Instructional Guide

Grade Level Eleventh **Subject Pre Calculus** **School System Pickens County**

School Year 2011-2012

Time Period (Pacing – when)	State Assessment Correlations	Standards/ Components (Pacing – what)	Resources/ Activities (Pacing – how) Curricular Alignment	Date of Common Formative Assessment (Pacing – how well)	Mapping Comments (What works what needs adjustment)
1st 9 weeks					
1 day		PreCal.6.1.a. Determine the inverse of a function PreCal.6.1.b. Determine the inverse of a relation	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 3.4, amc.glencoe.com, skills tutor software, Compass Vocabulary: inverse, horizontal Use/develop practice worksheets. Emphasize to students f^{-1} is notation and not operation.		
2 days		PreCal.7.1.oo Analyze piecewise-defined functions graphically to determine domain and range PreCal.7.1.pp Analyze piecewise-defined functions algebraically to determine domain and range	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 1.7, amc.glencoe.com, skills tutor software, Compass Vocabulary: piecewise, step function, absolute value function Use/develop practice worksheets. Exposure to graphs of various functions.		

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1ST 9 Weeks					
1 day		PreCal.7.1.qq Analyze piecewise-defined functions graphically to identify symmetries PreCal.7.1.rr Analyze piecewise-defined functions algebraically to identify symmetries	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 3.1, amc.glencoe.com, skills tutor software, Compass Vocabulary: symmetry Use and develop practice sheets. Internet resources		

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1st 9 weeks					
3 days		PreCal.7.1.ss Analyze piecewise-defined functions graphically to classify functions as increasing or decreasing PreCal.7.1.tt Analyze piecewise-defined functions algebraically to classify functions as increasing or decreasing PreCal.7.1.uu Analyze piecewise-defined functions graphically to classify functions as continuous or discontinuous PreCal.7.1.vv Analyze piecewise-defined functions graphically to identify the type of discontinuity if one exists PreCal.7.1.ww Analyze piecewise-defined functions algebraically to classify functions as continuous or discontinuous PreCal.7.1.xx Analyze piecewise-defined functions algebraically to identify the type of discontinuity if one exists	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 3.5, amc.glencoe.com, skills tutor software, Compass Vocabulary: continuous, discontinuous Use and develop practice sheets. Internet resources.		

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1st 9 weeks					
2 days		PreCal.7.1.a. Analyze rational functions graphically to determine domain and range PreCal.7.1.c. Analyze rational functions algebraically to determine domain and range	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 3.7 & 4.6, amc.glencoe.com, skills tutor software, Compass		
1 day		PreCal.7.1.c. Analyze rational functions graphically to identify symmetries PreCal.7.1.d. Analyze rational functions algebraically to identify symmetries	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 3.1, amc.glencoe.com, skills tutor software, Compass Vocabulary: image point, symmetry Use and develop practice sheets. Revisit exponents.		
1 day		PreCal.7.1.e. Analyze rational functions graphically to classify functions as increasing or decreasing PreCal.7.1.f.Analyze rational functions algebraically to classify functions as increasing or decreasing	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 3.5, amc.glencoe.com, skills tutor software, Compass Vocabulary: discontinuous, discontinuity, continuous, noncontinuity Use and develop practice sheets. Internet resources.		

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1st 9 weeks					
1 day	ACT	PreCal.12.1 Determine the value of the six trigonometric functions for special angles	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 6.1, amc.glencoe.com, skills tutor software, Compass Vocabulary: radian, central angle, circular arc, sector		
1 day		PreCal.11.1.a Apply the law of sines to determine missing measures of angles including application-based problems PreCal.11.B.1.a Deriving formulas for the law of sines	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 5.7, amc.glencoe.com, skills tutor software, Compass Vocabulary: ambiguous Use/develop practice worksheets. Emphasize care when labeling triangle.		
1 day		PreCal.11.1.b Apply the law of cosines to determine missing measures of angles including application-based problems PreCal.11.B.1.b Deriving formulas for the law of cosines PreCal.11.B.2 Determining area of oblique triangles	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 5.8, amc.glencoe.com, skills tutor software, Compass Vocabulary: Hero's formula Use/develop practice worksheets. Emphasize care when labeling triangles.		

