



# ADVANCED Mathematical Concepts

Precalculus  
with Applications

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STANDARDS		PAGE REFERENCES
<b>Numbers, Number Sense, and Computation</b>		
<b>Content Standard 1.0:</b> <i>To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will accurately calculate, use estimation techniques, number relationships, operation rules, and algorithms; they will determine the reasonableness of answers and the accuracy of solutions.</i>		
By the end of <b>Grade 12</b> , students know and are able to do everything required in the previous grades and:		
1.12.1 <b>Calculate</b> and estimate sums, differences, products, quotients, <b>powers</b> , and <b>roots</b> using mental math, <b>formulas</b> , and <b>algorithms</b> . S 23.12.3; C 4.12.1	I/S	<b>Student Edition:</b> 7 ex 6, 64 #2, 65 #5-#6, 695-702, 717 #1-#2, 750 #11-#14  <b>Teacher Wraparound Edition:</b> EC 702; FTC 699; ICE 696, 697, 698; MTL 695
1.12.2 Apply the laws of <b>exponents</b> to perform <b>operations</b> on expressions with <b>integral exponents</b> and expressions in scientific notation. S 1.12.2	W/L	<b>Student Edition:</b> 7 ex 6, 64 #2, 65 #5-#6, 273 #6, 282 #62, 695-702, 717 #1-#2, 727 ex 2, 750 #11-#14  <b>Teacher Wraparound Edition:</b> AIN 698; EC 702; FTC 699; ICE 696, 697, 698; MTL 695

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1.12.3 Apply the properties and theories of the real number system to everyday situations. S 1.12.2; H 3.12.4	I/S	<b>Student Edition:</b> 206 <i>Graphing Calculator Exploration 86</i>
1.12.5 Perform simple operations on <b>matrices</b> .	W/L	<b>Student Edition:</b> 78-85, 88-96, 104 #54, 120 #20-#27, 136 #44, 250 #54 <b>Teacher Wraparound Edition:</b> F 88; ICE 80, 81, 82, 89
<b>Patterns, Functions, and Algebra</b>		
<b>Content Standard 2.0: To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will use various algebraic methods to analyze, illustrate, extend, and create numerous representations (words, numbers, tables, and graphs) of patterns, functions, and algebraic relations as modeled in practical situations.</b>		
2.12.2 Represent and solve problems using <b>discrete</b> structures including graphs and matrices, with and without technology. Ec 3.12.2; H 4.12.1; H 5.12.1	E/L	<b>Student Edition:</b> 38-44, 45-51, 78-85, 112-118, 258-264, 527-533, 704-711, 718-725 <b>Teacher Wraparound Edition:</b> AIN 81; ICE 39, 79, 82, 260; MTL 78
2.12.3 Create and use different forms of a variety of equations, proportions, and/or formulas (e.g., $I=PRT$ or $R=I/PT$ ), solving for the needed variable as necessary in given situations. H 3.12.4; H 4.12.1; S 1.12.2; S 1.12.4; S 20.12.1; S 23.12.2	E/S	<b>Student Edition:</b> 28 ex 2–ex 3, 189-196, 200 #56-#58, 692 ex 2, 693 #4 <b>Teacher Wraparound Edition:</b> A 196; EA 193; ICE 190, 191; TT 192
2.12.4 Add, subtract, multiply, and factor ( $1^{\text{st}}$ and $2^{\text{nd}}$ degree) <b>polynomials</b> , describing each step in the process and the connection between the algebraic process and the arithmetic process; use simple quadratic equations with integer roots to solve practical and mathematical problems. H 3.12.4; H 4.12.1; S 23.12.2	I/S	<b>Student Edition:</b> 183 ex 3, 184 ex 4, 202, 203 #1, 210 #9, 214 ex 1, 218 ex 5, 219 #9, 223 ex 1, 224 ex 2, 226 #5-#6, 235 #5, 250 #48, 268 #22-#25, 227 #28 <b>Teacher Wraparound Edition:</b> A 228; AIN 184; ICE 183, 184, 224

