



Geometry

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STANDARDS	PAGE REFERENCES
<p>Mathematical Processes Performance Standards A Grade 12</p>	
<p>By the end of grade twelve, students will:</p>	
<p>A.12.1 Use reason and logic to</p> <ul style="list-style-type: none"> • evaluate information • perceive patterns • identify relationships • formulate questions, pose problems, and make and test conjectures • pursue ideas that lead to further understanding and deeper insight 	<p>Student Edition: 59 #6, 75 ex 1, 79 ex 2, 80 #1-#2, 81 #33, 90 #56-#61, 97 #60-#62, 133 #11-#13, 135 #29 <i>Graphing Calculator Lab</i> 387 <i>Spreadsheet Lab</i> 324</p> <p>Teacher Resources: <i>Quick Review Math Handbook Book 3</i> 30 #5, 148 #3, 155 #5, 209 #11, 242 #3, 243 #6, 295 #4, 332 #4, 355 #6</p>
<p>A.12.2 Communicate logical arguments and clearly show</p> <ul style="list-style-type: none"> • why a result does or does not make sense • why the reasoning is or is not valid • an understanding of the difference between examples that support a conjecture and a proof of the conjecture 	<p>Student Edition: 79 ex 3, 80 #5-#6, 81 #25-#30, 82 #38, 92 ex 3, 94 #6-#8, 95 #27-#30, 96 #37-#42, 98 #1-#4, 99-104, 105-109, 110 #1-#3, 111-117, 134 #17-#24, 135 #25-#28, 137 #1-#3, 138 #1</p>

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<p>A.12.3 Analyze non-routine* problems and arrive at solutions by various means, including models* and simulations, often starting with provisional conjectures and progressing, directly or indirectly, to a solution, justification, or counter-example</p>	<p>Student Edition: 59 #6, 75 ex 1, 79 ex 2, 80 #1-#2, 81 #33, 90 #56-#61, 97 #60-#62, 133 #11-#13, 135 #29 <i>Graphing Calculator Lab</i> 387 <i>Spreadsheet Lab</i> 324</p> <p>Teacher Resources: <i>Quick Review Math Handbook Book 3</i> 30 #5, 148 #3, 155 #5, 209 #11, 242 #3, 243 #6, 295 #4, 332 #4, 355 #6</p>
<p>A.12.4 Develop effective oral and written presentations employing correct mathematical terminology, notation, symbols, and conventions for mathematical arguments and display of data</p>	<p>Student Edition: 59 #6, 75 ex 1, 79 ex 2, 80 #1-#2, 81 #33, 90 #56-#61, 97 #60-#62, 133 #11-#13, 135 #29 <i>Graphing Calculator Lab</i> 387 <i>Spreadsheet Lab</i> 324</p> <p>Teacher Resources: <i>Quick Review Math Handbook Book 3</i> 30 #5, 148 #3, 155 #5, 209 #11, 242 #3, 243 #6, 295 #4, 332 #4, 355 #6</p>
<p>A.12.5 Organize work and present mathematical procedures and results clearly, systematically, succinctly, and correctly</p>	<p>Student Edition: 11 #47, 20 #59, 28 #60, 37 #46, 47 #40, 57 #54, 65 #33, 82 #39, 89 #53, 96 #48, 103 #33, 109 #27, 116 #32, 122 #15, 131 #32, 146 #53, 187 #33, 216 #38, 231 #30, 255 #33</p>
<p>A.12.6 Read and understand</p> <ul style="list-style-type: none"> • mathematical texts and other instructional materials • writing about mathematics (e.g., articles in journals) and mathematical ideas as they are used in other contexts 	<p>Student Edition: <i>Reading Math</i> 6, 12, 32, 84, 85, 91, 98, 190, 224, 279, 331, 349, 381, 457, 533, 562, 570, 664, 692, 706</p>
<p>Mathematics, Standard B: Number Operations And Relationships Performance Standards - Grade 12</p>	
<p>By the end of grade twelve, students will:</p>	
<p>B.12.1 Use complex counting procedures such as union and intersection of sets and arrangements (permutations* and combinations*) to solve problems</p>	<p>Student Edition: 85, 86 ex 3, 88 #25-#28 <i>Reading Math</i> 85</p> <p>Teacher Resources: <i>Quick Review Math Handbook Book 3</i> 195 #10-#11, 232-239, 253 #13, 257 #22-#25, 266-269, 271 #21-#25,</p>