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1st 9 weeks					
1 day		PreCal.10.1.a Solve trigonometric equations using sum and difference identities PreCal.12.B.1.a Using the sum and difference identities to find the exact value of a trigonometric function	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 7.3, amc.glencoe.com, skills tutor software, Compass Vocabulary: identity Use and develop practice sheets.		
1 day		PreCal.10.1.b Solve trigonometric equations using half- and double-angle identities PreCal.12.B.1.b Using the half-angle identities to find the exact value of a trigonometric function	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 7.4, amc.glencoe.com, skills tutor software, Compass Use/develop practice worksheets.		
2 days	ACT	PreCal.10.B.1 Verifying trigonometric identities	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 7.1, amc.glencoe.com, skills tutor software, Compass Vocabulary: reciprocal, Pythagorean, symmetry Use and develop practice materials.		
1 day		PreCal.9.1.d Determine the domain and range of trigonometric functions	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 6.3 & 6.8, amc.glencoe.com, skills tutor software, Compass		

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1st 9 weeks					
1 day		PreCal.7.1.cc Analyze trigonometric functions graphically to determine domain and range PreCal.7.1.dd Analyze trigonometric functions algebraically to determine domain and range	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 5.3 & 6.3, amc.glencoe.com, skills tutor software, Compass Vocabulary: sine, cosine, tangent, period Use and develop practice sheets. Internet resources		
1day		PreCal.7.1.ee Analyze trigonometric functions graphically to identify symmetries PreCal.7.1.ff Analyze trigonometric functions algebraically to identify symmetries	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 3.1 & 6.3, amc.glencoe.com, skills tutor software, Compass Vocabulary: period Use and develop practice sheets. Internet resources.		
1 day		PreCal.7.1.gg Analyze trigonometric functions graphically to identify vertical or horizontal, and oblique asymptotes PreCal.7.1.hh Analyze trigonometric functions algebraically to identify asymptotes	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 3.7 & 6.3, amc.glencoe.com, skills tutor software, Compass Vocabulary: asymptote, oblique Use and develop practice sheets. Internet resources		

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1st 9 weeks					
3 days		PreCal.7.1.ii Analyze trigonometric functions graphically to classify functions as increasing or decreasing PreCal.7.1.jj Analyze trigonometric functions algebraically to classify functions as increasing or decreasing PreCal.7.1.kk Analyze trigonometric functions graphically to classify functions as continuous or discontinuous PreCal.7.1.ll Analyze trigonometric functions graphically to identify the type of discontinuity if one exists PreCal.7.1.mm Analyze trigonometric functions algebraically to classify functions as continuous or discontinuous PreCal.7.1.nn Analyze trigonometric functions algebraically to identify the type of discontinuity if one exists	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 3.5 & 6.3, amc.glencoe.com, skills tutor software, Compass Vocabulary: continuous, discontinuous Use and develop practice sheets. Internet resources.		

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1st 9 weeks					
1 day		PreCal.9.1.a Determine the amplitude of trigonometric functions PreCal.9.1.b Determine the period of trigonometric functions	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 6.3 & 6.4, amc.glencoe.com, skills tutor software, Compass Vocabulary: amplitude, frequency, period Teacher made practice materials With the supplemental materials		
1 day		PreCal.9.1.c Determine the phase shift of trigonometric functions	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 6.5, amc.glencoe.com, skills tutor software, Compass Vocabulary: midline Teacher made practice materials With supplemental materials		
2 days	ACT	PreCal.9.1.e Determine the inverses of trigonometric functions	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 5.5 & 6.8, amc.glencoe.com, skills tutor software, Compass Vocabulary: principal value, inverse Use/develop practice worksheets		

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1st 9 weeks					
2 days		PreCal.1.a. Perform vector operation of Addition. PreCal.1.b. Perform vector operation of Scalar Multiplication PreCal.1.c. Perform vector operation of absolute value	Glencoe Advanced Mathematical Concepts 8.1 & 8.2, amc.glencoe.com, skills tutor software, Compass Vocabulary: terminal, point, magnitude, resultant, initial, Review prerequisite skills Use and develop practice worksheets. (Teacher-made/computer generated.) Reteach geometric vectors		
1 day		PreCal.1.B.1.a. Determining Coincidence PreCal.1.B.1.b. Determining parallelism PreCal.1.B.1.c. Determining collinearity PreCal.1.B.1.d. Determining perpendicularity	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 8.4, amc.glencoe.com, skills tutor software, Compass Vocabulary: Coincidence, Parallelism, Collinearity, Perpendicularity		

