

Essentials of Math II

BASIC ALGEBRA (BA) BA

- 1 Create and solve equations and inequalities in one variable that model real-world problems involving linear, quadratic, simple rational, and exponential relationships. Interpret the solutions and determine whether they are reasonable. (Limit to linear; quadratic; exponential with integer exponents.)** BA.1

- 2 Solve literal equations and formulas for a specified variable including equations and formulas that arise in a variety of disciplines.** BA.2

- 3 Understand and justify that the steps taken when solving simple equations in one variable create new equations that have the same solution as the original.** BA.3

- 4 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.** BA.4

- 5 Solve systems of linear equations algebraically and graphically focusing on pairs of linear equations in two variables. (Note: a and b are not Graduation Standards.)** BA.5
 - a Solve systems of linear equations using the substitution method. BA.5.A
 - b Solve systems of linear equations using linear combination. BA.5.B

- 6 Graph functions from their symbolic representations. Indicate key features including intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior and periodicity. Graph simple cases by hand and use technology for complicated cases.** BA.6

- 7 Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or more generally as a polynomial function. Standard 8: Add, subtract, and multiply polynomials and understand that polynomials are closed under these operations.** BA.7

- 9 Create and solve equations and inequalities in one variable that model real-world problems involving linear, quadratic, simple rational, and exponential relationships. Interpret the solutions and determine whether they are reasonable.** BA.9

10 Write a function that describes a relationship between two quantities. (Note: a. is not a Graduation Standard.) BA.10

- a Write a function that models a relationship between two quantities using both explicit expressions and a recursive process and by combining standard forms using addition, subtraction, multiplication and division to build new functions. BA.10.A
- b Combine functions using the operations addition, subtraction, multiplication, and division to build new functions that describe the relationship between two quantities in mathematical and real- world situations. BA.10.B

Competency Goals

- 1 Apply algebraic properties to solve problems BA.CG.1
- 2 Understand patterns and relationships. BA.CG.2
- 3 Understand the concepts of variables, expressions, equations, and/or inequalities. BA.CG.3
- 4 Add, subtract, and multiply polynomials. BA.CG.4
- 5 Create and solve equations. BA.CG.5
- 6 Understand how to factor simple equations. BA.CG.6
- 7 Add/Subtract/Multiply/Divide positive and negative integers. BA.CG.7
- 8 Understand how to work with exponents and square roots. BA.CG.8
- 9 Plot points on a coordinate plane. BA.CG.9
- 10 Graph linear equations on a coordinate plane activities in the household. BA.CG.10
- 11 Apply mathematical skillsto entertainment and leisure activities. BA.CG.11
- 12 Recognize symbols/signs used for basic arithmetic operations of subtraction, addition, multiplication, and division. BA.CG.12
- 13 Demonstrate the knowledge of 4 basic arithmetic operations w/ whole numbers. BA.CG.13

**BASIC CALCULATOR
SKILLS FOR ALGEBRA
(BC)** BC

1 Use a variety of mathematical tools effectively and strategically. BC.1

- a Select and use appropriate tools when solving a mathematical problem. BC.1.A
- b Use technological tools and other external mathematical resources to explore and deepen understanding of concepts. BC.1.B

Competency Goals

- 1 Use a calculator to solve real world word problems. BC.CG.1
- 2 Use a calculator to solve real world decimal problems. BC.CG.2
- 3 Use a calculator to solve real world fraction and mixed number problems. BC.CG.3
- 4 Use a calculator to solve algebraic math problems. BC.CG.4