



**Correlation of**

***Algebra and Trig, 11/E*, by Ron Larson,  
©2022, ISBN: 9780357645895**

**to**

**Oklahoma Academic Standards for Algebra 2  
(A2) (2022)**

**A Correlation of *Algebra & Trigonometry* to  
the OAS-M for Algebra 2 (A2) (2022)**

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the OAS-M for Algebra 2 (A2) (2022)**

OAS-M for High School Mathematics (2022)	<i>Algebra &amp; Trigonometry</i>
<b>Numbers &amp; Operations (N)</b>	
<b>A2.N.1 Extend the understanding of numbers and operations to include complex numbers, radical expressions, and expressions written with rational exponents.</b>	
A2.N.1.1 Find the value of $i^n$ for any whole number $n$ .	<b>page 120 (problem 64)</b> <b>page 120 (problem 65)</b>
A2.N.1.2 Simplify, add, subtract, multiply, and divide complex numbers.	<b>pages 115-117</b> page 119 (problems 9 to 16: adding and subtracting complex numbers) page 119 (problems 17 to 24: multiplying complex numbers) page 119 (problems 25 to 32: multiplying conjugates) page 119 (problems 33 to 40: dividing complex numbers) page 153 (problems 65 to 70: adding, subtracting, and multiplying complex numbers) page 153 (problems 71 to 74: dividing complex numbers) page 155 (problems 17 to 18) page 263 (problems 115 to 120)
A2.N.1.3 Understand and apply the relationship between rational exponents to integer exponents and radicals to solve problems.	<b>pages 22-23</b> (Rational Exponents and Their Properties: Example 15, 16, and 17) page 25 (problems 69-84) page 25 (problems 85 and 86)
<b>A2.N.2 Extend the understanding of numbers and operations to matrices.</b>	
A2.N.2.1 Use matrices to organize and represent data. Identify the order (dimension) of a matrix.	<b>pages 700-701 (Examples 1 and 2)</b> page 709 (problems 5 to 18) page 760 (problems 1 to 6)
A2.N.2.2 Use addition, subtraction, and scalar multiplication of matrices to solve problems.	<b>pages 714-716</b> page 724 (problems 9 to 30) page 761 (problems 35 to 46) page 764 (problems 4(a), 4(b), and 4(c)) page 844 (problems 11, 13, and 14)

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<b>Algebraic Reasoning &amp; Algebra (A)</b>	
<b>A2.A.1 Represent and solve mathematical and real-world problems using nonlinear equations, systems of linear equations, and systems of linear inequalities; interpret the solutions in the original context.</b>	
A2.A.1.1 Use mathematical models to represent quadratic relationships and solve using factoring, completing the square, the quadratic formula, and various methods (including graphing calculator or other appropriate technology). Find non-real roots when they exist.	<p><b>page 100 (solve by factoring)</b>  <b>page 102-103 (solve by completing the square)</b>  page 101 (solve by extracting square roots)  page 104-105 (solve by quadratic formula)  page 118 (Example 6: complex solutions of quadratic equation using quadratic formula)  page 119 (problems 49 to 58: complex solutions of quadratic equation using quadratic formula)  page 153 (problems 77 to 80: complex solutions of quadratic equation using quadratic formula)  page 155 (problem 19)  page 272 (problems 89 to 94: complex solutions of quadratic equation)  page 246 (example 3)  page 246 (quadratic formula)  page 248 (problems 13 to 34: consider only to find x-intercepts)  page 249 (problems 45 to 52)  page 307 (problems 1 (a), 2(a), and 2(b))  page 340 (problems 99 to 102)  page 387 (problems 109 to 114)</p>
A2.A.1.2 Use mathematical models to represent exponential relationships, such as compound interest, depreciation, and population growth. Solve these equations algebraically or graphically (including graphing calculator or other appropriate technology).	<p><b>page 388-390</b>  <b>page 393</b>  page 365-366 (compound interest)  page 367 (Example 9: radioactive decay)  page 369 (problems 45 to 60)  page 370 (problem 74)  page 395 (problems 21 - 44)  page 396 (problems 59 to 62: solve exponential function using graph)  page 396 (problem 67, 68, 78, and 83)  page 398 (exponential growth and decay)  page 399 (exponential growth and decay Example 1: retail sales)  page 400 (exponential growth and decay Example 2: population growth)  page 401 (exponential growth and decay Example 3: carbon dating)  page 405 (problems 7 to 22)  page 406 (problems 23 to 36)  page 407 (problems 37 to 40)  page 412 (problems 29 to 32)  page 414 (problems 103 and 111 to 114)  page 415 (problems 27 and 28)  page 417 (problems 41 to 44)</p>