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1st 9 weeks					
1 day		PreCal.1.B.2.a. Using vectors to model application-based situations PreCal.1.B.2.b. Using vectors to model mathematical situations	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 8.5, 8.6, & 8.7, amc.glencoe.com, skills tutor software, Compass Vocabulary: parametric, parametric equations		

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1st 9 weeks					
1 day		PreCal.13.1.a Utilize parametric equations PreCal.13.B.1 Solving application-based problems involving parametric equations PreCal.13.1.b Utilize parametric equations by converting to rectangular form PreCal.13.B.2 Solving applied problems that include sequences with recurrence relations	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 8.6 & 8.7, amc.glencoe.com, skills tutor software, Compass Vocabulary: projectiles, velocity, displacement Supplemental materials from the internet. Use/develop practice worksheets.		
1 day	ACT	PreCal.5.a. Create graphs of parabolas from second-degree equations PreCal.5.B.1. Formulating equations of conic sections from their determining characteristics	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 10.5, amc.glencoe.com, skills tutor software, Compass Vocabulary: focus, directrix, axis of symmetry, locus Use/develop practice worksheets.		

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1st 9 weeks					
1 ½ days		PreCal.5.b. Create graphs of hyperbolas from second-degree equations PreCal.5.B.1. Formulating equations of conic sections from their determining characteristics	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 10.4, amc.glencoe.com, skills tutor software, Compass Vocabulary: hyperbola, foci, asymptotes, transverse axis, conjugate axis, equilateral Use/develop practice worksheets Improper form of the equation		
1 ½ days		PreCal.5.c. Create graphs of ellipses from second-degree equations PreCal.5.B.1. Formulating equations of conic sections from their determining characteristics	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 10.3, amc.glencoe.com, skills tutor software, Compass Vocabulary: major axis, minor axis, vertices, semi, eccentricity Use/develop practice worksheets. Students who use an improper form of the equation.		

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1st 9 weeks					
1 day		PreCal.5.d. Create graphs of circles from second-degree equations PreCal.5.e. Create graphs of degenerate conics from second-degree equations PreCal.5.B.1. Formulating equations of conic sections from their determining characteristics	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 10.2, amc.glencoe.com, skills tutor software, CompassVocabulary: concentric, conic section, degenerate conic Use/develop practice worksheets.		

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2nd 9 weeks					
2 days		PreCal.4.a. Determine characteristics of arithmetic sequences PreCal.4.b. Determine characteristics of arithmetic sequences defined with recurrence relations PreCal.4.c. Determine characteristics of arithmetic sequences defined with first terms, common differences, and n^{th} terms PreCal.4.d Determine characteristics of arithmetic series PreCal.4.e. Determine characteristics of arithmetic series defined with recurrence relations PreCal.4.f. Determine characteristics of arithmetic series defined with first terms, common differences, and n^{th} terms.	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 12.1, amc.glencoe.com, skills tutor software, Compass Vocabulary: sequence terms, arithmetic sequence, series, arithmetic series, recursive formula, arithmetic mean Use/develop practice worksheets.		

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2nd 9 weeks					
2 days		PreCal.4.g. Determine characteristics of geometric sequences PreCal.4.h. Determine characteristics of geometric sequences defined with recurrence relations PreCal.4.i. Determine characteristics of geometric sequences defined with first terms, common differences, and n^{th} terms PreCal.4.j. Determine characteristics of geometric series PreCal.4.k. Determine characteristics of geometric series defined with recurrence relations PreCal.4.l. Determine characteristics of geometric series defined with first terms, common differences, and n^{th} terms. PreCal.4.B.1. Solving problems modeled by finite geometric series, including home mortgage problems	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 12.2, amc.glencoe.com, skills tutor software, Compass Vocabulary: geometric sequence, common ratio, geometric mean, geometric series Use/develop practice worksheets.		

