Clovis Community College
Core Competencies Assessment 2014-2015—Area II: Mathematics—Algebra
Class: Math 110 – College Algebra **Faculty: Erin Akhtar**

Competencies (Learning Outcomes Being Measured)	**Assessment Procedures** (Process/Instrument named or described – rubric attached)	**Assessment Results**	**How Results Will Be Used To Make Improvements**
1. Students will construct and analyze graphs and/or data sets. Students should: a. Sketch the graphs of linear, quadratic, higher-order polynomial, rational, absolute value, exponential, logarithmic, and radical functions. b. Construct graphs using a variety of techniques including plotting points, using properties of basic transformations of functions such as end behavior, intercepts and asymptotes. c. Determine the key features a function such as domain/range, intercepts, and asymptotes.	Measurements of accomplishment were done in the form for a comprehensive final exam with specified objectives that were given to students at the beginning of the semester. It consisted of a no-calculator graphing portion and a calculator multiple choice portion. Data is only available for Spring 2015 because of inconsistencies during the Fall 2014 administration and grading of the exam.	Average success rate of all questions related to objective 1 was 35%. Median success rate was 42%. The lowest performance (11% and 17%) occurred with graphing of logarithmic and rational functions, respectively. Exponential functions came in only slightly higher with a 28% success rate.	The comprehensive final exam results do not agree with students' course averages and their observed abilities and improvements as seen by the instructor. Therefore, the assessment is not doing what it was created to do. Beginning in the Fall, assessment will be split into a Midterm Exam and a Final Exam to more accurately measure student comprehension. Additionally, it is believed that practiced exam style does play a moderate role in performance. Student unit exams will be paper only and have two parts: non-calculator graphing and calculator multiple choice.
2. Students will use and solve various kinds of equations. Students should: a. Solve quadratic equations using factoring, completing the squares, the square root method, and quadratic formula. b. Solve equations using inverse operations for powers/roots, exponents/logarithms and other arithmetic operations. c. Use the equation of a function to determine its domain, to perform function operations, and to find the inverse of a	Measurements of accomplishment were done in the form for a comprehensive final exam with specified objectives that were given to students at the beginning of the semester. It consisted of a no-calculator graphing portion and a calculator multiple choice portion.	Average success rate of all questions related to objective 2 was 63%. The median success rate was 61%. The lowest performance (44% and 50%) occurred with solving a quadratic equation and solving a logarithmic function, respectively. It was unusual to see that the success rate for finding zeros of a polynomial function had such a high success rate (78%) by comparison.	The comprehensive final exam results do not agree with students' course averages and their observed abilities and improvements as seen by the instructor. Therefore, the assessment is not doing what it was created to do. Beginning in the Fall, assessment will be split into a Midterm Exam and a Final Exam to more accurately measure student comprehension. Additionally, it is believed that practiced exam style does play a moderate role in performance. Student unit

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funcion.	Data is only available for Spring 2015 because of inconsistencies during the Fall 2014 administration and grading of the exam.		exams will be paper only and have two parts: non-calculator graphing and calculator multiple choice.
3. Students will understand and write mathematical explanations using appropriate definitions and symbols. Students should: a. Correctly use function notation and the vocabulary associated with function. b. Describe the implications of key features of a function with respect to its graph and/or in relation to its real world context.	Measurements of accomplishment were done in the form for a comprehensive final exam with specified objectives that were given to students at the beginning of the semester. It consisted of a no-calculator graphing portion and a calculator multiple choice portion. Data is only available for Spring 2015 because of inconsistencies during the Fall 2014 administration and grading of the exam.	Average success rate of all questions related to objective 3 was 61%. The median success rate was 64%. The lowest performance (28% and 39%) occurred with determining if a function is one-to-one and determining symmetry of a function, respectively. Performing basic operations on functions had the highest success rate with 94%.	The comprehensive final exam results do not agree with students' course averages and their observed abilities and improvements as seen by the instructor. Therefore, the assessment is not doing what it was created to do. Beginning in the Fall, assessment will be split into a Midterm Exam and a Final Exam to more accurately measure student comprehension. Additionally, it is believed that practiced exam style does play a moderate role in performance. Student unit exams will be paper only and have two parts: non-calculator graphing and calculator multiple choice.