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<p>B.12.2 Compare real numbers using</p> <ul style="list-style-type: none"> • order relations (>,<) and transitivity* • ordinal scales including logarithmic (e.g., Richter, pH rating) • arithmetic differences • ratios, proportions, percents, rates of change 	<p>Student Edition: 157 ex 2, 160 #3-#5, 161 #37-#39, 162 #44, 170 #48, 280, 380-386, 396 #59-#64, 403 #35-#38, 425 #9-#11, 427 #1-#3 <i>Graphing Calculator Lab</i> 155 <i>Reading Math</i> 381 <i>Study Tip</i> 382</p> <p>Teacher Resources: <i>Quick Review Math Handbook Book 3</i> 101 #23-#25, 140-143, 144-152, 274 #16-#17, 308-311, 336 #14-#15</p>
<p>B.12.3 Perform and explain operations on real numbers (add, subtract, multiply, divide, raise to a power, extract a root, take opposites and reciprocals, determine absolute value)</p>	<p>Student Edition: 5 #6-#7, 778-779</p> <p>Teacher Resources: <i>Quick Review Math Handbook Book 3</i> 72 #6-#11, 73 #28-#43, 82-83, 92-95, 96 #6-#13, 97 #28-#43, 116-121, 122-125, 132-139, 162 #6-#9, 163 #19-#22, 166 #3-#20, 167 #38-#40, 168-175, 176-181, 188-189, 190 #3-#20, 191 #38-#40</p>
<p>B.12.4 In problem-solving situations involving the application of different number systems (natural, integers, rational*, real*) select and use appropriate</p> <ul style="list-style-type: none"> • computational procedures • properties (e.g., commutativity*, associativity*, inverses*) • modes of representation (e.g., rationals as repeating decimals, indicated roots as fractional exponents) 	<p>Student Edition: <i>Study Tip</i> 111</p> <p>Teacher Resources: <i>Quick Review Math Handbook Book 3</i> 78-81, 154-161, 284-291</p>
<p>B.12.5 Create and critically evaluate numerical arguments presented in a variety of classroom and real-world situations (e.g., political, economic, scientific, social)</p>	<p>Student Edition: 11 #45, 131 #28, 146 #50, 161 #43, 216 #37, 231 #28, 286 #47, 300 #33, 339 #36, 346 #43, 395 #48, 403 #29, 437 #45, 476 #34, 508 #36, 531 #46, 577 #48, 612 #28, 646 #57, 670 #27</p>
<p>B.12.6 Routinely assess the acceptable limits of error when</p> <ul style="list-style-type: none"> • evaluating strategies • testing the reasonableness of results • using technology to carry out computations 	<p>Student Edition: 11 #45, 19 #48-#51, 20 #56-#58, 131 #28, 146 #50, 161 #43, 216 #37, 231 #28, 286 #47, 300 #33, 339 #36, 346 #43, 395 #48, 403 #29, 437 #45, 476 #34, 508 #36, 531 #46, 577 #48, 612 #28, 646 #57, 670 #27</p>