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2.12.5 Model practical problems from everyday situations with a variety of models that includes matrices, translating among tabular, symbolic and graphical representations of functions, with and without technology. Ec 3.12.2; Ec3.12.3; Ec 3.12.4; Ec 6.12.6; G 1.12.3; H 3.12.4; H 4.12.1; S 1.12.2	E/S	<b>Student Edition:</b> 38-44, 45-51, 78-85, 112-118, 141 ex 5, 142 #12, 144 #40, 258-264, 527-533, 704-711, 718-725 <b>Teacher Wraparound Edition:</b> ICE 39, 141, 260
2.12.6 Determine the <b>domain</b> and <b>range</b> of linear relations given a graph or a set of <b>ordered pairs</b> ; explain their importance in problem-solving situations. H 5.12.1	W/L	<b>Student Edition:</b> 5-11, 19 #34, 31 #1, 44 #18, 51 #36 <b>Teacher Wraparound Edition:</b> ICE 5, 6
2.12.7 Solve systems of two linear equations, both algebraically and graphically; use graphing calculators as a primary tool in solving these problems and to verify solutions found by other methods.	W/L	<b>Student Edition:</b> 67-72, 73-77, 86 #55, 96 #36, 104 #55, 120 #17-#19 <b>Teacher Wraparound Edition:</b> A 72, 77; AIN 69, 75; EC 72, 76; ICE 74, 75
<b>Measurement</b>		
<b>Content Standard 3.0: To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will use appropriate tools and techniques of measurement to determine, estimate, record, and verify direct and indirect measurements.</b>		
3.12.1 Convert between customary and metric systems; convert among monetary systems.	I/L	<b>Student Edition:</b> 353 ex 3, 354 ex 6, 355 #8-#9 <b>Teacher Wraparound Edition:</b> AIN 354; ICE 353; MTL 352
3.12.2 Select and use measurement tools, techniques, and formulas to calculate and compare rates, cost, distances, interest, temperatures, and weight/mass. S 2.12.1	I/S	<b>Student Edition:</b> 190-191 ex 2 <b>Teacher Wraparound Edition:</b> ICE 190

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3.12.3 Distinguish and differentiate among the structures, language and uses of systems of measures (e.g., linear, square units, cubic units); justify and communicate the differences between accuracy, precision, error, and tolerance in measurement; describe how each of these can affect solutions found in problem situations. S 23.12.8	I/S	<b>Student Edition:</b> 927-928
3.12.4 Use and interpret consumer data (e.g., <b>amortization tables</b> , tax tables, and compound interest charts) to make informed financial decisions related to practical applications such as budget. E 4.12.3; Ec 2.12.4; Ec 2.12.5; Ec 2.12.8; Ec 2.12.12	I/L	<b>Student Edition:</b> 45, 47 ex 3, 707 ex 4, 710 #31, 714 #7, 813 #41, 975 #56 <b>Teacher Wraparound Edition:</b> ICE 47, 707; MTL 45
3.12.5 Use relationships (e.g., proportions) and formulas (indirect measurement) to determine the measurement of unknown dimensions, angles, areas, and volumes to solve problems. S 2.12.1; S 23.12.4	I/S	<b>Student Edition:</b> 77 #28, 104 #50, 168 #46, 178 #35, 187 #44, 192-193 ex 5, 194 #12, 227 #44, 303 #24, 314-315, 693 #3 <b>Teacher Wraparound Edition:</b> ICE 192, 315
<b>Spatial Relationships and Geometry</b>		
<b>Content Standard 4.0: To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will identify, represent, explain, verify, and apply spatial relationships and geometric properties.</b>		
4.12.1 Identify and use the properties of polygons (including interior and exterior angles) and elements of circles (e.g., angles, arcs, <b>chords</b> , <b>secants</b> and <b>tangents</b> ) to solve practical problems. H 3.12.4	I/S	<b>Student Edition:</b> 36 #31, 302 #20, 346 ex 3, 347 ex 5, 349 #49-#52, 549 #6, 623-630 <b>Teacher Wraparound Edition:</b> A 351; AIN 346; ICE 346, 347

