A Correlation of

MyMathLab® for School Precalculus

Enhanced with Graphing Utilities

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To the

Tennessee Mathematics Standards

Approved July 30, 2010

Pre-Calculus #3126

Bid Category 13-090-10

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Tennessee Mathematics Standards Pre-Calculus #3126	MyMathLab® for School, Precalculus Enhanced with Graphing Utilities, ©2016
Standard 1 – Mathematical Processes	
Course Level Expectations	
CLE 3126.1.1 Use mathematical language, symbols, definitions, proofs and counterexamples correctly and precisely in mathematical reasoning.	**SE/TE: 1.4:** 33-39, **2.1:** 58-62, **3.1:** 130-131, **4.3:** 211-214, **5.1:** 251-255, **5.1:** 272-273, **5.5:** 302-303, **5.8:** 327-333, **7.4:** 470-473, **7.7:** 498-500, **8.3:** 532, **8.4:** 539-540, **10.3:** 646-649, **11.3:** 732-734, **11.4:** 742-746
CLE 3126.1.2 Apply and adapt a variety of appropriate strategies to problem solving, including testing cases, estimation, and then checking induced errors and the reasonableness of the solution.	**SE/TE: 1.1:** 10, **1.2:** 18-20, **2.1:** 65, **2.5:** 110, **3.3:** 155, **4.1:** 190-192, **4.2:** 202-203, **5.5:** 304-307, **6.3:** 392, **7.3:** 459-464, **8.2:** 521-527, **9.4:** 593-602, **11.1:** 703-713, **11.2:** 721-728
CLE 3126.1.3 Develop inductive and deductive reasoning to independently make and evaluate mathematical arguments and construct appropriate proofs; include various types of reasoning, logic, and intuition.	**SE/TE: 1.1:** 5, **1.4:** 38-39, **4.3:** 211-214, **5.5:** 302-303, **7.4:** 470-473, **7.5:** 478-484, **7.6:** 488-494, **7.7:** 498-500, **8.3:** 531, 532, **8.4:** 539-540, **12.4:** 827-830
CLE 3126.1.4 Move flexibly between multiple representations (contextual, physical, written, verbal, iconic/pictorial, graphical, tabular, and symbolic), to solve problems, to model mathematical ideas, and to communicate solution strategies.	**SE/TE: 2.1:** 58-68, **2.3:** 81-89, **2.4:** 93-100, **2.5:** 104-112, **3.1:** 130-136, **3.3:** 147-155, **4.1:** 179-193, **4.4:** 216-224, **4.5:** 227-233, **5.3:** 271-282, **5.4:** 288-297, **5.6:** 311-315, **6.4:** 398-408, **6.5:** 413-418
CLE 3126.1.5 Recognize and use mathematical ideas and processes that arise in different settings, with an emphasis on formulating a problem in mathematical terms, interpreting the solutions, mathematical ideas, and communication of solution strategies.	**SE/TE: 2.1:** 65, **2.4:** 99-100, **3.2:** 140-143, **4.1:** 190-192, **4.2:** 202-203, **4.5:** 233, **5.5:** 304-307, **5.8:** 327-334, **6.3:** 392, **6.6:** 424-428, **7.3:** 459-464, **8.2:** 521-527, **9.4:** 593-602, **11.1:** 703-713, **11.2:** 721-728
CLE 3126.1.6 Employ reading and writing to recognize the major themes of mathematical processes, the historical development of mathematics, and the connections between mathematics and the real world.	**SE/TE: 4.2:** 208, **6.1:** 364, **6.2:** 380, **8.4:** 540, **9.2:** 582, **9.3:** 591, **9.4:** 602, **11.4:** 755, **12.3:** 824, **13.3:** 864
CLE 3126.1.7 Use technologies appropriately to develop understanding of abstract mathematical ideas, to facilitate problem solving, and to produce accurate and reliable models.	**SE/TE: 1.1:** 10-11, 13, **3.2:** 142-143, **4.2:** 200, 207-208, **5.9:** 340-341, **6.6:** 428, **10.2:** 637, 10.3 652, 10.7 690, **11.2:** 723, **11-6:** 767-771, **14.1:** 875, **Appendix A:** A10
Check for Understanding (Formative/Summative Assessment)	
3126.1.1 Give a sequence of algebraic or mathematical reasons to justify the validity of the steps in a mathematical proof.	**SE/TE: 1.1:** 5, **1.4:** 38-39, **4.3:** 211-214, **5.5:** 302-303, **7.4:** 470-473, **7.5:** 478-484, **7.6:** 488-494, **7.7:** 498-500, **8.3:** 531, 532, **8.4:** 539-540

