MATH 1130 College Algebra
Competencies

1. Apply the properties of exponents; in particular, the student will demonstrate an ability to use rational exponents.
2. Simplify and perform basic operations with rational expressions as well as simplify complex rational expressions.
3. Solve linear equations using the fundamentals of elementary algebra.
4. Solve application problems involving linear equations including mixture problems.
5. Solve systems of linear equations (two equations with two unknowns).
6. Solve quadratic equations using a variety of techniques including factoring and the quadratic formula.
7. Solve quadratic equations that have complex solutions as well as those with real number solutions.
8. Perform operations and simplification of complex numbers including powers of i.
9. Solve equations that are in quadratic form.
10. Solve other equations that may involve the use of the methods for solving quadratic equations, such as equations involving radicals.
11. Solve and graph linear and quadratic inequalities.
12. Graph linear equations in the Cartesian coordinate system.
13. Determine the equation of a line, which satisfies certain specified conditions.
14. Solve word problems involving variation, using both direct and inverse proportionality.
15. Identify and stretch parent functions including square root, reciprocal, and absolute value.
16. Graph quadratic equations in the Cartesian coordinate system.
17. Graph polynomial functions of degree greater than 2.
18. Find the real zeros of a polynomial function using synthetic division.
19. Graph exponential and logarithmic functions.
20. Solve exponential equations.
21. Apply the concepts of exponential functions to the study of compound interest, exponential growth and decay.
22. Solve logarithmic equations.
23. Identify and graph conic sections, including circles, ellipses, parabolas, and hyperbolas.
24. Graph circles including ones which involved completing the square.