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4.12.5 Use coordinate geometry to graph linear equations, determine slopes of lines, identify parallel and <b>perpendicular lines</b> and find possible solutions to sets of equations; use algebraic techniques to solve problems determined by geometric relationships. H 5.12.1	I/S	<b>Student Edition:</b> 20-25, 32 ex 1, 67-72, 121 #28-#33, 272 ex 2, 470-476, 480 #48-#51, 615-622, 640 #55, 652 #51, 688 #11-#13, 887 #2 <b>Teacher Wraparound Edition:</b> AIN 618; F 623; ICE 21, 22, 68
4.12.6 Use complementary and supplementary angles, congruent angles, vertical angles, angles formed when parallel lines are cut by a transversal, and angles in polygons to solve practical problems. H 3.12.4	W/S	<b>Student Edition:</b> 302 #3, 305-311, 314 ex 1, 316-317 <b>Teacher Wraparound Edition:</b> ICE 308, 314
4.12.7 Apply the Pythagorean Theorem, its converse, properties of special right triangles, and right triangle trigonometry to solve practical problems. H 3.12.4	I/S	<b>Student Edition:</b> 286 ex 4, 291, 294 ex 4, 306 ex 2, 327, 340 ex 1, 341 #1, 423, 489 ex 6, 493, 615-616 <b>Teacher Wraparound Edition:</b> ICE 286, 294, 423, 489
4.12.8 Use tools, technology, and models to sketch, draw, and construct geometric figures in order to solve problems and to demonstrate the properties of geometric figures.	W/L	<b>Student Edition:</b> 36 #11, 92 ex 4, 93 #14, 302 #20-#21, 549 #2, 623, 624 ex 1, 626 ex 3, 628 #41 <b>Teacher Wraparound Edition:</b> ICE 92, 346, 626
4.12.9 Construct, justify and defend mathematical conclusions using logical, sequential, <b>deductive reasoning</b> supported by established mathematical principles. E 10.12.4	E/S	<b>Student Edition:</b> 185 #4, 239 #1, 308 #3, 363 #1, 410 #11-#12, 411 #32-#37, 421-422, 427 #1, 438 ex 1, 467 #3, 627 #4, 848 #3, 923 #4

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<b>Data Analysis</b>		
<b>Content Standard 5.0: To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will collect, organize, display, interpret, and analyze data to determine statistical relationships and probability projections.</b>		
5.12.1 Use calculators and computers to create and manipulate tables, graphs, and matrices to communicate statistical information; use the shape of graphs of normal distributions to compare and analyze information. G 3.12.4; G 4.12.1; G 7.12.3; H 2.12.2; H 2.12.3; S 22.12.2	I/L	<b>Student Edition:</b> 918-925, 932 #34, 935 #23-#28, 937 #42 <i>Graphing Calculator Exploration</i> 926 <b>Teacher Wraparound Edition:</b> A 925, 926; EC 925; F 927; MTL 919, 926
5.12.2 Design, conduct, analyze, and communicate the results of multi-stage probability experiments. H 5.12.1	I/L	<b>Student Edition:</b> 875-880, 924 #15 <b>Teacher Wraparound Edition:</b> A 880; AIN 877; EC 880; FTC 876; ICE 876, 877; MTL 875
5.12.3 Distinguish between and apply <b>permutations</b> and combinations using a variety of methods, including The Fundamental Counting Principle. H 5.12.1	W/L	<b>Student Edition:</b> 837-845, 846-851, 857 #44-#45, 867 #57, 882 #14-#26 <b>Teacher Wraparound Edition:</b> A 845, 851; AIN 841, 848; EC 845, 850; F 846, 852; FTC 838; ICE 838, 839, 840, 841, 842, 847
5.12.4 Select and use the measures of central tendency such as mean, median, mode and variability including range, distribution and possible outliers that are appropriate for given situations. G 7.12.4; S 20.12.4	E/S	<b>Student Edition:</b> 111 #33, 150 #43, 897-907, 908-917, 925 #23, 934 #14-#18, 935 #19-#22, 937 #41, 939 #9