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3126.1.2 Use algebraic properties to develop a valid sequence of mathematical statements.	**SE/TE: 1.1:** 10, **1.2:** 18-20, **1.3:** 28, **3.5:** 169-170, 238-240, 295-296, **5.5:** 304-307, **5.6:** 311-315, **7.3:** 459-464, **7.4:** 470-473, **7.5:** 478-484, **7.6:** 488-494, **7.7:** 498-500, **8.2:** 521-527, **8.3:** 531-534
3126.1.3 Correctly use summation notation; expand and collect expressions in both finite and infinite settings.	**SE/TE: 12.1:** 803-806, **12.2:** 814-816, **12.3:** 820-824
3126.1.4 Derive and apply the formulas for the area of sector of a circle.	**SE/TE: 6.1:** 362-363
3126.1.5 Conduct simple experiments or investigations to collect non-linear data to answer questions of interest.	For related content, please see: **SE/TE: 3.2:** 140-143, **3.4:** 163-164, **4.1:** 192-193, **5.9:** 339-342
3126.1.6 Understand the different representations of a function; discuss the criteria (such as the type of function and the problem under consideration) for determining which representation is most helpful.	**SE/TE: 2.1:** 58-68, **2.3:** 81-89, **2.4:** 93-100, **2.5:** 104-112, **3.1:** 130-136, **3.3:** 147-155, **4.1:** 179-193, **4.4:** 216-224, **4.5:** 227-233, **5.3:** 271-282, **5.4:** 288-297, **5.6:** 311-315, **6.4:** 398-408, **6.5:** 413-418
3126.1.7 Analyze situations, develop mathematical models, or solve problems using linear, polynomial, trigonometric, exponential, or logarithmic equations or inequalities symbolically or graphically.	**SE/TE: 2.4:** 99-100, **2.6:** 116-118, **3.1:** 134-136, **3.2:** 140-143, **3.4:** 159-164, **4.4:** 233, **5.7:** 317-323, **5.8:** 327-334, **5.9:** 338-342, **6.6:** 424-428
3126.1.8 Draw qualitative graphs (sketches) of functions (linear, quadratic, cubic, square root, absolute value, reciprocal, trigonometric, exponential, logarithmic, and greatest integer) and describe their general shape/trend.	**SE/TE: 2.2:** 71-75, **2.3:** 82-89, **2.4:** 93-100, **2.5:** 104-112, **3.1:** 132-136, **3.3:** 148-155, **4.1:** 180-193, **4.4:** 218-220, **4.5:** 227-233, **5.3:** 275-282, **5.4:** 291-294, **5.6:** 311-315, **6.4:** 398-408, **6.5:** 414-418
3126.1.9 Demonstrate diagrammatically composition of functions and inverse of functions; discuss similarity to and differences from arithmetic operations of functions.	**SE/TE: 5.1:** 251-255, **5.2:** 262-265
3126.1.10 Make inferences or predictions using an algebraic model of a situation.	**SE/TE: 3.2:** 141-143, **3.4:** 163-164, **4.1:** 192-193
3126.1.11 Discuss interpolation vs. extrapolation and the validity of the resulting estimates.	**SE/TE: 3.2:** 141-143, **4.1:** 192-193

