MAT097 Foundations II

Course Information

Textbook Information

Title: Intermediate Algebra 4th edition  
Author: Sullivan & Struve  
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Course Description: (6 Credits) Development of fundamental mathematical skills and concepts such as operations/properties of exponents and complex numbers; factoring; graphing functions; solution/application of linear, quadratic, and rational equations; operations on rational and radical expressions. Prerequisite: MAT086 or higher or placement test. Recommended: RDG091.

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| Ch 8 | 8.2, 8.3 | Exponential and Logarithmic Functions | Include:  
- Definition of inverse functions  
- Evaluating and graphing exponential functions  
- Evaluating and graphing logarithmic function  
- Change exponential equations to logarithmic equations and vice versa  
- Section 8.1 optional |
Learning Outcomes

1. (Application Level) Apply the appropriate rules of addition, subtraction, multiplication, and division with polynomials, rational expressions, and radical expressions and express the answer in the simplest form. (CSLO 4)

2. (Application Level) Apply the laws of exponents, such as squared, cubed, to the power of x based on nested or compound operations, to simplify problems involving the product and/or quotient of expressions with exponents and to express answers without any negative exponents. (CSLO 4)

3. (Evaluation Level) Evaluate problems involving scientific notation, including converting numbers expressed as scientific notation to standard notation and vice versa. (CSLO 4)

4. (Application Level) Apply variation formulas to set up and solve direct and inverse variation problems. (CSLO 4)

5. (Application Level) Determining the domain and range of a relation. (CSLO 4)

6. (Application Level) Construct linear models and graphs given multiple representations of the function and describe trends and predictions for a given data set. (CSLO 2, 4)

7. (Comprehension Level) Describe the rate of change of a linear function. (CSLO 4)

8. (Application Level) Use various factoring techniques to completely factor polynomials, including GCF, grouping, factoring trinomials, difference of squares, sum and difference of cubes and applying the Zero Product Property. (CSLO 4)

9. (Application Level) Identify if numbers are complex or real and add, subtract, multiply, and divide expressing answers in simplified standard complex form. (CSLO 4)

10. (Application Level) Solve linear equations and applications. (CSLO 2, 4)

11. (Application Level) Solve quadratic equations and inequalities with complex solutions by factoring and applying zero Product Property, completing the square, quadratic formula and graphing while expressing the answer in simplified standard complex form. (CSLO 2, 4)

12. (Application Level) Graph linear equations in two variables on the rectangular coordinate plane using point-slope form and slope intercept form to find the equation of the line when given the slope and y-intercept, the slope and a point, or two points on the line. (CSLO 4)

13. (Application Level) Solve systems of linear equations in two or three variables by graphing, substitution and elimination and identify the solution given the graph. (CSLO 2, 4)

14. (Application Level) Solve and apply appropriate properties to find the solution to compound inequalities involving absolute value, quadratic expressions, and rational expressions.
15. (Comprehension Level) Demonstrate an understanding of exponential functions and their inverse relationship to logarithmic functions by conversion and graphing. (CSLO 2, 4)

16. (Application Level) Identify and apply various strategies to further success in mathematics such as a) resources, b) time management, c) effective listening and note-taking, d) test preparation, and g) techniques for overcoming test anxiety. (CSLO 3 & 4)