M.5.3.1	Interpret and use basic statistical concepts, including mean, median, mode, range, and distribution of data, including outliers. (352.03.a)	Student Edition: 144 #45, 183 #45, 245 #35-#36, 254 #60
10.M.5.3.2	Make predictions and draw conclusions based on statistical measures. (352.05.a)	Student Edition: 404 <i>WebQuest</i> 23
Goal 5.4: Understand basic concepts of probability.		
Objective(s): By the end of Grade 10, the student will be able to:		
10.M.5.4.1	Find probabilities based on dependent, independent, and compound events.	This standard can be met in Glencoe's <i>Algebra 2</i> © 2005 Student Edition: 632-635
10.M.5.4.2	Contrast experimental and theoretical probability. (352.04.a)	Student Edition: 164 #35, 549 #7, 550 #31-#34 Teacher Wraparound Edition: A 627; DI 624
Goal 5.5: Make predictions or decisions based on data.		
Objective(s): By the end of Grade 10, the student will be able to:		
10.M.5.5.1	Make predictions based on randomness, chance, equally likely events, and probability. (352.04.c)	Teacher Wraparound Edition: DI 624
10.M.5.5.2	Use appropriate tools/technology to conduct simulations and employ graphical models to make predictions or decisions based on data. (352.05.a)	Student Edition: <i>WebQuest</i> 23
10.M.5.5.3	Design, conduct, and interpret results of statistical experiments. (352.05.b)	Student Edition: 404 <i>Geometry Activity</i> 406 <i>Spreadsheet Activity</i> 288 <i>WebQuest</i> 164 Teacher Wraparound Edition: A 627; GA 406; TS 401