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3126.1.12 Discuss the changes in mathematics that arose through the development of function notation, Cartesian coordinates, base *e*, and other mathematical ideas discussed in pre-calculus.	**SE/TE: 6.1:** 364, **6.2:** 380, **8.4:** 540, **9.2:** 582, **9.3:** 591, **9.4:** 602, **11.4:** 755, **12.3:** 824, **13.3:** 864
3126.1.13 Establish accurate and consistent use of units in the presentation of answers to applied questions.	**SE/TE: 2.6:** 116-118, **3.1:** 134-136, **3.2:** 140-143, **3.4:** 159-164, **4.5:** 233, **5.7:** 317-323, **5.8:** 327-334, **5.9:** 338-342, **6.6:** 424-428, **9.4:** 600-602, **9.5:** 610-611
3126.1.14 Use graphing calculators and computer spreadsheets to analyze qualities of a function	**SE/TE: 2.2:** 71-75, **2.3:** 82-89, **2.4:** 93-100, **2.5:** 104-112, **3.1:** 132-136, **3.3:** 148-155, **4.1:** 180-193, **4.4:** 218-220, **4.5:** 227-233, **5.3:** 275-282, **5.4:** 291-294, **5.6:** 311-315, **6.4:** 398-408, **6.5:** 414-418
Standard 2 – Number & Operations	
Course Level Expectations	
CLE 3126.2.1 Understand the capabilities and the limitations of calculators and computers in solving problems.	**SE/TE: 1.1:** 10-11, 13, **3.2:** 142-143, **4.2:** 200, 207-208, **5.9:** 340-341, **6.6:** 428, **10.2:** 637, **10.3:** 652, **10.7:** 690, **11.2:** 723, **11-6:** 767-771, **14.1:** 875, **Appendix A:** A10
CLE 3126.2.2 Represent, interpret or compare expressions for real numbers, including expressions utilizing exponents and logarithms.	**SE/TE: 5.3:** 271-273, 279, **5.5:** 301-308, **5.6:** 310-314, **Appendix A:** A4-A10
CLE 3126.2.3 Develop the ability to recognize the difference between algebraic and transcendental expressions; be able to classify a number (Natural, integer, rational, etc.) written in a complex format.	**SE/TE: 5.3:** 279-282, **6.1:** 358-360
CLE 3126.2.4 Develop facility with simplification of complex algebraic expressions involving exponential notation, logarithmic notation, rational notation, and radicals	**SE/TE: 5.3:** 271-273, **5.3:** 279, **5.5:** 301-308, **5.6:** 310-314, **11.5:** 758-764, **11.6:** 769, **Appendix A:** A34-A40, A83-A88
CLE 3126.2.5 Be able to calculate vector arithmetic and vector length.	**SE/TE: 9.4:** 593-602, **9.5:** 607-611, **9.6:** 615-621, **9.7:** 625-626
CLE 3126.2.6 Recognize vectors as elements (i.e. numbers) that have their own form of arithmetic operations in their own system of elements.	**SE/TE: 9.4:** 593-602, **9.5:** 606-611, **9.6:** 614-621, **9.7:** 623-626