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4. Students will demonstrate problem solving skills within the context of mathematical application. Students should: a. Apply the knowledge of functions to identify an appropriate type of function to solve application problems b. Solve application problems including those requiring maximization or minimization of quadratic functions and exponential growth & decay problems. c. Interpret the results of application problems in terms of their real world context. End – Area II - Algebra	Measurements of accomplishment were done in the form for a comprehensive final exam with specified objectives that were given to students at the beginning of the semester. It consisted of a no-calculator graphing portion and a calculator multiple choice portion. Data is only available for Spring 2015 because of inconsistencies during the Fall 2014 administration and grading of the exam.	Average success rate of all questions related to objective 4 was 53%. The median success rate was 56%. The lowest performance (both 22%) occurred with understanding slope as a rate of change and ability to identify the appropriate type of function needed to solve a problem. Using systems of linear equations to solve an application problem had the highest success rate with 89%.	The comprehensive final exam results do not agree with students' course averages and their observed abilities and improvements as seen by the instructor. Therefore, the assessment is not doing what it was created to do. Beginning in the Fall, assessment will be split into a Midterm Exam and a Final Exam to more accurately measure student comprehension. Additionally, it is believed that practiced exam style does play a moderate role in performance. Student unit exams will be paper only and have two parts: non-calculator graphing and calculator multiple choice.

Faculty Member Completing Assessment: Erin Akhtar **Date: 9/15/15**

Reviewed by: Todd Kuykendall **Date: 9/15/15**
(Division chair's name)

All class assessment forms are due to your division chair by June 30 or as designated by the Division Chair.
All assessments are due from the Division Chairs to the Assessment Committee Chair by July 30.

Clovis Community College
Core Competencies Assessment 2014-2015—Area II: Mathematics—Liberal Arts Mathematics

Class: Math 113 **Faculty: Mrs. VK Bussen**

Common Core No.: Math for General Education

Competencies (Learning Outcomes Being Measured)	**Assessment Procedures** (Process/Instrument named or described – rubric attached)	**Assessment Results**	**How Results Will Be Used To Make Improvements**
1. Construct and analyze graphs and/or data sets. Rationale/Elaboration *Students should:* a) Gather and organize information. b) Understand the purpose and use of various graphical representations such as tables, line graphs, tilings, networks, bar graphs, etc. c) Interpret results through graphs, lists, tables, sequences, etc. d) Draw conclusions from data or various graphical representations.	The course objectives are distributed to students with the Syllabus at the beginning of each semester. Four objective-based tests, two web quest discussion board are used for assessment. Achieving 70% and above is the minimum goal for determining success on each competency. There were **47 students** from two online courses; one section from each semester. For competency #1, students were assessed from questions on an objective based test. (Stats, etc. /Test #4)	The class average for this competency was 74.2%. Scores revealed that interpreting results and drawing conclusions from data in tables or bar charts were the highest scores (same as last year) and the lowest understood the purpose and applying normal distribution properties.	No changes planned.
2. Use and solve various kinds of equations. Rationale/Elaboration *Students should:* a) Understand the purpose of and use appropriate formulas within a mathematical application. b) Solve equations within a mathematical application. c) Check answers to problems and determine the	Students were assessed from questions on two objective based test. (Conversions, Logic, etc. /Test #1 & #2)	The class average for this competency was 74.1%. Scores revealed that that solving equations within a mathematical application had the highest scores involving area and perimeter of basic shapes and the lowest scores when applied to abnormal shapes.	Changes will be made to help students strengthen their application problems involving abnormal shapes.

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reasonableness of results.			
3. Understand and write mathematical explanations using appropriate definitions and symbols Rationale/Elaboration *Students should:* a) Translate mathematical information into symbolic form. b) Define mathematical concepts in the student's own words. c) Use basic mathematical skills to solve problems.	Students were assessed from questions on two objective based test. (Geometry, Conversions, Logic, etc. /Test #1 & #2)	The class average for this competency was 73.4%. Scores revealed that using basic mathematical skills to solve problems had the highest scores and the lowest were translating mathematical information into symbolic form for these competencies.	No changes planned.
4. Demonstrate problem solving skills within the context of mathematical applications. Rationale/Elaboration *Students should:* a) Show an understanding of a mathematical application both orally and in writing. b) Choose an effective strategy to solve a problem. c) Gather and organize relevant information for a given application. d) Draw conclusions and	Students were assessed from questions on an objective based test. (Economics, personal finances, loan payments & investments, etc. /Test #4)	The class average for this competency was 62.5% Scores revealed that gathering and organizing relevant information and drawing conclusions had the highest scores and the lowest were choosing an effective strategy to solve a problem.	Changes are being made to have students work with more at applying effective strategies for solving applications; more practice problems are being assigned along with sharing topics in discussions for the online courses.

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communicate the findings.			

Faculty Member Completing Assessment: Mrs. VK BUSSEN **Date: JUNE 30, 2015**

Reviewed by: Todd Kuykendall **Date: September 15, 2015**
(Division chair's name)

All class assessment forms are due to your division chair by June 30 or as designated by the Division Chair.
All assessments are due from the Division Chairs to the Assessment Committee Chair by July 30.