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Correlation of AMSCO Algebra II to the PA Algebra II Keystone Exam

Anchor Descriptor	Eligible Content	AMSCO Algebra 2 Lesson(s)
A2.1.1 Operations with Complex Numbers		
A2.1.1.1 Represent and/or use imaginary numbers in equivalent forms (e.g., square roots and exponents).	**A2.1.1.1.1** Simplify/write square roots in terms of i (e.g., $\sqrt{-24} = 2i\sqrt{6}$).	2.5, 2.6
	A2.1.1.1.2 Simplify/evaluate expressions involving powers of i (e.g., $i^6 + i^3 = -1 - i$).	2.5
A2.1.1.2 Apply the order of operations in computation and in problem- solving situations.	**A2.1.1.2.1** Add and subtract complex numbers (e.g., $(7 - 3i) - (2 + i) = 5 - 4i$).	2.5
	A2.1.1.2.2 Multiply and divide complex numbers (e.g., $(7 - 3i)(2 + i) = 17 + i$).	2.5
A2.1.2 Non-Linear Expressions		
A2.1.2.1 Use exponents, roots, and/or absolute values to represent equivalent forms or to solve problems	**A2.1.2.1.1** Use exponential expressions to represent rational numbers.	R.5, 5.3
	A2.1.2.1.2 Simplify/evaluate expressions involving positive and negative exponents and/or roots (may contain all types of real numbers— exponents should not exceed power of 10).	R.5, 3.1, 3.2, 4.3, 5.1, 5.2, 5.3
	A2.1.2.1.3 Simplify/evaluate expressions involving multiplying with exponents (e.g., $x^6 \bullet x^7 = x^{13}$), powers of powers (e.g., $(x^6)^7 = x^{42}$), and powers of products (e.g., $(2x^2)^3 = 8x^6$). Note: Limit to rational exponents.	5.3
	A2.1.2.1.4 Simplify or evaluate expressions involving logarithms and exponents (e.g., $\log_2 8 = 3$ or $\log_4 2 = ½$).	7.1, 7.4, 7.6
A2.1.2.2 Simplify expressions involving polynomials	**A2.1.2.2.1** Factor algebraic expressions, including difference of squares and trinomials. Note: Trinomials limited to the form ax^2+bx+c where a is not equal to 0.	2.1, 2.2, 2.3
	A2.1.2. 2.2 Simplify rational algebraic expressions.	4.1, 4.2, 4.3
A2.1.3 Non-Linear Equations		
A2.1.3.1 Write and/or solve non-linear equations using various methods.	**A2.1.3.1.1** Write and/or solve quadratic equations (including factoring and using the Quadratic Formula).	2.3, 2.4, 2.6
	A2.1.3.1.2 Solve equations involving rational and/or radical expressions (e.g., $10/(x + 3) + 12/(x - 2) = 1$ or $\sqrt{x}^2 + 21x = 14$).	4.3, 5.4
	A2.1.3.1.3 Write and/or solve a simple exponential or logarithmic equation (including common and natural logarithms).	7.3, 7.4
	A2.1.3.1.4 Write, solve, and/or apply linear or exponential growth or decay (including problem situations).	6.1, 6.2
A2.1.3.2 Describe and/or determine change.	**A2.1.3.2.1** Determine how a change in one variable relates to a change in a second variable (e.g., $y = 4/x$; if x doubles, what happens to y?).	R.6, 1.1, 4.4, 7.2

	A2.1.3.2.2 Use algebraic processes to solve a formula for a given variable (e.g., solve $d = rt$ for r).	8.1, 8.3
A2.2.1 Patterns, Relations, and Functions		
A2.2.1.1 Analyze and/or use patterns or relations.	**A2.2.1.1.1** Analyze a set of data for the existence of a pattern, and represent the pattern with a rule algebraically and/or graphically.	1.2, 8.1, 8.3, 8.5
	A2.2.1.1.2 Identify and/or extend a pattern as either an arithmetic or geometric sequence (e.g., given a geometric sequence, find the 20th term).	8.1, 8.3
	A2.2.1.1.3 Determine the domain, range, or inverse of a relation.	R.3, 1.1, 2.8, 6.3, 6.4, 7.2
	A2.2.1.1.4 Identify and/or determine the characteristics of an exponential, quadratic, or polynomial function (e.g., intervals of increase/decrease, intercepts, zeros, and asymptotes).	2.6, 2.8, 3.5, 3.7, 6.1
A2.2.2 Applications of Functions		
A2.2.2.1 Create, interpret, and/or use polynomial, exponential, and/or logarithmic functions and their equations, graphs, or tables.	**A2.2.2.1.1** Create, interpret, and/or use the equation, graph, or table of a polynomial function (including quadratics).	2.6, 2.7, 2.8, 3.4, 3.5, 3.7, 3.8
	A2.2.2.1.2 Create, interpret, and/or use the equation, graph, or table of an exponential or logarithmic function (including common and natural logarithms).	6.1, 6.2, 7.1, 7.2, 7.3, 7.4, 7.5
	A2.2.2.1.3 Determine, use, and/or interpret minimum and maximum values over a specified interval of a graph of a polynomial, exponential, or logarithmic function.	2.7, 3.5, 6.2, 7.5
	A2.2.2.1.4 Translate a polynomial, exponential, or logarithmic function from one representation of a function to another (graph, table, and equation).	2.6, 2.7, 2.8, 6.1, 6.2, 7.2, 7.3, 7.5
A2.2.2.2 Describe and/or determine families of functions.	**A2.2.2.2.1** Identify or describe the effect of changing parameters within a family of functions (e.g., $y = x^2$ and $y = x^2 + 3$, or $y = x^2$ and $y = 3x^2$).	3.7, 4.4, 6.1, 7.2, 9.5
A2.2.3 Data Analysis		
A2.2.3.1 Analyze and/or interpret data on a scatter plot and/or use a scatter plot to make predictions.	**A2.2.3.1.1** Draw, identify, find, interpret, and/or write an equation for a regression model (lines and curves of best fit) for a scatter plot.	1.2, 2.7, 3.8, 6.2, 7.5
	A2.2.3.1.2 Make predictions using the equations or graphs of regression models (lines and curves of best fit) of scatter plots.	1.2, 2.7, 3.8, 6.2, 7.5
A2.2.3.2 Apply probability to practical situations.	**A2.2.3.2.1** Use combinations, permutations, and the fundamental counting principle to solve problems involving probability.	10.1
	A2.2.3.2.2 Use odds to find probability and/or use probability to find odds.	
	A2.2.3.2.3 Use probability for independent, dependent, or compound events to predict outcomes.	10.2, 10.3, 10.4