

Glencoe/McGraw-Hill

**Advanced Mathematical Concepts:
Precalculus with Applications ©2004
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correlated to

**South Carolina Mathematics Standards
Algebra 3 Course Outline**

**GLENCOE/MCGRAW-HILL
ADVANCED MATHEMATICAL CONCEPTS:
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CORRELATED TO

**SOUTH CAROLINA MATHEMATICS STANDARDS
ALGEBRA 3 COURSE OUTLINE**

OBJECTIVES	PAGE REFERENCES
I. Linear and quadratic functions.	
A. Linear functions.	
1. Write equations of parallel lines, perpendicular lines, and perpendicular bisectors.	SE: 32–37 TWE: 32–37
2. Model real-world phenomena with linear function.	SE: 38–44 TWE: 38–44
B. Quadratic functions.	
1. Represent quadratic functions in algebraic, tabular, graphical, and verbal forms.	SE: 213–221 TWE: 213–221
2. Apply basic transformations.	SE: 140–143 TWE: 140–143
3. Model real-world phenomena with quadratic functions.	SE: 213–221, 258–264 TWE: 213–221, 258–264
C. Systems of equations.	
1. Solve systems of linear equations.	SE: 67–72 TWE: 67–72
2. Solve systems of linear-quadratic and quadratic-quadratic equations.	SE: 678–684 TWE: 678–684

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OBJECTIVES	PAGE REFERENCES
II. Polynomial functions.	
A. Polynomial functions.	
1. Describe the general shape of a graph and the effect of transformations on the domain and range.	SE: 137–145 TWE: 137–145
2. Recognize the connections among the significant points of a function, the graph of a function, and the algebraic representation of a function.	
a. Roots.	SE: 205–209, 213–219, 222–228, 229–234 TWE: 205–209, 213–219, 222–228, 229–234
b. Maximum points and minimum points.	SE: 171–178 TWE: 171–178
3. Investigate continuity and end behavior.	SE: 159–168, 169–170 TWE: 159–168, 169–170
4. Solve equations and inequalities using graphs, tables, algebraic methods, and technology.	SE: 205–212, 213–221, 222–228, 229–234, 236–242 TWE: 205–212, 213–221, 222–228, 229–234, 236–242
B. Problem situations.	
1. Analyze a verbal, graphical, or tabular representation of a polynomial function.	SE: 205–212, 213–221, 222–228, 229–234, 236–242 TWE: 205–212, 213–221, 222–228, 229–234, 236–242
2. Analyze a problem situation by formulating an equation or inequality.	SE: 146–151, 258–264 TWE: 146–151, 258–264

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OBJECTIVES	PAGE REFERENCES
III. Exponential and logarithmic functions.	
A. Exponential functions.	
1. Describe the general shape of a graph and the effect of transformations on the domain and range.	SE: 705–711 TWE: 705–711
2. Investigate asymptotic behavior.	SE: 705–711 TWE: 705–711
3. Investigate exponential properties graphically and algebraically.	SE: 704–711 TWE: 704–711
4. Solve exponential equations and inequalities using graphs, tables, algebraic methods, and technology, and investigate the reasonableness of solutions.	SE: 704–711, 740–748 TWE: 704–711, 740–748
5. Model real-world phenomena with exponential functions.	SE: 740–748 TWE: 740–748
B. Logarithmic functions.	
1. Describe the general shape of a graph and the effect of transformations on the domain and range.	SE: 718–725 TWE: 718–725
2. Develop the connection between exponential and logarithmic functions.	SE: 718–725 TWE: 718–725
3. Investigate asymptotic behavior.	SE: 728 TWE: 728

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OBJECTIVES	PAGE REFERENCES
4. Investigate logarithmic properties graphically and algebraically.	SE: 718–725, 740–748 TWE: 718–725, 740–748
5. Solve logarithmic equations and inequalities using graphs, tables, algebraic methods, and technology, and investigate the reasonableness of solutions.	SE: 718–725, 740–748 TWE: 718–725, 740–748
C. Problem situations.	
1. Analyze a verbal, graphical, or tabular representation of an exponential or logarithmic function.	SE: 718–725 TWE: 718–725
2. Analyze a problem situation by formulating an equation or inequality.	SE: 704–711, 712–716, 718–725, 726–732, 733–735, 740–748 TWE: 704–711, 712–716, 718–725, 726–732, 733–735, 740–748
3. Model real-world phenomena with logarithmic functions.	SE: 740–748 TWE: 740–748
IV. Conic sections.	
A. Conic sections	
1. Identify the graph of a conic section from its algebraic equation.	SE: 623–630, 631–641, 642–652, 653–660 TWE: 623–630, 631–641, 642–652, 653–660
2. Graph a conic section including translations.	SE: 670–677 TWE: 670–677

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OBJECTIVES	PAGE REFERENCES
B. Problem situations.	
1. Model real-world phenomena with conic sections.	SE: 627–630, 632, 637, 639–640, 646–647, 651–652, 657, 659–660, 666, 668–669, 675–677 TWE: 627–630, 632, 637, 639–640, 646–647, 651–652, 657, 659–660, 666, 668–669, 675–677
2. Solve systems of second-degree equations that model real-world phenomena.	SE: 678–684 TWE: 678–684
V. Trigonometric functions.	
A. Triangle trigonometry.	
1. Evaluate all six trigonometric functions using a right triangle.	SE: 284–290 TWE: 284–290
2. Solve problems using the law of sines and the law of cosines.	SE: 313–319, 320–326, 327–332 TWE: 313–319, 320–326, 327–332
3. Find the area of a triangle.	SE: 329–330, 338 TWE: 329–330, 338

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OBJECTIVES	PAGE REFERENCES
B. Problem situations.	
1. Analyze a verbal, graphical, or tabular representation of a trigonometric function.	SE: 359–367, 368–376, 378–386, 387–394, 395–403, 405–412 TWE: 359–367, 368–376, 378–386, 387–394, 395–403, 405–412
2. Analyze a problem situation by formulating an equation or inequality.	SE: 299–303, 305–312, 313–319, 320–326, 327–332, 359–367, 368–376, 378–386, 387–394, 395–403, 405–412 TWE: 299–303, 305–312, 313–319, 320–326, 327–332, 359–367, 368–376, 378–386, 387–394, 395–403, 405–412
3. Analyze graphical data gathered by technical equipment.	SE: 333–334, 404, 446–447 TWE: 333–334, 404, 446–447

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