

## Clovis Community College

### Core Competencies Assessment 2012-2013—Area II: Mathematics—Algebra

**Class: Math 110 College Algebra**

**Faculty: Mary Caffey**

**Common Core No.: Math 1113**

<u>Competencies</u> (Learning Outcomes Being Measured)	<u>Assessment Procedures</u> (Process/Instrument named or described – rubric attached)	<u>Assessment Results</u>	<u>How Results Will Be Used To Make Improvements</u>
<p><b>1. Students will graph functions</b> Students should:</p> <p>a. Sketch the graphs of linear, higher-order polynomial, rational, absolute value, exponential, logarithmic, and radical functions.</p> <p>b. Sketch a graph using point plotting and analysis techniques, including basic transformations of functions such as horizontal and vertical shifts, reflections, stretches, and compressions.</p> <p>c. Determine the vertex, axis of symmetry, maximum or minimum, and intercepts of a quadratic equation.</p>	<p>The course objectives are distributed to instructors and students at the beginning of each semester. At the end of each semester students are given a course-wide comprehensive final exam correlated to the objectives. The final exam is the assessment instrument and a benchmark of 70% is used to determine whether an objective has been met.</p> <p>Sixty-six online College Algebra students from three semesters (Fall 2012, Spring 2013 and Summer 2013) were assessed. The students were given proctored online free-response versions of the final exam which were correlated to course objectives.</p>	<p>The overall average on the final exam for three semesters was 77.2%. All four of the Common Core Competencies were met. However, because the department has additional objectives beyond the Common Core in Competency 2, only three of the four Competencies were met at the departmental level.</p> <p>The overall average of the nine objectives that were measured for Competency 1 was 81% with eight of the nine objectives being met.</p> <p>The average for both Competencies 1a and 1b was 81% and for Competency 1c, 75%.</p> <p>One outcome was not met: "Sketching a logarithmic function using analysis techniques." (60%).</p>	<p>It is encouraged that individual classroom assessment results be reviewed with instructors and that instructors utilize each other as resources to improve the performance of students enrolled in College Algebra. Accountability and communication within the assessment feedback loop would improve the outcomes in the course.</p> <p>A review and possible revision of the course objectives involving all College Algebra instructors will occur.</p> <p>Because this report only reflects results from online sections, the online homework, quizzes, tests and final exam will be reviewed and modified to better address the outcomes that fall below 70%.</p> <p>As part of the assessment feedback loop students will be informed of concepts where low performance has been observed. Students, through their own initiative, can then concentrate more time and effort to those concepts.</p> <p>Students will be directed to specific online videos through Khan Academy and YouTube to facilitate better understanding of low performance concepts.</p> <p>We will continue to provide the following services to enhance student learning in College Algebra: out-of-class testing so that class time can be utilized more effectively, individual tutoring, use of MyMathLab for homework and/or supplemental instruction, and use of Brainfuzze for additional 24/7 tutorial opportunities.</p>

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<p><b>2. Students will solve various kinds of equations.</b>                      Students should:</p> <ul style="list-style-type: none"> <li>a. Solve quadratic equations using factoring, completing the squares, the square root method, and quadratic formula.</li> <li>b. Solve exponential and logarithmic equations.</li> <li>c. Solve systems of two or three linear equations.</li> </ul>		<p>The overall average of the Common Core outcomes assessed for Competency 2 was 74%.</p> <p>The average for Competency 2a was 78%, for Competency 2b, 69% and for Competency 2c, 78%.</p> <p>One Common Core outcome was not met: “Solve logarithmic equations” (50%).</p> <p>The overall average of the seven departmental objectives for Competency 2 was 63% with three of the seven objectives being met. The departmental objectives included three additional objectives that were not met: “Determine the center and radius of a circle by first putting the equation of the circle in standard form.” (63%), “Solve an equation using inverse operations for powers/roots.” (29%), and “Solve a third degree or higher equation using the Rational Root Theorem, Des Cartes Rule of Signs, etc.” (56%).</p>	

*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.*

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<p><b>3. Students will demonstrate the use of function notation and perform operations on functions.</b>                      Students should:</p> <ul style="list-style-type: none"> <li>a. Find the value of a function for a given domain value</li> <li>b. Add, subtract, multiply, divide and compose functions.</li> <li>c. Determine the inverse of a function.</li> <li>d. Compute the difference quotient for a function.</li> <li>e. Correctly use function notation and vocabulary related to functions, i.e. domain, range, independent variable, of, even symmetry, etc.</li> </ul>		<p>The overall average of the ten objectives assessed for Competency 3 was 78% with nine of the ten objectives being met.</p> <p>The average for Competency 3a was 77%, the average for Competency 3b was 78%, the average for Competency 3c was 64%, the average for Competency 3d was 72%, and for Competency 3e, 85%.</p> <p>One outcome was not met: “Determine the inverse of a function.” (64%).</p>	

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<p><b>4. Students will model/solve real-world problems.</b>                  Students should:</p> <ul style="list-style-type: none"> <li>a. Use and understand slope as a rate of change.</li> <li>b. Use equations and systems of equations to solve application problems.</li> <li>c. Apply knowledge of functions to solve specific application problems.</li> <li>d. Solve compound interest problems.</li> <li>e. Solve application problems involving maximization or minimization of a quadratic function.</li> <li>f. Solve exponential growth and decay problems.</li> </ul> <p style="text-align: right;">End – Area II - Algebra</p>		<p>The overall average of the eight objectives used to measure Competency 4 was 71% with five of the eight objectives being met.</p> <p>The average for Competency 4a was 65%, the average for Competency 4b was 82%, the average for Competency 4c was 55%, the average for Competency 4d was 68%, the average for Competency 4e was 71% and for Competency 3f, 87%.</p> <p>Outcomes not met included “Use and understand slope as a rate of change.” (65%), “Apply knowledge of functions to solve specific application problems.” (55%), “Solve compound interest problems.” (68%).</p>	
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Faculty Member Completing Assessment: Mary Caffey 9/12/2013 (575) 769-4945  
*Name* *Date* *Phone Number*

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