STANDARDS	PAGE REFERENCES
Mathematics, Standard C: Geometry Performance Standards - Grade 12	
By the end of grade twelve , students will:	
<p>C.12.1 Identify, describe, and analyze properties of figures, relationships among figures, and relationships among their parts by</p> <ul style="list-style-type: none"> • constructing physical models • drawing precisely with paper-and-pencil, hand calculators, and computer software • using appropriate transformations* (e.g., translations, rotations, reflections, enlargements) • using reason and logic 	<p>Student Edition: 7 ex 2 <i>Construction</i> 33, 35, 172, 225, 228, 234 <i>Geometry Lab</i> 8, 30, 34, 41, 48, 67, 142, 158, 203, 235, 244 <i>Geometry Software Lab</i> 58-59, 148</p>
<p>C.12.2 Use geometric models* to solve mathematical and real-world problems</p>	<p>Student Edition: 220 #3, 221 #18, 250 #43, 254 #23-#26, 263 #10, 276 #26-#27, 284 #10, 285 #35, 300 #27-#28, 307 #16, 323 #51, 345 #32, 351 ex 4, 353 #28, 389 ex 2, 391 ex 5, 392 #7, 393 #20-#21, 394 #24-#25, 401 #12-#13</p>
<p>C.12.3 Present convincing arguments by means of demonstration, informal proof, counter-examples, or any other logical means to show the truth of</p> <ul style="list-style-type: none"> • statements (e.g., these two triangles are not congruent) • generalizations (e.g., the Pythagorean* theorem holds for all right triangles) 	<p>Student Edition: 79 ex 3, 80 #5-#6, 81 #25-#30, 82 #38, 92 ex 3, 94 #6-#8, 95 #27-#30, 96 #37-#42, 98 #1-#4, 99-104, 105-109, 110 #1-#3, 111-117, 134 #17-#24, 135 #25-#28, 137 #1-#3, 138 #1</p>
<p>C.12.4 Use the two-dimensional rectangular coordinate system* and algebraic procedures to describe and characterize geometric properties and relationships such as slope*, intercepts*, parallelism, and perpendicularity</p>	<p>Student Edition: 156-163, 164 #16-#18, 167 ex 4, 168 #9, 169 #29-#32, 175 ex 4, 176 #7, 177 #18-#19, 179 #43-#48, 182 ex 2, 184 ex 3, 185 #3, 187 #42-#43, 193 #16-#18, 195 #25 <i>Geometry Lab</i> 171 <i>Graphing Calculator Lab</i> 180</p> <p>Teacher Resources: <i>Quick Review Math Handbook Book 3</i> 275 #25, 324-335, 337 #22</p>
<p>C.12.5 Identify and demonstrate an understanding of the three ratios used in right-triangle trigonometry (sine, cosine, tangent)</p>	<p>Student Edition: 456-462, 463 #15-#16, 464-470, 471-477, 479-485, 488 #23-#25, 489 #27-#30, #31-#32, 490 #34-#37, 491 #10-#12, 492 #2, 495 #9-#14 <i>Geometry Software Lab</i> 478</p> <p>Teacher Resources: <i>Quick Review Math Handbook Book 3</i> 341 #19, 398-401, 403 #19</p>

STANDARDS	PAGE REFERENCES
Mathematics Performance Standards D Grade 12	
By the end of grade twelve , students will:	
<p>D.12.1 Identify, describe, and use derived attributes* (e.g., density, speed, acceleration, pressure) to represent and solve problem situations</p>	<p>Student Edition: 729 ex 2, 734 #30</p> <p>Teacher Resources: <i>Quick Review Math Handbook Book 3</i> 294-295</p>
<p>D.12.2 Select and use tools with appropriate degree of precision to determine measurements directly* within specified degrees of accuracy and error (tolerance)</p>	<p>Student Edition: 14 ex 3, 17 #5-#6, 18 #16-#21, 19 #48-#51, 20 #56-#58, 69 ex 3</p> <p><i>Study Tip</i> 14</p> <p>Teacher Resources: <i>Quick Review Math Handbook Book 3</i> 410-411</p>
<p>D.12.3 Determine measurements indirectly*, using</p> <ul style="list-style-type: none"> • estimation • proportional reasoning, including those involving squaring and cubing (e.g., reasoning that areas of circles are proportional to the squares of their radii) • techniques of algebra, geometry, and right triangle trigonometry • formulas in applications (e.g., for compound interest, distance formula) • geometric formulas to derive lengths, areas, or volumes of shapes and objects (e.g., cones, parallelograms, cylinders, pyramids) • geometric relationships and properties of circles and polygons (e.g., size of central angles, area of a sector of a circle) • conversion constants to relate measures in one system to another (e.g., meters to feet, dollars to Deutschmarks) 	<p>Student Edition: 400 ex 3, 401 #11-#13, 563-569, 570-577, 578-586, 587 #8, 596 #40-#42, 606 #50-#52, 607-613, 621 #17-#27, 622 #28-#34, 625 #6-#9, 626 #3, 776-777</p> <p>Teacher Resources: <i>Quick Review Math Handbook Book 3</i> 412-415, 416-419, 420-421, 428 #4-#7, 429 #21</p>