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<p>A2.A.1.3 Solve one-variable rational equations and check for extraneous solutions.</p>	<p><b>page 84</b> page 87 (problems 29 to 42) page 124 page 128 (problems 45 to 50) page 152 (problems 29 to 32) page 155 (problem 9)</p>
<p>A2.A.1.4 Solve polynomial equations with real roots using various methods (e.g., polynomial division, synthetic division, using graphing calculators or other appropriate technology).</p>	<p><b>page 264-269</b> page 121-122 page 128 (problems 5 to 14) page 270 (problems 11 to 50) page 416 (problems 7 and 8)</p>
<p>A2.A.1.5 Solve square and cube root equations with one variable, and check for extraneous solutions.</p>	<p><b>page 123</b> <b>page 128 (problems 27 to 44)</b> <b>page 154 (problems 87 to 90)</b> <b>page 155 (problem 11)</b></p>
<p>A2.A.1.6 Solve common and natural logarithmic equations using the properties of logarithms.</p>	<p><b>pages 391-392</b> <b>page 394</b> pages 371-372 pages 375-377 page 378 (problems 25 to 32) page 379 (problems 57 to 66) page 379 (problems 77 to 81) page 382 (properties of logarithms) page 385 (problems 13 to 40) page 395 (problems 45 to 58) page 396 (problems 63 to 66) page 388 page 404 page 407 (problems 41 to 44) page 408 (problems 45 to 53) page 413 (problems 63 to 66) page 414 (problems 91 to 98) page 415 (problems 24 to 26) page 417 (problems 36 to 38)</p>
<p>A2.A.1.7 Represent and evaluate mathematical models using systems of linear equations with a maximum of three variables. Graphing calculators or other appropriate technology may be used.</p>	<p><b>page 656 (Examples 7)</b> <b>page 657 (Examples 8)</b> page 659 (problems 45 to 59) page 660 (problems 63 to 67) page 661 (problems 68)</p>
<p>A2.A.1.8 Use tools to solve systems of equations containing one linear equation and one quadratic equation. Graphing calculators or other appropriate technology may be used.</p>	<p><b>page 631 (Examples 3 and 4)</b> page 632 (figure 9.2) page 635 (problems 8, 11, and 16) page 636 (problems 37 to 39, 45 to 48, and 55 to 57) page 637 (problems 78) page 691 (problems 7, 8, 10, and 14) page 695 (problems 3 and 5)</p>

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<p>A2.A.1.9 Solve systems of linear inequalities in two variables, with a maximum of three inequalities; graph and interpret the solutions on a coordinate plane. Graphing calculators or other appropriate technology may be used.</p>	<p><b>page 672 (Examples 4)</b> pages 674-675 page 676 (Examples 9) page 677 (problems 31 to 38) page 678 (problems 67) page 693 (problems 73 to 76) page 695 (problem 15)</p>
<p><b>A2.A.2 Generate and evaluate equivalent algebraic expressions and equations using various strategies.</b></p>	
<p>A2.A.2.1 Factor polynomial expressions including, but not limited to, trinomials, differences of squares, sum and difference of cubes, and factoring by grouping, using a variety of tools and strategies.</p>	<p><b>page 35 (factor difference of two squares)</b> <b>page 36 (factor sum and difference of cubes)</b> <b>page 38 (factor by grouping)</b> page 34 (factoring out a common factor) page 37 (factor trinomials) page 39 (problems 5 to 70) page 64 (problems 99 to 110) page 65 (problem 15) page 269 (Example 6: factor the polynomial expression using synthetic division and graphical solution) page 271 (problems 45-54: factor the polynomial expression using synthetic division) page 302 (problem 65-68)</p>
<p>A2.A.2.2 Add, subtract, multiply, divide, and simplify polynomial expressions.</p>	<p><b>page 27 (add and subtract polynomials)</b> <b>page 27-28 (multiply polynomials)</b> page 29 page 31 (problems 17 to 24: adding or subtracting polynomials) page 31 (problems 25 to 60: multiplying polynomials) page 32 (problems 61 to 64) page 63 (problems 83 and 84: adding or subtracting polynomials) page 63 (problems 85 to 92: multiplying polynomials) page 63 (problems 93 and 94) page 65 (problem 9 and 11) page 263 (problems 111-114) page 380 (problems 95 to 98)</p>
<p>A2.A.2.3 Add, subtract, multiply, divide, and simplify rational expressions.</p>	<p><b>page 42 (simplify rational expressions)</b> <b>page 43 (multiply and divide rational expressions)</b> <b>page 43 (add and subtract rational expression)</b> page 44 (Example 7) page 45 (simplify complex fraction) page 48 (problems 19 to 32: simplifying a rational expression) page 48 (problems 33 to 40: multiplying or dividing rational expression) page 48 (problems 41 to 50: adding or subtracting rational expressions) page 49 (problems 51 to 56: simplifying a complex fractions)</p>

