Bellarmine Algebra 1 Proficiency Exam Content

The Bellarmine Algebra 1 Proficiency Exam is in alignment with the Algebra 1 curriculum of the Common Core, and includes questions that pertain to the topics listed below. The Algebra 1 Exam is based on the ALEKS High School California Algebra 1 course. For additional content information please go to www.aleks.com.

1. Arithmetic Readiness
    a. Whole Numbers
    b. Fractions
    c. Mixed Numbers
    d. Decimals
    e. Basic Principles of Geometry (perimeter, area, volume)
    f. Real Numbers
    g. Operations with Signed Numbers
2. Linear Equations
    a. Solving Linear Equations using Additive and Multiplicative Properties
    b. Solving Linear Equations with Several Occurrences of a Variable
    c. Algebraic symbol manipulation
    d. Translating between Expressions and Equations
    e. Applications of Linear Equations
    f. Proportions
    g. Percent
    h. Measurement and Unit Conversion
    i. Absolute Value Equations
3. Linear Inequalities
    a. Writing and Graphing Inequalities
    b. Translating between Expressions and Inequalities
    c. Applications of Linear Inequalities
    d. Absolute Value Inequalities
4. Functions and Lines
    a. Sets, Relations, and Functions
    b. Ordered Pairs
    c. Graphing Lines
    d. Finding Slope
    e. Finding y-intercept
    f. Point-slope and Slope-intercept Form
    g. Domain and Range
    h. Linear Models
    i. Parallel and Perpendicular Lines
    j. Direct Variation
    k. Graphing Nonlinear Functions (Parabolas)

5. Systems
    a. Systems of Linear Equations
    b. Modeling with Systems of Linear Equations
    c. Systems of Linear Inequalities
6. Exponents
    a. Positive and Negative Exponents
    b. Properties of Exponents (Product Rule, Power Rule, Quotient Rule)
    c. Rational Exponents and Radicals
7. Polynomials and Factoring
    a. Arithmetic Operations on Polynomial Expressions
    b. Factoring the Greatest Common Factor
    c. Factoring by Grouping
    d. Factoring Quadratic Trinomials
    e. Factoring Special Products (e.g. Difference of Two squares)
8. Quadratic Equations
    a. Solving Quadratic Equations by Factoring
    b. Solving Quadratic Equations using the Square Root Property
    c. Completing the Square
    d. Applying the Quadratic Formula
9. Radicals and Radical Expressions
    a. Domain of a Square Root Function
    b. Simplifying Radical Expressions
    c. Simplifying the Sum or Difference of Radical Expressions
    d. Simplifying the Product of Radical Expressions
    e. Solving a Radical Equation
    f. Modeling with the Distance Formula
10. Rational Expressions
    a. Arithmetic Operations on Rational Expressions
    b. Simplifying a Ratio of Polynomials
    c. Complex Fractions
    d. Solving a Rational Equation
    e. Modeling with Inverse Variation
11. Data Analysis
    a. Interpreting a Linear Model
    b. Analyzing Data Sets: Mean, Median, Mode
    c. Scatterplots and line of best fit
    d. Calculating and interpreting residuals
    e. Predictions from line of best fit