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CLE 3126.2.7 Recognize series as an identification of a number which can be identified as a specific numeral or only approximated.	**SE/TE: 12.2:** 814-816, **12.3:** 820-824
Check for Understanding (Formative/Summative Assessment)	
3126.2.1 Use calculators appropriately and make estimations without a calculator regularly to detect potential errors.	**SE/TE: 1.1:** 10-11, 13, **3.2:** 142-143, **4.2:** 200, 207-208, **5.9:** 340-341, **6.6:** 428, **10.2:** 637, **10.7:** 690, **11.2:** 723, **11-6:** 767-771, **14.1:** 875
3126.2.2 Demonstrate round-off error, over-flow error, and errors in mode settings (ex. Degree vs. radians) with particular examples.	**SE/TE: 1.1:** 17, **3.2:** 142-143, **5.9:** 339-341, **6.6:** 428, **10.3:** 652, **11.2:** 723-724
3126.2.3 Compare exponential and logarithmic expressions.	**SE/TE: 5.3:** 271-273, **5.3:** 279, **5.5:** 301-308, **5.6:** 310-314
3126.2.4 Recognize the difference between continuous and discrete situations.	**SE/TE: 4.1:** 180-193, **4.2:** 207, **14.3:** 886-888
3126.2.5 Classify real numbers and order real numbers that include transcendental expressions, including roots and fractions of pi and *e*.	**SE/TE: 5.3:** 279-282, **6.1:** 358-360
3126.2.6 Simplify complex radical and rational expressions; discuss and display understanding that rational numbers are dense in the real numbers and the integers are not.	**SE/TE: 11.5:** 758-764, **11.6:** 769, **Appendix A:** A34-A40, A83-A88
3126.2 .7 Multiply a vector by a scalar both algebraically and graphically.	**SE/TE: 9.4:** 594-598, 600-602, **9.5:** 606-611
3126.2.8 Add vectors both algebraically and graphically.	**SE/TE: 9.4:** 594-595, 597-598, 600-602, **9.5:** 611
3126.2.9 Calculate magnitude and direction of a vector.	**SE/TE: 9.4:** 593-602, **9.5:** 607-611, **9.6:** 615-621, **9.7:** 625-626
3126.2.10 Calculate and interpret the dot product of two vectors.	**SE/TE: 9.5:** 606-611, **9.6:** 617-621

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3126.2.11Understand that vectors are determined by the coordinates of their initial and terminal points, or by their components.	**SE/TE: 9.4:** 593-602, **9.5:** 606-611, **9.6:** 614-621, **9.7:** 623-626
3126.2.12 Use vectors to model velocity and direction to solve problems.	**SE/TE: 9.4:** 600-602, **9.5:** 610-611
3126.2.13 Determine whether a given arithmetic or geometric series converges or diverges.	**SE/TE: 12.3:** 821-824
3126.2.14 Demonstrate an understanding of sequences by representing them recursively and explicitly.	**SE/TE: 12.1:** 799-806, **12.2:** 812-816, **12.3:** 818-824
3126.2.15 Use Sigma notation to represent a series.	**SE/TE: 12.2:** 814-816, **12.3:** 820-824
3126.2.16 Find the sum of a given geometric series (both infinite and finite).	**SE/TE: 12.1:** 803-804, **12.3:** 820-824
3126.2.17 Find the sum of a finite arithmetic series.	**SE/TE: 12.1:** 805, **12.2:** 814-816
3126.2.18 Use the laws of exponents and logarithms to expand or collect terms in expressions; simplify expressions or modify them in order to analyze them or compare them.	**SE/TE: 5.3:** 271-273, 279, **5.5:** 301-308, **5.6:** 310-314
Standard 3 – Algebra	
Course Level Expectations	
CLE 3126.3.1 Develop an understanding of functions as elements that can be operated upon to get new functions: addition, subtraction, multiplication, division, and composition of functions.	**SE/TE: 2.1:** 66-68, **2.6:** 116-118, **5.1:** 251-255
CLE 3126.3.2 Understand how the algebraic properties of an equation transform the geometric properties of its graph.	**SE/TE: 2.4:** 93-100, **2.5:** 104-112, **2.6:** 116-118, **4.1:** 183-185, 188-191, **4.2:** 198-208, **4.3:** 211-215
CLE 3126.3.3 Analyze the graph of a function, given either a sketch or a symbolic description.	**SE/TE: 2.2:** 71-75, **2.3:** 82-89, **2.4:** 93-100, **2.5:** 104-112, **3.1:** 132-136, **3.3:** 148-155, **4.1:** 180-193, **4.4:** 218-220, **4.5:** 227-233, **5.3:** 275-282, **5.4:** 291-294, **5.6:** 311-315, **6.4:** 398-408, **6.5:** 414-418

