Curriculum Analysis
Algebra II

What new content moved into the Algebra I curriculum?	*What student expectations in Algebra II may be affected by the change in curriculum?*
• Determine the effects on the graph of the parent function $f(x) = x$ when $f(x)$ is replaced by $af(x)$, $f(x) + d$, $f(x - c)$, and $f(bx)$ for specific values of a, b, c, and d. A(3)(E) • Determine the effects on the graph of the parent function $f(x) = x^2$ when $f(x)$ is replaced by $af(x)$, $f(x) + d$, $f(x - c)$, and $f(bx)$ for specific values of a, b, c and d. A(7)(C)	• Determine the effect on the graph of $f(x) = \sqrt{x}$ when $f(x)$ is replaced by $af(x)$, $f(x) + d$, $f(bx)$, and $f(x - c)$ for specific positive and negative values of a, b, c, and d. 2A(4)(C) • Determine the effects on the key attributes on the graphs of $f(x) = b^x$ and $f(x) = \log_b(x)$, where b is 2, 10, and e when $f(x)$ is replaced by $af(x)$, $f(x) + d$, and $f(x - c)$ for specific positive and negative real values of a, c, and d. 2A(5)(A) • Analyze the effects on the graphs of $f(x) = x^3$ and $f(x) = \sqrt[3]{x}$ when $f(x)$ is replaced by $af(x)$, $f(bx)$, $f(x - c)$, and $f(x) + d$ for specific positive and negative real values of a, b, c, and d. 2A(6)(A) • Analyze the effect on the graph of $f(x) = 1/x$ when $f(x)$ is replaced by $af(x)$, $f(bx)$, $f(x-c)$, and $f(x) + d$ for specific positive and negative real values of a, b, c, and d. 2A(6)(G)
• Using technology, calculate the correlation coefficient between two quantitative variables and interpret this quantity as a measure of the strength of the linear association. A(4)(A) • Compare and contrast association and causation in real-world problems. A(4)(B) • Using technology, write quadratic functions that provide a reasonable fit to data to estimate solutions and make predictions for real-world problems. A(8)(B) • Using technology, write exponential functions that provide a reasonable fit to data and make predictions for real-world problems. A(9)(E)	• Using technology, formulate quadratic and square root equations given a table of data. 2A(4)(E) • Analyze data to select the appropriate model from among linear, quadratic, and exponential models. 2A(8)(A) • Using technology, use regression methods to write linear, quadratic, and exponential functions from a given set of data. 2A(8)(B) • Predict and make decisions and critical judgments from a given set of data using linear, quadratic, and exponential models. 2A(8)(C)

• Write equations of quadratic functions given the vertex and another point on the graph, write the equation in vertex form ($f(x) = a(x - h)^2 + k$), and rewrite the equation from vertex form to standard form ($f(x) = ax^2 + bx + c$). A(6)(B) • Write quadratic functions when given real solutions and graphs of their related equations. A(6)(C) • Graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including x-intercept, y-intercept, zeros, maximum value, minimum value, vertex, and the equation of the axis of symmetry. A(7)(A)	• Write the quadratic function given three specified points in the plane. 2A(4)(A) • Write the equation of a parabola using given attributes, including vertex, focus, directrix, axis of symmetry, and direction of opening. 2A(4)(B) • Transform a quadratic function $f(x) = ax^2 + bx + c$ to the form $f(x) = a(x - h)^2 + k$ to identify the different attributes of $f(x)$. 2A(4)(D)
• Identify terms of arithmetic and geometric sequences when the sequences are given in function form using recursive processes. A(12)(C) • Write a formula for the n^{th} term of arithmetic and geometric sequences, given the value of several of their terms. A(12)(D)	• Formulate exponential and logarithmic equations that model real-world situations, including exponential relationships written in recursive notation. 2A(5)(B) • Analyze data to select the appropriate model from among linear, quadratic, and exponential models. 2A(8)(A)
• Determine the quotient of a polynomial of degree one and polynomial of degree two when divided by a polynomial of degree one and polynomial of degree two when the degree of the divisor does not exceed the degree of the dividend. A(10)(C)	• Determine the quotient of a polynomial of degree three and of degree four when divided by a polynomial of degree one and of degree two. 2A(7)(C) • Determine the sum, difference, product, and quotient of rational expressions with integral exponents of degree one and of degree two. 2A(7)(F)
• Simplify numerical radical expressions involving square roots. A(11)(A) • Simplify numeric and algebraic expressions using the laws of exponents, including integral and rational exponents. A(11)(B)	• Rewrite radical expressions that contain variables to equivalent forms. 2A(7)(G) • Solve equations involving rational exponents. 2A(7)(H)