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	<p>page 64 (problems 115 and 116: simplifying a rational expression)</p> <p>page 64 (problems 117 to 120)</p> <p>page 64 (problems 121 and 122: simplifying a complex fraction)</p> <p>page 65 (problems 12, 13, and 14)</p> <p>page 236 (problem 5)</p> <p>page 297 (problems 77 to 82)</p> <p>page 317 (problems 51 to 54)</p> <p>page 409 (problems 65 to 68)</p>
<p>A2.A.2.4 Recognize that a quadratic function has different equivalent representations [<math>f(x) = ax^2 + bx + c</math>, <math>f(x) = a(x - h)^2 + k</math>, and <math>f(x) = a(x - p)(x - q)</math>]. Identify and use the mathematical model that is most appropriate to solve problems.</p>	<p><b>page 242</b></p> <p><b>page 245</b></p>
<p>A2.A.2.5 Rewrite algebraic expressions involving radicals and rational exponents using the properties of exponents.</p>	<p><b>page 22-23 (Example 15, 16, and 17)</b></p> <p>page 25 (problems 69 to 72)</p>
<p><b>A2.A.3 Represent and solve mathematical and real-world problems involving arithmetic and geometric sequences and series.</b></p>	
<p>A2.A.3.1 Recognize that arithmetic sequences are linear using equations, tables, graphs, and verbal descriptions. Using the pattern, find the next term.</p>	<p><b>pages 780-782</b></p> <p><b>page 788 (problems 79 to 82)</b></p> <p>page 786 (problems 31 to 44)</p> <p>page 788 (problems 81 and 82)</p> <p>page 845 (problem 29)</p>
<p>A2.A.3.2 Recognize that geometric sequences are exponential using equations, tables, graphs, and verbal descriptions. Given the formula <math>f(x) = a(r)^x</math>, find the next term and define the meaning of <math>a</math> and <math>r</math> within the context of the problem.</p>	<p><b>pages 789-791</b></p> <p>page 795 (problems 13 to 44)</p> <p>page 841 (problems 43 to 50)</p> <p>page 845 (problem 30)</p>
<p>A2.A.3.3 Solve problems that can be modeled using arithmetic sequences or series given the <math>n^{\text{th}}</math> terms and sum formulas. Graphing calculators or other appropriate technology may be used.</p>	<p><b>pages 783-785</b></p> <p>page 786 (problems 45 to 54)</p> <p>page 787 (problems 55 to 60, 69 to 70, and 73)</p> <p>page 787 (problems 71 and 72)</p> <p>page 788 (problem 76)</p> <p>page 840 (problems 31 to 38)</p> <p>page 843 (problem 3)</p> <p>page 845 (problem 28)</p>
<p>A2.A.3.4 Solve problems that can be modeled using finite geometric sequences and series given the <math>n^{\text{th}}</math> terms and sum formulas. Graphing calculators or other appropriate technology may be used.</p>	<p><b>page 792</b></p> <p><b>page 794</b></p> <p>page 796 (problems 53 to 66, 84 and 85)</p> <p>page 797 (problems 86 to 88)</p> <p>page 841 (problems 51 to 58)</p> <p>page 841 (problem 64)</p> <p>page 843 (problems 6 and 7)</p>