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5.12.5	E/S	<b>Student Edition:</b> 927-932, 936 #29-#40 <i>Graphing Calculator Exploration 877</i> <b>Teacher Wraparound Edition:</b> A 932; AIN 929; EC 932; ICE 928, 929
Analyze the validity of statistical conclusions noting various sources of bias, misuse, and abuse of data caused by a wide variety of factors including choices of scale, probability versus odds, inappropriate uses of measures of central tendency, inaccurate curve fitting and inappropriate uses of controls or sample groups. S 19.12.1; S 21.12.2; S 21.12.3; S 23.12.6		
5.12.6	I/L	<b>Student Edition:</b> 889-896, 907 #34, 917 #29, 934 #11-#13 <b>Teacher Wraparound Edition:</b> A 896; AIN 891; EC 895; ICE 890, 891, 892; MTL 889
Design, construct, analyze, and select an appropriate type of graph to represent data to communicate the results of statistical experiments (e.g., write a survey question and analyze and communicate the findings). S 22.12.2		
<b>Problem Solving</b>		
<b>Process Standard 6.0: Students will develop their ability to solve problems by engaging in developmentally appropriate problem-solving opportunities in which there is a need to use various approaches to investigate and understand mathematical concepts in order to: formulate their own problems; find solutions to problems from everyday situations; develop and apply strategies to solve a wide variety of problems; and integrate mathematical reasoning, communication and connections.</b>		
6.1	E/S	<b>Student Edition:</b> 35 #1, 107-111, 112-118, 436 #45, 621 #36 <b>Teacher Wraparound Edition:</b> A 118; AIN 114; ICE 113, 114
Select, modify, develop, and apply strategies to solve a variety of mathematical and practical problems and to investigate and understand mathematical concepts. S 1.2.3; S 1.5.1; S 1.8.1; S 1.8.4; S 1.12.2; S 1.12.4; S 2.12.1; S 3.2.3; S 10.5.2; S 14.8.6; S 19.12.2; S 21.3.1		
6.2	E/S	<b>Student Edition:</b> 35 #1, 107-111, 112-118, 436 #45, 621 #36 <b>Teacher Wraparound Edition:</b> A 118; AIN 114; ICE 113, 114
Apply previous experience and knowledge to new problem-solving situations.		

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6.5 Verify, interpret, and evaluate results with respect to the original problem situation, determining an efficient <b>strategy</b> for the given situation. S 21.5.3; S 21.12.3	E/S	<b>Student Edition:</b> 35 #1, 107-111, 112-118, 436 #45, 621 #36 <b>Teacher Wraparound Edition:</b> A 118; AIN 114; ICE 113, 114
6.6 Try more than one strategy when the first strategy proves to be unproductive.	E/L	<b>Student Edition:</b> 35 #1, 107-111, 112-118, 436 #45, 621 #36 <b>Teacher Wraparound Edition:</b> A 118; AIN 114; ICE 113, 114
6.7 Apply multi-step, integrated, mathematical problem-solving strategies, persisting until a solution is found or until it is clear that no solution exists. S 19.12.2	E/S	<b>Student Edition:</b> 35 #1, 107-111, 112-118, 436 #45, 621 #36 <b>Teacher Wraparound Edition:</b> A 118; AIN 114; ICE 113, 114
6.9 Generalize solutions and strategies from earlier problems to new problem situations.	E/L	<b>Student Edition:</b> 35 #1, 107-111, 112-118, 436 #45, 621 #36 <b>Teacher Wraparound Edition:</b> A 118; AIN 114; ICE 113, 114
6.10 Interpret and solve a variety of mathematical problems by paraphrasing, identifying necessary and extraneous information, selecting and justifying efficient methods and/or strategies, and ensuring the answer is reasonable.	E/S	<b>Student Edition:</b> 35 #1, 107-111, 112-118, 436 #45, 621 #36 <b>Teacher Wraparound Edition:</b> A 118; AIN 114; ICE 113, 114
6.11 Apply combinations of proven strategies and previous knowledge to solve non-routine problems.	E/L	<b>Student Edition:</b> 35 #1, 107-111, 112-118, 436 #45, 621 #36 <b>Teacher Wraparound Edition:</b> A 118; AIN 114; ICE 113, 114
6.13 Use technology, including calculators, to solve problems and verify solutions. S 24.5.5; S 24.8.5	E/L	<b>Student Edition:</b> A2–A25 <i>Graphing Calculator Exploration</i> 69, 106, 265-266, 323, 404, 512, 665, 738-739, 926 <b>Teacher Wraparound Edition:</b> UGC 126, 204