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CLE 3126.3.4 Identify or analyze the distinguishing properties of exponential, polynomial, logarithmic, trigonometric, and rational functions from tables, graphs, and equations.	**SE/TE: 2.1:** 58-68, **2.3:** 81-89, **2.4:** 93-100, **2.5:** 104-112, **3.1:** 130-136, **3.3:** 147-155, **4.1:** 179-193, **4.4:** 216-224, **4.5:** 227-233, **5.3:** 271-282, **5.4:** 288-297, **5.6:** 311-315, **6.4:** 398-408, **6.5:** 413-418
CLE 3126.3.5Apply appropriate techniques to analyze mathematical models and functions constructed from verbal information; interpret the solution obtained in written form using appropriate units of measurement.	**SE/TE: 2.4:** 99-100, **2.6:** 116-118, **3.1:** 134-136, **3.2:** 140-143, **3.4:** 159-164, **4.5:** 233, **5.7:** 317-323, **5.8:** 327-334, **5.9:** 338-342, **6.6:** 424-428
CLE 3126.3.6 Solve maximum/minimum value problems by converting the given verbal information into an appropriate mathematical model and analyzing the graph of that model graphically to answer the questions. Recognize the approximation necessary when solving graphically.	**SE/TE: 2.3:** 83-86, 90-92, **3.3:** 154, **3.4:** 159-164
CLE 3126.3.7 Solve nonlinear inequalities (quadratic, trigonometric, conic, exponential, and logarithmic).	**SE/TE: 3.5:** 168-171, **4.6:** 237-240
CLE 3126.3.8 Understand the properties of conic sections (whether displayed in equation or graphical form) and apply conic sections to model real-world phenomena.	**SE/TE: 10.1:** 635-642, **10.3:** 645-653, **10.4:** 656-666, **10.5:** 670-676, **10.6:** 678-682
CLE 3126.3.9 Simulate motion using parametric equations.	**SE/TE: 10.7:** 688-694
CLE 3126.3.10 Derive and use the formulas for the general term and summation of finite or infinite arithmetic and geometric series, if they exist.	**SE/TE: 12.1:** 804-805, **12.2:** 812-814, **12.3:** 819-822
CLE 3126.3.11 Develop the concept of a limit by examining sequences and series.	**SE/TE: 12.1:** 804-805, **12.3:** 818-824, **Appendix B:** B1-B6

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Check for Understanding (Formative/Summative Assessment)	
3126.3.1 Calculate the inverse of a function with respect to each of the functional operations; in other words, the additive inverse, the multiplicative inverse, and the inverse with respect to composition.	**SE/TE: 5.2:** 261-267, **5.4:** 288-297, **7.1:** 440-450, **7.2:** 453-458
3126.3.2 Recognize the role that domain of function plays in the combination of functions by composition of functions.	**SE/TE: 5.1:** 252-254, **5.2:** 261-263, 266-267
3126.3.3 Identify whether a function has an inverse with respect to composition and when functions are inverses of each other with respect to composition.	**SE/TE: 5.2:** 261-267, **5.4:** 288-297, **7.1:** 440-450, **7.2:** 453-458
3126.3.4 Explain why the graph of a function and its inverse are reflections of one another over the line $y = x$.	**SE/TE: 5.2:** 263-267, **5.4:** 291-294, 297
3126.3.5 Explain the relationship between the real zeros and the x-intercept of the graph of a function (polynomial, rational, exponential, logarithmic, and trigonometric).	**SE/TE: 4.1:** 182-185, 188-191, **4.2:** 198-208, **4.3:** 211-215
3126.3.6 Identify the real zeros of the graph of a function (polynomial, rational, exponential, logarithmic, and trigonometric) in equation or graphical form.	**SE/TE: 4.1:** 183-185, 188-191, **4.2:** 198-208, **4.3:** 211-215
3126.3.7 Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax2 + c$.	**SE/TE: 2.2:** 71-75, **2.3:** 82-89, **2.4:** 93-100, **2.5:** 104-112, **3.1:** 132-136, **3.3:** 148-155, **4.1:** 180-193, **4.4:** 218-220, **4.5:** 227-233, **5.3:** 275-282, **5.4:** 291-294, **5.6:** 311-315, **6.4:** 398-408, **6.5:** 414-418
3126.3.8 Given a function, describe the transformation of the graph resulting from the manipulation of the algebraic properties of the equation (i.e., translations, stretches, and changes in periodicity and amplitude)	**SE/TE: 2.5:** 104-112, **3.3:** 148-150, **4.1:** 182-183
3126.3.9 Determine the asymptotes and end behaviors of functions.	**SE/TE: 4.1:** 187-188, 190-192, **4.4:** 217-224, **4.5:** 227-233