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<b>Functions (F)</b>	
<b>A2.F.1 Understand functions as descriptions of covariation (how related quantities vary together).</b>	
A2.F.1.1 Use algebraic, interval, and set notations to specify the domain and range of various types of functions, and evaluate a function at a given point in its domain.	<b>page 41</b> <b>page 146</b> <b>page 176 (evaluate a function)</b> page 178 (domain of a function) page 187 (domain and range of a function)
A2.F.1.2 Identify the parent forms of exponential, radical (square root and cube root only), quadratic, and logarithmic functions. Predict the effects of transformations [ $f(x + c)$ , $f(x) + c$ , $f(cx)$ , and $cf(x)$ ] algebraically and graphically.	<b>page 205-209 (transformations of functions)</b> <b>page 252</b>
A2.F.1.3 Graph a quadratic function. Identify the domain, range, x- and y-intercepts, maximum or minimum value, axis of symmetry, and vertex using various methods and tools that may include a graphing calculator or appropriate technology.	<b>page 242-247</b>
A2.F.1.4 Graph exponential and logarithmic functions. Identify the domain, range, asymptotes, and x- and y-intercepts using various methods and tools that may include calculators or other appropriate technology. Recognize exponential decay and growth graphically and algebraically.	<b>page 361-364 (graphs of exponential functions)</b> page 366 (exponential growth) page 367 (exponential decay) page 373 - 376 (graphs of logarithmic functions)
A2.F.1.5 Analyze the graph of a polynomial function by identifying the domain, range, intercepts, zeros, relative maxima, relative minima, and intervals of increase and decrease.	<b>page 251-257</b> page 73 (intercepts of a graph) page 189 (zeros of a function) page 190 (increasing and decreasing intervals) page 191 (relative minima and relative maxima)
A2.F.1.6 Graph a rational function and identify the domain (including holes), range, x- and y-intercepts, vertical and horizontal asymptotes, using various methods and tools that may include a graphing calculator or other appropriate technology (excluding slant or oblique asymptotes).	<b>page 318-320</b> page 310-314
A2.F.1.7 Graph a radical function (square root and cube root only). Identify the domain, range, and x- and y-intercepts using various methods and tools that may include a graphing calculator or other appropriate technology.	<b>page 200 (graph of square root function)</b>
A2.F.1.8 Graph piecewise functions with no more than three branches (linear, quadratic, or exponential). Analyze the function by identifying the domain, range, intercepts, and intervals for which it is increasing,	<b>page 201-202 (piecewise defined functions)</b> page 176 (piecewise functions)



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decreasing, and constant using various methods and tools (e.g., graphing calculator, other appropriate technology).	
A2.F.1.9 Recognize whether a discrete or continuous graphical representation is appropriate to create a graph based upon a mathematical model.	This standard is not addressed in this text.
<b>A2.F.2 Analyze functions through algebraic combinations, compositions, and inverses if they exist.</b>	
A2.F.2.1 Add, subtract, multiply, and divide functions using function notation and recognize domain restrictions.	<b>page 214-215</b>
A2.F.2.2 Combine functions by composition and recognize that $g(x) = f^{-1}(x)$ , the inverse function of $f(x)$ , if and only if $f(g(x)) = g(f(x)) = x$ .	<b>page 216-218</b> <b>page 222 (Inverse functions)</b>
A2.F.2.3 Find and graph the inverse of a function, if it exists, in mathematical models. Know that the domain of a function $f$ is the range of the inverse function $f^{-1}$ and the range of the function $f$ is the domain of the inverse function $f^{-1}$ .	<b>page 222-224</b> <b>page 226-227</b>
A2.F.2.4 Apply the inverse relationship between exponential and logarithmic functions to convert from one form to another.	<b>page 388</b> <b>page 371</b> <b>page 375</b>
<b>Data &amp; Probability (D)</b>	
<b>A2.D.1 Display, describe, and compare data. For linear and nonlinear relationships, make predictions and assess the reliability of those predictions.</b>	
A2.D.1.1 Use the mean and standard deviation of a data set to create a normal distribution (bell-shaped curve).	This standard is not addressed in this text.
A2.D.1.2 Collect data and use scatter plots to analyze patterns and describe linear, exponential, or quadratic relationships between two variables.	This standard is not addressed in this text.
A2.D.1.3 Make predictions based upon the regression equation (linear, exponential, or quadratic), and use the correlation coefficient to assess the reliability of those predictions using graphing technology.	This standard is not addressed in this text.
<b>A2.D.2 Analyze statistical thinking to draw inferences, make predictions, and justify conclusions.</b>	
A2.D.2.1 Evaluate reports by making inferences, justifying conclusions, and determining appropriateness of data collection methods. Show how graphs and data can be distorted to support different points of view.	This standard is not addressed in this text.
A2.D.2.2 Identify and explain misleading conclusions and graphical representations of data sets.	This standard is not addressed in this text.

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A2.D.2.3 Differentiate between correlation and causation when describing the relationship between two variables.	This standard is not addressed in this text.
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