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6.14 Use technology, including calculators, to investigate, define, and describe quantitative relationships such as patterns and functions. G 7.12.3; S 1.5.1; S 1.12.2; S 1.12.4; S 14.8.6; S 24.5.5; S 24.8.5	E/L	<b>Student Edition:</b> 166 #26-#31, 172-174 ex 2, 177 #19-#24, 813 #40 <i>Graphing Calculator Exploration</i> 169-170 <b>Teacher Wraparound Edition:</b> UGC 126
<b>Mathematical Communication</b>		
<b>Process Standard 7.0: Students will develop their ability to communicate mathematically by solving problems in which there is a need to obtain information from the real world through reading, listening, and observing in order to: translate this information into a mathematical language and symbols; process this information mathematically; and present results in written, oral and visual formats.</b>		
7.1 Discuss and exchange ideas about mathematics as a part of learning. E 10.2.3; E 10.3.3; E 10.5.3; E 10.3.1; E 10.5.1; E 10.12.1; S 23.5.2	E/L	<b>Student Edition:</b> 35 #1-#2, 54 #2-#3, 70 #2-#3, 76 #1-#2, 82 #3-#4, 92 #3, 102 #2, 133 #4, 155 #1, 165 #1-#2, 176 #1, 193 #3-#4, 218 #1-#2, 233 #4, 240 #2, 247 #1-#4, 254 #2-#3, 280 #1-#3
7.2 Use inquiry techniques (e.g., discussion, questioning, research, data gathering) to solve mathematical problems. E 4.2.3; E 10.2.2; E 10.3.2; E 10.5.2; E 10.8.2; E 11.2.1; E 11.3.1; E 11.5.1; E 11.8.1; E 11.12.1; E 11.2.2; S 1.5.1; S 1.8.1; S 1.8.4; S 1.12.4; S 10.5.2; S 14.8.6; S 21.3.1	E/L	<b>Student Edition:</b> 35 #1-#2, 54 #2-#3, 70 #2-#3, 76 #1-#2, 82 #3-#4, 92 #3, 102 #2, 133 #4, 155 #1, 165 #1-#2, 176 #1, 193 #3-#4, 218 #1-#2, 233 #4, 240 #2, 247 #1-#4, 254 #2-#3, 280 #1-#3
7.3 Read expository text to learn about mathematics. E 1.8.3; E 1.12.3; E 2.12.3; E 4.8.1; E 4.8.2; E 4.8.3	I/L	<b>Student Edition:</b> <i>History of Mathematics</i> 97, 319, 367, 462, 534, 969 <b>Teacher Wraparound Edition:</b> MAM 97, 319, 367, 462
7.6 Interpret and solve word problems without the necessity of key words or phrases.	E/S	<b>Student Edition:</b> 35 #1, 107-111, 112-118, 436 #45, 621 #36 <b>Teacher Wraparound Edition:</b> A 118; AIN 114; ICE 113, 114

STANDARDS		PAGE REFERENCES
7.9 Model and explain mathematical relationships using oral, written, graphical, and algebraic methods. E 5.8.1; E 5.8.2; E 6.8.2; E 11.8.5; E 11.12.5; S 1.12.2; S 1.12.4; S 14.8.6; S 20.12.1; S 22.8.2; S 22.12.2	E/S	<b>Student Edition:</b> 35 #1-#2, 54 #2-#3, 70 #2-#3, 76 #1-#2, 82 #3-#4, 92 #3, 102 #2, 133 #4, 155 #1, 165 #1-#2, 176 #1, 193 #3-#4, 218 #1-#2, 233 #4, 240 #2, 247 #1-#4, 254 #2-#3, 280 #1-#3
7.10 Evaluate the effectiveness of written and oral presentations of mathematics. S 21.5.3; S 23.5.2	I/L	<b>Student Edition:</b> 35 #1-#2, 54 #2-#3, 70 #2-#3, 76 #1-#2, 82 #3-#4, 92 #3, 102 #2, 133 #4, 155 #1, 165 #1-#2, 176 #1, 193 #3-#4, 218 #1-#2, 233 #4, 240 #2, 247 #1-#4, 254 #2-#3, 280 #1-#3
7.11 Make conjectures and present arguments in discussions of mathematical ideas. S 21.5.3; S 23.5.3	E/L	<b>Student Edition:</b> 185 #4, 239 #1, 308 #3, 363 #1, 410 #11-#12, 411 #32-#37, 421-422, 427 #1, 438 ex 1, 467 #3, 627 #4, 848 #3, 923 #4
7.14 Explain and evaluate thinking about mathematical ideas and solutions based on the role of definitions, properties, common rules, and symbols in solving problems.	I	<b>Student Edition:</b> 48 #4, 82 #4, 109 #2, 156 #5, 185 #4, 226 #4, 240 #4, 308 #4, 316 #4, 383 #5, 410 #5, 427 #5, 453 #5, 496 #3, 502 #3, 604 #4, 627 #5 <b>Teacher Wraparound Edition:</b> A 106, 739
7.15 Use everyday language to explain thinking about strategies and solutions to mathematical problems. S 21.5.3; S 23.5.3	E/L	<b>Student Edition:</b> 35 #1-#2, 54 #2-#3, 70 #2-#3, 76 #1-#2, 82 #3-#4, 92 #3, 102 #2, 133 #4, 155 #1, 165 #1-#2, 176 #1, 193 #3-#4, 218 #1-#2, 233 #4, 240 #2, 247 #1-#4, 254 #2-#3, 280 #1-#3
7.16 Express mathematical ideas and use them to define, compare, and solve problems orally and in writing.	E/S	<b>Student Edition:</b> 35 #1-#2, 54 #2-#3, 70 #2-#3, 76 #1-#2, 82 #3-#4, 92 #3, 102 #2, 133 #4, 155 #1, 165 #1-#2, 176 #1, 193 #3-#4, 218 #1-#2, 233 #4, 240 #2, 247 #1-#4, 254 #2-#3, 280 #1-#3