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3126.3.10 Determine whether a function is even, odd, or neither.	**SE/TE: 2.3:** 81-83, **2.4:** 93-97
3126.3.11 Prove basic properties of a logarithm using properties of its inverse and apply those properties to solve problems.	**SE/TE: 5.4:** 288-297, **5.5:** 301-307
3126.3.12 Find the inverse of an exponential or a logarithmic function.	**SE/TE: 5.4:** 288-297, **5.5:** 302-303, 305-307
3126.3.13 Visually locate critical points on the graphs of polynomial functions and determine if each critical point is a minimum, a maximum, or point of inflection.	**SE/TE: 4.1:** 180-193, **4.2:** 198-208, **4.3:** 211-215
3126.3.14 For a given sketch of a graph of a function, describe the concavity and locate maximums, minimums, increasing and decreasing intervals, and zeroes.	**SE/TE: 3.3:** 148-155, **4.1:** 180-193, **4.2:** 198-208, **4.3:** 211-215, **4.4:** 218-220, **4.5:** 227-233
3126.3.15 Sketch the graph of a given a rational function and locate vertical, horizontal, and slant asymptotes, and holes in the graph if they exist.	**SE/TE: 2.2:** 71-75, **2.3:** 82-89, **2.4:** 93-100, **2.5:** 104-112, **3.1:** 132-136, **3.3:** 148-155, **4.1:** 180-193, **4.4:** 218-220, **4.5:** 227-233, **5.3:** 275-282, **5.4:** 291-294, **5.6:** 311-315, **6.4:** 398-408, **6.5:** 414-418
3126.3.16 Solve real world problems that can be modeled using quadratic, exponential, or logarithmic functions (by hand and with appropriate technology).	**SE/TE: 3.4:** 159-164, **5.7:** 317-323, **5.8:** 327-335
3126.3.17 Solve nonlinear inequalities by graphing (solutions in interval notation if one-variable) by hand and with appropriate technology.	**SE/TE: 3.5:** 168-171, **4.6:** 237-240
3126.3.18 Solve systems of nonlinear inequalities by graphing.	**SE/TE: 3.5:** 169-170, **4.6:** 237-240, **11.7:** 781
3126.3.19 Graph ellipses and hyperbolas and demonstrate understanding of the relationship between their standard algebraic form and the graphical characteristics.	**SE/TE: 10.1:** 635, **10.3:** 646-653, **10.4:** 657-666

