College Algebra Semester 1 Final Assessment Blueprint

Year Created: 2023-2024 **Method of Delivery:** Online
Subject: Math **Administration Window:** December Common Finals

Resources

College Algebra Curriculum Map

Standards At-A Glance

Standard	Number of Items	Standard Description
MA.9-12.A1.A-CED.A.2	1	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
MA.9-12.A1.A-REI.B.3	2	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
MA.9-12.A1.F-BF.B.3	1	Identify the effect on the graph of replacing $f(x)$ by $f(x)+k$, $k\,f(x)$, and $f(x+k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph. Focus on linear, quadratic, exponential and piecewise-defined functions (limited to absolute value and step).
MA.9-12.A1.F-IF.A.1	1	Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x. The graph of f is the graph of the equation $y = f(x)$.
MA.9-12.A1.F-IF.A.2	2	Evaluate a function for inputs in the domain, and interpret statements that use function notation in terms of a context.
MA.9-12.A1.F-IF.B.4	3	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Include problem-solving opportunities utilizing real-world context. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums. Focus on linear, quadratic, exponential and piecewise-defined functions (limited to absolute value and step).
MA.9-12.A2.A-APR.B.3	4	Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial. Focus on quadratic, cubic, and quartic polynomials including polynomials for which factors are not provided.
MA.9-12.A2.A-APR.D.6	1	Rewrite rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x)+r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or for the more complicated examples, a computer algebra system.
MA.9-12.A2.A-REI.B.4	3	Fluently solve quadratic equations in one variable. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.
MA.9-12.A2.A-SSE.A.2	5	Use structure to identify ways to rewrite polynomial and rational expressions. Focus on polynomial operations and factoring patterns.
MA.9-12.A2.F-BF.A.1	1	Write a function that describes a relationship between two quantities. Functions include linear, quadratic, exponential, polynomial, logarithmic, rational, sine, cosine, tangent, square root, cube root and piecewise-defined functions. Include problem-solving opportunities utilizing real-world context.
MA.9-12.A2.F-IF.B.4	2	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Include problem-solving opportunities utilizing a real-world context. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity. Functions include linear, quadratic, exponential, polynomial, logarithmic, rational, sine, cosine, tangent, square root, cube root and piecewise-defined functions.
MA.9-12.A2.F-IF.C	1	Analyze functions using different representations.
MA.9-12.A2-A-REI.B	3	Solve equations and inequalities in one variable.
MA.9-12.P.F-BF.A.1.c	1	Compose functions.

**Some items may be tagged to more than one standard.*

Depth of Knowledge

DOK	Number of Items
Level 1: Recall	23
Level 2: Skill/Concept	6
Level 3: Strategic Thinking	1

Item Types Included

Type	Number of Items	Description
MC	30	Multiple Choice - Select one answer