STANDARDS	PAGE REFERENCES
<p>Mathematics, Standard E: Statistics and Probability Performance Standards - Grade 12</p>	
<p>By the end of grade twelve, students will:</p>	
<p>E.12.1 Work with data in the context of real-world situations by</p> <ul style="list-style-type: none"> • formulating hypotheses that lead to collection and analysis of one- and two-variable data • designing a data collection plan that considers random sampling, control groups, the role of assumptions, etc. • conducting an investigation based on that plan • using technology to generate displays, summary statistics*, and presentations 	<p>Student Edition: <i>Graphing Calculator Lab</i> 155, 542</p> <p>Teacher Resources: <i>Quick Review Math Handbook Book 3</i> 196-201</p>
<p>E.12.2 Organize and display data from statistical investigations using</p> <ul style="list-style-type: none"> • frequency distributions • percentiles*, quartiles, deciles • line of best fit* (estimated regression line) • matrices 	<p>Student Edition: 567 #24-#31, 851 #18, 856 #8</p> <p>Teacher Resources: <i>Quick Review Math Handbook Book 3</i> 202, 204, 205 #8, 206 #11, 209, 210 #18, 211, 213 #1, 252 #9</p>
<p>E.12.3 Interpret and analyze information from organized and displayed data when given</p> <ul style="list-style-type: none"> • measures of dispersion*, including standard deviation and variance • measures of reliability • measures of correlation* 	<p>Student Edition: 565 ex 3, 567 #9, 670 #19-#22, 843 #9, 847 #17-#18, 851 #19-#20, 856 #8</p> <p>Teacher Resources: <i>Quick Review Math Handbook Book 3</i> 194 #1-#3, 203, 205 #6-#7, 207 #12-#13, 208, 211 #19-#20, 212 #21-#22, 213 #6, 214-221, 222-231</p>
<p>E.12.4 Analyze, evaluate, and critique the methods and conclusions of statistical experiments reported in journals, magazines, news media, advertising, etc.</p>	<p>Teacher Resources: <i>Quick Review Math Handbook Book 3</i> 205, 245</p>
<p>E.12.5 Determine the likelihood of occurrence of complex events by</p> <ul style="list-style-type: none"> • using a variety of strategies (e.g., combinations*) to identify possible outcomes • conducting an experiment • designing and conducting simulations* • applying theoretical probability 	<p>Student Edition: 587 #19, 665-671, 674 #23-#25, 675 #11-#13, 847 #19, 856 #9</p> <p>Teacher Resources: <i>Quick Review Math Handbook Book 3</i> 195 #10-#15, 240-241, 253 #14-#15</p>

STANDARDS	PAGE REFERENCES
<p>Mathematics, Standard F: Algebraic Relationships Performance Standards - Grade 12</p>	
<p>By the end of grade twelve, students will:</p>	
<p>F.12.1 Analyze and generalize patterns of change (e.g., direct and inverse variation) and numerical sequences, and then represent them with algebraic expressions and equations</p>	<p>Student Edition: 78, 80 #2, 90 #56-#61 <i>Graphing Calculator Lab</i> 387</p>
<p>F.12.2 Use mathematical functions* (e.g., linear*, exponential*, quadratic*, power) in a variety of ways, including</p> <ul style="list-style-type: none"> • recognizing that a variety of mathematical and real-world phenomena can be modeled* by the same type of function • translating different forms of representing them (e.g., tables, graphs, functional notation*, formulas) • describing the relationships among variable quantities in a problem • using appropriate technology to interpret properties of their graphical representations (e.g., intercepts, slopes, rates of change, changes in rates of change, maximum*, minimum*) 	<p>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</p> <p>Teacher Resources: <i>Quick Review Math Handbook Book 3</i> 275 #25-#35, 316-323, 324-335, 337 #23-#30</p>
<p>F.12.3 Solve linear and quadratic equations, linear inequalities, and systems of linear equations and inequalities</p> <ul style="list-style-type: none"> • numerically • graphically, including use of appropriate technology • symbolically, including use of the quadratic formula 	<p>Student Edition: 77 #9-#14, 273 ex 3, 274 #3, 275 #16-#18, 781-782, 783-784, 788-789, 796-797</p> <p>Teacher Resources: <i>Quick Review Math Handbook Book 3</i> 274 #8-#15, 296-307, 312-315, 336 #8-#15</p>
<p>F.12.4 Model and solve a variety of mathematical and real-world problems by using algebraic expressions, equations, and inequalities</p>	<p>Student Edition: 77 #9-#14, 273 ex 3, 274 #3, 275 #16-#18, 781-782, 783-784, 788-789, 796-797</p> <p>Teacher Resources: <i>Quick Review Math Handbook Book 3</i> 274 #1-#2, 276-283, 296-307, 312-315, 336 #1-#2</p>