Virginia Standards of Learning Assessment
Algebra 1 (2023 SOL) Performance Level Descriptors

Fail/Does Not Meet	Pass/Proficient	Pass/Advanced
A student performing at this level should be able to: *Reporting Category 1: Expressions and Operations* ● Translate verbal phrases into algebraic expressions ● Simplify and/or evaluate: ○ expressions with integer replacement values ○ square roots of whole numbers ○ perfect cube roots ○ sums and differences of polynomials ○ sums and differences of two radicals with like radicands ○ expressions with whole number exponents ● Model polynomial expressions using concrete and pictorial representations	A student performing at this level should be able to: *Reporting Category 1: Expressions and Operations* ● Translate between verbal and algebraic expressions ● Simplify and evaluate: ○ expressions for rational replacement values ○ cube roots of integers ○ sums, differences, and products of: ▪ two monomial radical expressions ▪ polynomial expressions ○ quotients using a monomial, binomial, or factored divisor ○ expressions with integer exponents	A student performing at this level should be able to: *Reporting Category 1: Expressions and Operations* ● Translate/evaluate contextual situations verbally and algebraically ● Simplify and evaluate: ○ monomial and polynomial expressions, including monomial expressions that contain square or cube roots with leading coefficients ● Derive and apply the laws of exponents ● Justify equivalencies for radicals using rational exponents ● Factor: ○ polynomial expressions with rational leading coefficients. ○ verify algebraic factorizations

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● Factor: ○ greatest common factor from polynomial expressions ○ polynomial expressions with a leading coefficient of 1 *Reporting Category 2: Equations and Inequalities* ● Identify solution(s) given a graph of: ○ systems of linear equations ○ systems of linear inequalities ○ a quadratic equation ● Solve: ○ multi-step linear equations (having only integers), with and without context ○ multi-step linear inequalities (having only integers), with and without context	● Recognize the relationship between a radical and its rational exponent. ● Factor polynomial expressions with integer leading coefficients ● Represent equality in different forms of quadratic expressions *Reporting Category 2: Equations and Inequalities* ● Represent, solve and verify solutions for: ○ multistep linear equations and inequalities ○ systems of linear equations ○ systems of linear inequalities ○ literal equations ○ quadratic equations ○ problems in context ● Represent solutions graphically for: ○ linear inequalities ○ systems of equations ○ systems of inequalities ○ quadratic functions ● Determine the number of solutions for: ○ linear equations	● Justify equality in different forms of quadratic expressions *Reporting Category 2: Equations and Inequalities* ● Interpret and describe solutions to contextual problems involving: ○ multistep linear equations and inequalities ○ literal equations ○ systems of linear equations ○ systems of linear inequalities ○ quadratic equations

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Reporting Category 3: Functions and Statistics *Functions* ● Determine: ○ if a relation is a function ○ domain and range of a set of discrete values ○ the value of f(x) given an x value ○ the slope of a linear function ○ y-intercept of a linear function ○ solutions to a quadratic function given a graph ● Graph a line given the equation in slope-intercept form ● Write the equation of a line in slope-intercept form	○ systems of equations ○ system of inequalities ○ quadratic equations *Reporting Category 3: Functions and Statistics* *Functions* ● Determine key characteristics of linear and quadratic functions including: ▪ domain and range ▪ slope ▪ zeros ▪ x and y intercepts ● Determine a value of x given the value of f(x) ● Write equations (linear functions): ○ in slope-intercept form, ○ in standard form ○ in point-slope form ○ parallel and perpendicular to a given line ● Graph: ○ linear, quadratic, and exponential functions	*Reporting Category 3: Functions and Statistics* *Functions* ● Analyze and interpret: ○ key characteristics of linear and quadratic functions ○ equations of parallel and perpendicular lines represented in different formats ○ information from linear, quadratic, and exponential functions ● Explain how transformations to linear, quadratic, and exponential functions affect the key characteristics of the function

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Statistics ● Formulate investigative questions that require the collection or acquisition of data ● Determine if a linear or quadratic function would best represent the relationship from a given set of data	○ a transformation of a given function ○ parallel and perpendicular lines ● Make connections: ○ between the algebraic and graphical representations of quadratic functions ○ among multiple representations of linear and quadratic functions *Statistics* ● Write the equation of the curve of best fit that best models a set of data and describe the strengths and weaknesses of that model ● Investigate and explain the meaning of the rate of change and y-intercept of a linear model in context	*Statistics* ● Use a linear curve of best fit model to make and evaluate the validity of predictions and communicate the results