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2nd 9 weeks					
2 days		PreCal.4.m. Determine characteristics of arithmetic sequences defined with limits PreCal.4.n.Determine characteristics of geometric sequences defined with limits	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 12.3, amc.glencoe.com, skills tutor software, Compass Vocabulary: infinite sequence, limit infinite sequence Use and develop practice sheets. Internet resources.		
2 days		PreCal.4.o. Determine characteristics of arithmetic series defined with statements of convergence PreCal.4.p. Determine characteristics of arithmetic series defined with statements of divergence PreCal.4.q. Determine characteristics of geometric series defined with statements of convergence PreCal.4.r. Determine characteristics of geometric series defined with statements of divergence	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 12.4, amc.glencoe.com, skills tutor software, Compass Vocabulary: converge, diverge, comparison test		

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2nd 9 weeks					
2 days		PreCal.4.B.2 Expanding binomials raised to a whole number power using the binomial theorem	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 12.6, amc.glencoe.com, skills tutor software, Compass Vocabulary: Pascal's triangle, Binomial Theorem Use and develop practice sheets. Internet resources.		
2 days		PreCal.7.1.q. Analyze exponential functions graphically to determine domain and range PreCal.7.1.r. Analyze exponential functions algebraically to determine domain and range	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 11.2, amc.glencoe.com, skills tutor software, Compass Vocabulary: growth, decay Use and develop practice sheets. Internet resources		
2 days		PreCal.7.1.s. Analyze exponential functions graphically to identify symmetries PreCal.7.1.t. Analyze exponential functions graphically to identify symmetries	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 3.1, amc.glencoe.com, skills tutor software, Compass Vocabulary: image point Use and develop practice sheets. Internet resources		

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2nd 9 weeks					
2 days		PreCal.7.1.u. Analyze exponential functions graphically to identify horizontal asymptotes PreCal.7.1.v. Analyze exponential functions algebraically to identify horizontal asymptotes PreCal.7.1.w. Analyze exponential functions graphically to classify functions as increasing or decreasing PreCal.7.1.x. Analyze exponential functions algebraically to classify functions as increasing or decreasing	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 3.7 & 11.2, amc.glencoe.com, skills tutor software, Compass Vocabulary: asymptote Use and develop practice sheets. Internet resources		

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2nd 9 weeks					
2 days		PreCal.7.1.y. Analyze exponential functions graphically to classify functions as continuous or discontinuous PreCal.7.1.z. Analyze exponential functions graphically to identify the type of discontinuity if one exists PreCal.7.1.aa. Analyze exponential functions algebraically to classify functions as continuous or discontinuous PreCal.7.1.bb. Analyze exponential functions algebraically to identify the type of discontinuity if one exists	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 3.5, amc.glencoe.com, skills tutor software, Compass Vocabulary: discontinuity, continuity Use and develop practice sheets. Internet resources.		
2 days		PreCal.14.1.a Apply laws of logarithms to simplify expressions PreCal.14.1.b Apply laws of logarithms to solve equations using common logarithms PreCal.14.1.c Apply laws of logarithms to solve equations using logarithms with other bases.	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 11.4 &11.5, amc.glencoe.com, skills tutor software, Compass Vocabulary: logarithm, logarithmic, mantissa, antilogarithms Use/develop practice worksheets. Exhibit knowledge of logarithms.		

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2nd 9 weeks					
2 days		PreCal.14.1.d Apply laws of logarithms to solve equations using natural logarithms	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 11.6, amc.glencoe.com, skills tutor software, Compass Vocabulary: Ln, antiLn Use and develop practice materials		
2 days	ACT	PreCal.7.1.g. Analyze logarithmic functions graphically to determine domain and range PreCal.7.1.h. Analyze logarithmic functions algebraically to determine domain and range	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 11.4, amc.glencoe.com, skills tutor software, Compass Use and develop practice sheets. Internet resources.		

