# Mathematics and Economics Connections for Life: 9-12
# Arkansas Math Framework Correlations

# Algebra II

| ↓ frameworks/lessons → | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
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| **RELATIONS AND FUNCTIONS** | | | | | | | | | | | | | | | |
| **Content Standard 1: Students will represent and analyze mathematical situations and properties using patterns, relations, functions and algebraic symbols.** | | | | | | | | | | | | | | | |
| **RF.1.AII.2** Evaluate, add, subtract, multiply, divide and compose functions and give appropriate domain and range restrictions | | | | | | | | | | | **X** | | | | |
| **RF.1.AII.4** Analyze and report, with and without appropriate technology, the effect of changing coefficients, exponents, and other parameters on functions and their graphs (linear, quadratic, and higher degree polynomial) | | | | | | | | **X** | **X** | | | | | | |
| **RF.1.AII.6** Graph, with and without appropriate technology, functions defined as piece-wise and step | | | | | | | | | | | | | **X** | | |
| **LINEAR AND ABSOLUTE VALUE EQUATIONS AND INEQUALITIES** | | | | | | | | | | | | | | | |
| **Content Standard 2: Students will analyze and apply various methods to model, graph and solve linear and absolute value equations and inequalities.** | | | | | | | | | | | | | | | |
| **LEI.2.AII.2** Develop, write and graph, with and without appropriate technology, equations of lines in slope-intercept, pint-slope, and standard forms given<br>• a point and the slope<br>• two points<br>• real world data | | | | | **X** | | | **X** | | | | | | | |

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| **LEI.2.AII.3** Develop, write and graph (given the point and the slope, two points, or a point and a line) equations of<br>• a parallel line<br>• a perpendicular line<br>• a perpendicular bisector of a segment | | | | | **X** | | | | | | | | | | |
| **LEI.2.AII.5** Solve, with and without appropriate technology, systems of linear equations and systems of linear inequalities with two or more variables through the use of graphs, tables, matrices and other algebraic methods | | | | | **X** | | | | | | | | | | |
| **QUADRATIC EQUATIONS AND FUNCTIONS** | | | | | | | | | | | | | | | |
| **Content Standard 3: Students will use algebraic, graphical, and numerical methods to analyze, compare, translate, and solve quadratic equations.** | | | | | | | | | | | | | | | |
| **QEF.3.AII.3** Solve quadratic equations with and without appropriate technology by<br>• extracting the square root<br>• graphing<br>• factoring<br>• completing the square<br>• using the quadratic formula | | | | | | | **X** | | | | | | | | |

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| **QEF.3.AII.4** Develop and analyze, with and without appropriate technology, quadratic relations<br>• graph a parabolic relationship when given its equation<br>• write an equation when given its roots (zeros or solutions) or graph<br>• determine the nature of the solutions graphically and by evaluating the discriminant<br>• determine the maximum or minimum values and the axis of symmetry both graphically and algebraically | | | | | | | **X** | | | | | | | | |
| **POLYNOMIAL AND RATIONAL FUNCTIONS** | | | | | | | | | | | | | | | |
| **Content Standard 4: Students will use algebraic, graphical and numerical methods to analyze, compare, translate, and solve polynomial and rational equations.** | | | | | | | | | | | | | | | |
| **PRF.4.AII.2** Develop and analyze, with and without appropriate technology, polynomial functions from their roots, graphs, or equations<br>• write an equation when given its factors or roots (zeros or solutions)<br>• determine the x- and y- intercepts<br>• describe the end behaviors<br>• sketch the graph | | | | | | | | **X** | **X** | **X** | | | | | |

| ↓ frameworks/lessons → | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
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| **PRF.4.AII.5** Graph, with and without appropriate technology, rational functions of the form $y=1/x$ and $y=1/x^2$ and their transformations and identify x- and y-intercepts, domain restrictions and vertical asymptotes | | | | | | | **X** | | | | | | | | |
| **PRF.4AII.6** Solve, with and without appropriate technology, problems using rational equations, including proportions, rate, and variation (direct, inverse (indirect), or joint) and real world problems | | | | | | | **X** | | | | | | | | |
| **EXPONENTIAL AND LOGARITHMIC FUNCTIONS** | | | | | | | | | | | | | | | |
| **Content Standard 5: Students will graph exponential functions and relate them to logarithms. They will solve real world problems using exponential functions.** | | | | | | | | | | | | | | | |
| **ELF.5.AII.1** Interpret and graph, with and without appropriate technology, exponential functions | | | | | | | | | | | **X** | | | **X** | |
| **ELF.5.AII.2** Solve, with and without appropriate technology, exponential equations, including real world problems | | | | | | | | | | | **X** | | | **X** | **X** |
| **DATA ANALYSIS AND PROBABILITY** | | | | | | | | | | | | | | | |
| **Content Standard 6: Students will evaluate and interpret data, make predictions based on data, and apply basic understanding of probability to solve real world problems.** | | | | | | | | | | | | | | | |
| **DAP.6.AII.1** Interpret and evaluate, with and without appropriate technology, graphical and tabular data displays for<br>• consistency with the data<br>• appropriateness of type of graph or data display<br>• scale<br>• overall message | | | | | | | | | | | | | | **X** | |