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7.17 Use mathematical notation to communicate and explain mathematical situations. S 21.2.1	E/L	<b>Student Edition:</b> 35 #1-#2, 54 #2-#3, 70 #2-#3, 76 #1-#2, 82 #3-#4, 92 #3, 102 #2, 133 #4, 155 #1, 165 #1-#2, 176 #1, 193 #3-#4, 218 #1-#2, 233 #4, 240 #2, 247 #1-#4, 254 #2-#3, 280 #1-#3
<b>Mathematical Reasoning</b>		
<b>Process Standard 8.0: Students will develop their ability to reason mathematically by solving problems in which there is a need to investigate significant mathematical ideas and construct their own learning in all content areas in order to justify their thinking; reinforce and extend their logical reasoning abilities; reflect on and clarify their own thinking; and ask questions to extend their thinking.</b>		
8.3 Construct, justify, and defend mathematical conclusions using logical arguments, in situations related to mathematics, science, and technology. E 10.12.4; G 7.12.4; S 1.8.1; S 1.8.4; S 1.12.4; S 14.8.6	I/L	<b>Student Edition:</b> 48 #4, 82 #4, 109 #2, 156 #5, 185 #4, 226 #4, 240 #4, 308 #4, 316 #4, 383 #5, 410 #5, 427 #5, 453 #5, 496 #3, 502 #3, 604 #4, 627 #5 <b>Teacher Wraparound Edition:</b> A 106, 739
8.4 Use patterns and relationships to analyze mathematical situations; draw logical conclusions about mathematical problems. Ec 3.8.2; Ec 3.8.3; Ec 9.8.4; Ec 3.12.1; Ec 3.12.2; Ec 3.12.3; Ec 3.12.4; Ec 6.12.6; G 7.12.4; S 17.3.2	E/S	<b>Student Edition:</b> 16 ex 5, 17 #9, 18 #25-#27, 759-765, 766-773, 774-783 <b>Teacher Wraparound Edition:</b> A 765, 773; AIN 761; EC 764, 773; F 766; ICE 16, 760, 761, 762, 766, 767, 768, 769; MTL 759
8.5 Follow a logical argument and judge its validity. E 4.8.4; E 4.12.4	E/L	<b>Student Edition:</b> 48 #4, 82 #4, 109 #2, 156 #5, 185 #4, 226 #4, 240 #4, 308 #4, 316 #4, 383 #5, 410 #5, 427 #5, 453 #5, 496 #3, 502 #3, 604 #4, 627 #5 <b>Teacher Wraparound Edition:</b> A 106, 739
8.7 Recognize and apply deductive and inductive reasoning in both concrete and abstract contexts.	E/S	<b>Student Edition:</b> 185 #4, 239 #1, 308 #3, 363 #1, 410 #11-#12, 411 #32-#37, 421-422, 427 #1, 438 ex 1, 467 #3, 627 #4, 848 #3, 923 #4