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3126.3.20 Graph circles and demonstrate an understanding of the relationship between their standard algebraic form and the graphical characteristics.	**SE/TE: 1.5:** 45-49, **6.2:** 368-374, **10.1:** 635
3126.3.21 From an equation in standard form, graph the appropriate conic section.	**SE/TE: 10.1:** 636-642, **10.3:** 646-653, **10.4:** 657-666
3126.3.22 Graph curves parametrically (by hand and with appropriate technology).	**SE/TE: 10.7:** 684-694
3126.3.23 Eliminate parameters by rewriting parametric equations as a single equation.	**SE/TE: 10.7:** 686-688, 691
3126.3.24 Understand the series represent the approximation of a number when truncated; estimate truncation error in specific examples.	**SE/TE: 12.3:** 821-824
3126.3.25 Understand that lengths of curves and areas of curved regions can be defined using the informal notion of limit.	**SE/TE: 14.5:** 898-903
3126.3.26 Construct the difference quotient for a given function and simplify the resulting expression.	**SE/TE: 14.2:** 882, **14.4:** 892-895
Standard 4 – Geometry & Measurement	
Course Level Expectations:	
CLE 3126.4.1 Understand basic right triangle trigonometry and use it to solve problems.	**SE/TE: 8.1:** 508-515, **8.2:** 520-527, **8.3:** 531-534, **8.4:** 537-540
CLE 3126.4.2 Know how the trigonometric functions can be extended to the periodic functions on the real number line, derive basic formulas of these functions, and use these functions and formulas to solve problems.	**SE/TE: 6.2:** 368-379, **6.3:** 384-394, **6.4:** 398-408, **6.5:** 413-418, **6.6:** 420-428
CLE 3126.4.3 Solve trigonometric equations and inequalities algebraically and graphically, by hand and with appropriate technology.	**SE/TE: 7.3:** 459-464, **7.5:** 483-484, **7.6:** 491
CLE 3126.4.4 Apply trigonometric identities to rewrite expressions and solve equations.	**SE/TE: 7.3:** 463-464, **7.4:** 468-473, **7.5:** 476-484, **7.6:** 488-494, **7.7:** 498-500

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CLE 3126.4.5 Apply vectors to solve real world problems.	**SE/TE: 9.4:** 600-602, **9.5:** 610-611
CLE 3126.4.6 Represent situations and solve problems involving polar coordinates.	**SE/TE: 9.1:** 560-567, **9.2:** 569-582, **9.3:** 586-588, **10.6:** 678-682
CLE 3126.4.7 Interpret transformations of trigonometric functions.	**SE/TE: 6.4:** 399-405, **6.5:** 415, 418, **6.6:** 420-428
CLE 3126.4.8 Understand the geometric interpretation of vectors and their use in real life analysis of problems.	**SE/TE: 9.4:** 593-602, **9.5:** 607-611, **9.6:** 617-621, **9.7:** 625-626
CLE 3126.4.9 Develop an understanding of the graphic representation of vectors and vector arithmetic.	**SE/TE: 9.4:** 593-602, **9.5:** 606-611, **9.6:** 614-621, **9.7:** 623-626
Check for Understanding (Formative/Summative Assessment)	
3126.4.1 Solve problems using the fact that trigonometric ratios (sine, cosine, and tangent) stay constant in similar triangles.	**SE/TE: 8.1:** 508-515, **8.2:** 525-527, **8.3:** 533-534
3126.4.2 Use the definitions of the six trigonometric ratios as ratios of sides in a right triangle to solve problems about lengths of sides and measures of angles.	**SE/TE: 8.1:** 508-515, **8.2:** 520-527, **8.3:** 531-534, **8.4:** 537-540
3126.4.3 Match a trigonometric equation with its graph.	**SE/TE: 6.4:** 398-408, **6.5:** 414-418, **6.6:** 421-426, 428, **7.3:** 460, 464
3126.4.4 7 Know that the six trigonometric functions can be extended to periodic functions on the real number line.	**SE/TE: 6.2:** 368-379, **6.3:** 384-394, **6.4:** 398-408, **6.5:** 413-418, **6.6:** 420-428
3126.4.5 Convert from radians to degrees and from degrees to radians.	**SE/TE: 6.1:** 360-362, **6.2:** 373
3126.4.6 Determine the difference made by choice of units for angle measurement when graphing a trigonometric function.	**SE/TE: 6.2:** 373-378, **6.3:** 385-386
3126.4. 7 Find values of inverse trigonometric functions, applying appropriate domain and range restrictions.	**SE/TE: 7.1:** 440-450, **7.2:** 453-457

