

Student Learning Outcomes for Math 99

Course Objectives

1. Develop the algebraic skills necessary for problem solving.
2. Develop the ability to model linear, quadratic, and other nonlinear relations, including the use of the graphing techniques and geometrical principles as tools, for the purpose of solving contextual (real-world) problems.
3. Manipulate and apply literal equations for the purposes of solving contextual (real-world) problems.
4. Writing and communicating the results of problem solving appropriately.
5. Use technology as one aide for the purposes of solving contextual (real-world) problems.

Student Learning Outcomes

Upon successful completion of the course, students will be able to:

1. Simplify expressions containing rational exponents.
2. Perform operations on and simplify radicals.
3. Perform operations on and simplify rational expressions.
4. Solve quadratic equations with real solutions, including the use of the quadratic formula.
5. Solve rational equations.
6. Solve absolute value equations of the form $|ax + b| = c$.
7. Solve radical equations of the form: square root $(ax + b) = c$.
8. Solve compound linear inequalities.
9. Solve systems of linear inequalities in two variables.
10. Solve systems of linear equations in two and three variables.
11. Formulate and apply an equation, inequality or system of linear equations to a contextual (real-world) situation.
12. Solve and evaluate literal equations, including nonlinear equations.
13. Formulate and apply nonlinear literal equations to a contextual (real-world) situation.
14. Graph linear and quadratic equations.
15. Determine equations of lines, including parallel and perpendicular lines.
16. Determine whether given relationships represented in multiple forms are functions.
17. Determine domain and range from the graph of a function.
18. Formulate and apply the concept of a function to a contextual (real-world) situation.
19. Interpret slope in a linear model as a rate of change.
20. Apply formulas of perimeter, area, and volume to basic 2- and 3-dimensional figures in a contextual (real-world) situation.
21. Apply the Pythagorean Theorem to various contextual (real-world) situations.
22. Apply the concepts of similarity and congruency of triangles to a contextual (real-world) situation.
23. Apply the concepts of sets, subsets, intersections, unions, and cardinality to a contextual (real-world) situation.
24. Apply systematic listing, the fundamental counting principle, and permutations to counting problems.
25. Compute basic probabilities.
26. Convert a repeating decimal to a quotient of integers.
27. Compute the sum of arithmetic progressions.

Please note that homework assignments and review modules will also cover material from Foundational Studies and Math 98. These are not listed here because they are not topics introduced in this class. The re-designed courses will merely reinforce these topics.

Last revised: June 23, 2018