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8.8 Ask questions to reflect on, clarify, and extend thinking.	E/L	<b>Student Edition:</b> 261 #2, 287 #1, 427 #3, 452 ex 4, 577 #3-#4, 619 #1, 700 #2 <b>Teacher Wraparound Edition:</b> A 455
8.9 Review and refine the assumptions and steps used to derive conclusions in mathematical arguments.	I/L	<b>Student Edition:</b> 48 #4, 82 #4, 109 #2, 156 #5, 185 #4, 226 #4, 240 #4, 308 #4, 316 #4, 383 #5, 410 #5, 427 #5, 453 #5, 496 #3, 502 #3, 604 #4, 627 #5 <b>Teacher Wraparound Edition:</b> A 106, 739
8.10 Construct valid arguments; make and test conjectures about algebraic and geometric properties based on mathematical principles. E 10.12.4	I/L	<b>Student Edition:</b> 185 #4, 239 #1, 308 #3, 363 #1, 410 #11-#12, 411 #32-#37, 421-422, 427 #1, 438 ex 1, 467 #3, 627 #4, 848 #3, 923 #4
<b>Mathematical Connections</b>		
<b>Process Standard 9.0: Students will develop the ability to make mathematical connections by solving problems in which there is a need to view mathematics as an integrated whole, identifying relationships between context strands, and integrating mathematics with other disciplines, allowing the flexibility to approach problems in a variety of ways within and beyond the field of mathematics.</b>		
9.1 Link new concepts to prior knowledge.	E/L	<b>Student Edition:</b> Look Back 146, 155, 345, 395, 437, 464, 574, 663 <b>Teacher Wraparound Edition:</b> PS 569
9.2 Use mathematical ideas from one area of mathematics to explain an idea from another area of mathematics.	E/S	<b>Student Edition:</b> 38-44, 104 #53, 210 #14, 249 #43, 316 #25-#27, 475 #28, 621 #33, 669 #49, 845 #52, 961-968
9.3 Use models to explain the relationship of concepts to procedures. S 1.5.1; S 1.8.1; S 1.12.2; S 1.8.4; S 1.12.4; S 10.5.2; S 14.8.6; S 20.5.1	E/S	<b>Teacher Wraparound Edition:</b> A 25, 87, 111, 264, 318, 445, 542, 592, 684, 732, 880, 925

STANDARDS		PAGE REFERENCES
9.4 Use the connections among mathematical topics to develop multiple approaches to problems. S 20.8.1	I/L	<b>Student Edition:</b> 20-25, 67-72, 88-95, 181 ex 1, 189-196, 213-220, 222-228 <b>Teacher Wraparound Edition:</b> F 222; ICE 214, 215, 216, 224, 225
9.6 Use and analyze the connections between mathematics and other disciplines. Ec 2.8.2; Ec 2.12.4; Ec 2.12.8; H 2.8.3; H 2.12.3; S 2.12.1; S 14.12.5	I/L	<b>Student Edition:</b> 11 #52, 18 #28, 135 #38, 242 #37, 349 #55, 410 #13, 435 #43, 464 ex 2, 468 #33, 501 ex 3 <b>Teacher Wraparound Edition:</b> ICE 464, 501
9.7 Apply mathematical thinking and modeling to solve problems that arise in other disciplines (e.g., rhythm in music and motion in science). S 1.5.1; S 1.8.1; S 1.12.2; S 1.8.4; S 1.12.4; S 10.5.2; S 14.8.6; S 19.12.2	E/L	<b>Student Edition:</b> 11 #52, 18 #28, 135 #38, 242 #37, 349 #55, 410 #13, 435 #43, 464 ex 2, 468 #33, 501 ex 3 <b>Teacher Wraparound Edition:</b> ICE 464, 501
9.8 Identify, explain, and use mathematics in everyday life. Ec 2.3.2; Ec 2.12.12; Ec 5.2.1; Ec 5.3.1; S 24.12.2	I/S	<b>Student Edition:</b> 43 #8, 78-86, 116 #12, 145 #45, 258, 260 ex 3, 519 #35, 691 #63 <b>Teacher Wraparound Edition:</b> AIN 7; ICE 79, 260; MTL 78