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2nd 9 weeks					
2 days		PreCal.7.1.i. Analyze logarithmic functions graphically to identify symmetries PreCal.7.1.j. Analyze logarithmic functions algebraically to identify symmetries PreCal.7.1.k. Analyze logarithmic functions graphically to classify functions as increasing or decreasing PreCal.7.1.l Analyze logarithmic functions algebraically to classify functions as increasing or decreasing	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 3.1 & 11.4, amc.glencoe.com, skills tutor software, Compass Use and develop practice sheets. Internet resources		

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2nd 9 weeks					
1 day		PreCal.7.1.m. Analyze logarithmic functions graphically to classify functions as continuous or discontinuous PreCal.7.1.n. Analyze logarithmic functions algebraically to classify functions as continuous or discontinuous PreCal.7.1.o. Analyze logarithmic functions graphically to identify the type of discontinuity if one exists PreCal.7.1.p. Analyze logarithmic functions algebraically to identify the type discontinuity if one exists	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 3.5 & 11.4, amc.glencoe.com, skills tutor software, Compass Vocabulary: continuous, discontinuous Use and develop practice sheets. Internet resources		
2 days		PreCal.16.1.a Determine the equation of a curve of best fit from a set of data using exponential functions. PreCal.16.1.b Determine the equation of a curve of best fit from a set of data using quadratic functions. PreCal.16.1.c Determine the equation of a curve of best fit from a set of data using logarithmic functions.	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 1.6 &4.8, amc.glencoe.com, skills tutor software, Compass Vocabulary: model Supplement with internet resources.		

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2nd 9 weeks					
2 days		PreCal.3.a. Determine numerically the limits of functions at specific values PreCal.3.b. Determine numerically the limits of functions at infinity PreCal.3.c. Determine algebraically the limits of functions at specific values PreCal.3.d. Determine algebraically the limits of functions at infinity	Glencoe Advanced Mathematical Concepts 15.1 & 12.3, amc.glencoe.com, skills tutor software, Compass Vocabulary: limit, infinite Use/develop practice worksheets.		
1 day		PreCal.3.e. Determine graphically the limits of functions at specific values PreCal.3.f. Determine graphically the limits of functions at infinity	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts amc.glencoe.com, skills tutor software, Compass Use internet supplied materials. Use and develop practice sheets. Use internet supplied materials.		

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2nd 9 weeks					
1 day		PreCal.3.B.a Applying limits in problems involving convergence PreCal.3.B.b Applying limits in problems involving divergence	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 12.3 & 12.4, amc.glencoe.com, skills tutor software, Compass Vocabulary: converge, diverge Use and develop practice worksheets. Use and develop practice worksheets.		
1 day		PreCal.7.B.1 Using the difference quotient to approximate rates of change	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 15.2, amc.glencoe.com, skills tutor software, Compass Vocabulary: rate of change, anti-derivative, derivative, tangent line, secant line Use/develop practice worksheets.		

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2nd 9 weeks					
2 days		PreCal.2.a. Define e using the limit form of $\sum 1/n!$ PreCal.2.b. Define e using the limit form of $\lim(1 + 1/n)^n$ PreCal.2.c. Define e using the limit form of $\lim(1 + n)^{1/n}$	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 12.5, amc.glencoe.com, skills tutor software, Compass Vocabulary: limit, sigma notation, summation, factorial Use and develop supplemental materials from internet resources. Use and develop practice sheets. Review *e*, limits, and other prerequisite skills.		
2 days		PreCal.8.1. Compare effects of parameter changes on graphs of transcendental functions.	**Text/Teaching Materials**: Internet, amc.glencoe.com, skills tutor software, Compass Supplemental materials from the internet Supplemental materials from the internet		
2 days		PreCal.15.1.c Convert coordinates, equations, and complex numbers from Cartesian form to polar form PreCal.15.1.d Convert polar coordinates to coordinates, equations, and complex numbers in Cartesian form	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 9.3, amc.glencoe.com, skills tutor software, Compass Vocabulary: complex numbers Use/develop practice worksheets.		

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2nd 9 weeks					
1 day		PreCal.15.1.a Determine the location of polar coordinates on the complex plane	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 9.1 & 9.2, amc.glencoe.com, skills tutor software, Compass Vocabulary: polar, pole, rose, cardioid, classical curves Use/develop practice worksheets. Expose students to complex plane.		
1 day		PreCal.15.1.b Determine the location of complex numbers on the complex plane	**Text/Teaching Materials**: Glencoe Advanced Mathematical Concepts 9.6, amc.glencoe.com, skills tutor software, Compass Vocabulary: Argand plane, modulus, argument Use/develop practice worksheets. Expose students to complex plane.		