**Course Competency** | **Learning Outcomes**
---|---
**Competency 1:** The student will demonstrate knowledge of the slope of a line by: | • Numbers / Data
• Critical thinking
• Information Literacy
1. Determining the slope and intercept(s) of a line given its equation.
2. Determining the slope of a line from its graph.
3. Determining the slope of a line given two points from the line.
4. Computing the slope of a primary line that is parallel to a given secondary line.
5. Computing the slope of a primary line that is perpendicular to a given secondary line.

**Competency 2:** The student will demonstrate knowledge of linear equations and inequalities in two variables by: | • Communication
• Numbers / Data
• Critical thinking
• Information Literacy
• Social Responsibility
1. Finding the equation of a line given a point and slope from its graph.
2. Finding the equations of a line given two points from its graph.
3. Expressing the equations of a line in standard form.
4. Expressing the equations of a line in slope-intercept form.
5. Solving real world applications involving linear equations.
6. Graphing linear equations in two variables using the slope and y-intercept.
7. Graphing the solution of linear inequalities in two variables.
8. Solving real world applications involving linear equations and linear inequalities.

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**Competency 3:** The student will demonstrate knowledge of systems of equations and inequalities in two variables by:

- Communication
- Numbers / Data
- Critical thinking
- Information Literacy
- Social Responsibility

1. Solving systems of equations in two variables using the Addition Method (also known as the Elimination Method).
2. Solving systems of equations in two variables using the Substitution Method.
3. Solving systems of equations and inequalities in two variables by graphing.
4. Solving applications involving systems of linear equations in two variables.

**Course Competency 4:** The student will demonstrate knowledge of rational expressions and equations by:

- Communication
- Numbers / Data
- Critical thinking
- Information Literacy
- Social Responsibility

1. Simplifying rational expressions by factoring.
2. Performing operations on rational expressions (addition, subtraction, multiplication and division).
3. Dividing polynomials using long and/or synthetic division.
4. Solving equations involving rational expressions.
5. Simplifying complex fractions.
7. Solving equations involving proportions.
8. Solving direct variation problems.
10. Solving real world applications involving variation equations.

**Course Competency 5:** The student will demonstrate knowledge of radical expressions and rational exponents by:

- Communication
- Numbers / Data
- Critical thinking
- Information Literacy
- Social Responsibility

1. Evaluating radical expressions with numerical and variable radicands.
2. Simplifying expressions containing rational exponents.
3. Performing operations on radical expressions.

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4. Rationalizing numerators and denominators.
5. Solving radical equations.
6. Solving real world applications involving radical expressions.

**Course Competency 6:** The student will demonstrate knowledge of complex numbers by:

1. Simplifying radicals with negative radicands by using the definition of $i$.
2. Simplifying powers of $i$.

**Course Competency 7:** The student will demonstrate knowledge of quadratic equations by:

1. Solving quadratic equations using the Square Root Method.
2. Solving quadratic equations by Factoring.
3. Solving quadratic equations by Completing the Square.
4. Solving quadratic equations using the Quadratic Formula.

**Course Competency 8:** The student will demonstrate knowledge of factoring by:

1. Factoring out the greatest common factor.
2. Factoring by grouping.
3. Factoring trinomials.
4. Factoring binomials that include difference of squares, sum of cubes, and difference of cubes.