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3126.4.8 Know and use the following trigonometric identities in verifying other identities: Pythagorean, Reciprocal, Quotient, Sum/Difference, Double Angle	**SE/TE: 7.4:** 468-473, **7.5:** 476-484, **7.6:** 488-494, **7.7:** 498-500
3126.4.9 Know and use the following trigonometric identities in solving trigonometric equations: Pythagorean, Reciprocal, Quotient, Sum/Difference, Double Angle	**SE/TE: 7.3:** 463-464, **7.5:** 483-484
3126.4.10 Apply the Pythagorean and Reciprocal Identities to verify identities and solve equations.	**SE/TE: 7.3:** 463-464, **7.4:** 468-473, **7.5:** 476-484, **7.6:** 488-494, **7.7:** 498-500
3126.4.11 Graph functions in polar coordinates.	**SE/TE: 9.2:** 569-582, **10.6:** 678-682
3126.4.12 Convert between rectangular and polar coordinates.	**SE/TE: 9.1:** 562-567, **9.3:** 586-588, **10.6:** 681-682
3126.4.13 Graph the inverse trigonometric functions, identify their key characteristics.	**SE/TE: 7.1:** 440-450, **7.2:** 454-456
3126.4.14 Graph the six trigonometric function and identify characteristics such as period, amplitude, phase shift, and asymptotes.	**SE/TE: 6.4:** 398-408, **6.5:** 413-418, **6.6:** 420-428
3126.4.15 Determine the appropriate domains for each of the inverse trigonometric functions.	**SE/TE: 7.1:** 440-442, 445-446, 448-449
3126.4.16 Understand that vectors are determined by the coordinates of their initial and terminal points, or by their components.	**SE/TE: 9.4:** 593-602, **9.5:** 606-611, **9.6:** 614-621, **9.7:** 623-626
3126.4.17 Use vectors to model velocity and direction to solve problems.	**SE/TE: 9.4:** 600-602, **9.5:** 610-611
3126.4.18 Approximate the area under a curve geometrically by constructing a finite number of rectangles and calculating the total area in those rectangles.	**SE/TE: 14.5:** 898-903
3126.4.19 Compare two different approximations of area under a curve by using a different number of rectangles.	**SE/TE: 14.5:** 899-902

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Standard 5 – Data Analysis, Statistics, & Probability	
Course Level Expectations	
CLE 3126.5.1 Create scatter plots, analyze patterns and describe relationships that exist in a set of linear and non-linear paired data to model real-world phenomena and make predictions.	**SE/TE: 3.2:** 140-143, **3.4:** 163-164, **4.1:** 192-193, **5.3:** 276, **5.9:** 339-342
CLE 3126.5.2 Model a data using a variety of transcendental and polynomial models; when possible, determine the best model.	**SE/TE: 3.2:** 140-143, **3.4:** 163-164, **4.1:** 192-193, **5.9:** 339-342
CLE 3125.5.3 Recognize and explain the potential errors caused by extrapolating from data.	**SE/TE: 3.2:** 142-143, **4.1:** 192-193
Check for Understanding (Formative/Summative Assessment)	
3126.5.1 Explain how to determine the best regression equation model that approximates a particular data set.	**SE/TE: 3.2:** 140-143, **3.4:** 163-164, **4.1:** 192-193
3126.5.2 Find the quadratic or exponential regression equations for a data set using a graphing calculator, spreadsheet, and/or estimation.	**SE/TE: 3.4:** 163-164, **5.9:** 339-342
3126.5.3 Find the equation of the regression line that best fits data with a linear trend.	**SE/TE: 3.2:** 141-143
3126.5.4 Find the regression equation that best fits exponential data.	**SE/TE: 5.9:** 339-342
3126.5.5Use interpolation to calculate a new data point between two existing data points and identify potential errors.	**SE/TE: 3.2:** 141-143, **3.4:** 163-164
3126.5.6 Use extrapolation to construct new data points that fit a given trend and identify potential errors.	**SE/TE: 3.2:** 141-143, **4.1:** 192-193