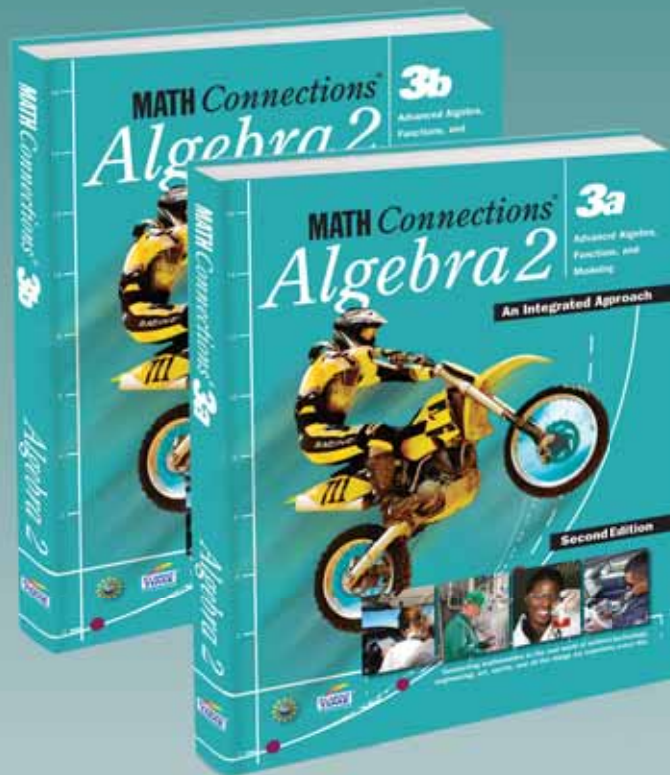


MATH *Connections*[®]

Algebra 2 Correlation to the
Indiana
Standards for Mathematics K-12



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| Indicators | Location/Page where Standard is found |
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| Standard 1: Functions | |
| A2.1.1 Find the zeros, domain, and range of a function. | Book 3a: 13, 19, 23, 25, 37, 38, 42 – 47, 67, 74 – 84, 86, 88, 90, 92, 96, 98, 104, 107, 109, 113, 114, 116, 132, 143, 145 – 147, 196, 231, 256, 260, 263, 264, 285, 286, 391 Book 3a: 492, 566, 583, 617, 643, 645 – 648, 652 – 654, 672 |
| A2.1.2 Use and interpret function notation, including evaluation of functions represented by tables, graphs, words, equations or a set of ordered pairs. | Book 3a: 11 – 47, 67 – 78, 86, 90 – 110, 112, 113, 118, 142 – 148, 152 – 154, 164, 171, 175 – 177, 181, 185, 219, 221, 230, 241, 243, 258 – 290, 293, 298 – 313, 318 - 324 |
| A2.1.3 Recognize and describe the relationships among the solutions of an equation, the zeros of a function, the x-intercepts of a graph, and the factors of a polynomial expression. | Book 3a: 77 – 89, 116 |
| Standard 2: Linear and Absolute Value Equations, Inequalities and Functions | |
| A2.2.1 Solve systems of linear equations and inequalities in three variables by substitution and elimination. | Book 2b, Chapter 6 |
| A2.2.2 Solve problems that can be modeled using systems of linear equations up to three variables, interpret the solutions, and determine whether the solutions are reasonable. | Book 3a: 126 – 130, 342 – 345, 348, 349, 382 – 384, 388 – 391 |
| A2.2.3 Graph piecewise-defined functions. | Not Presented |
| A2.2.4 Solve equations and inequalities involving the absolute value of a linear function. | Book 3a: 106 – 110, 117 In-depth Book 1a: Chapter 2 |
| Standard 3: Quadratic Equations and Functions | |
| A2.3.1 Define, add, subtract, multiply and divide complex numbers. Represent complex numbers, and the addition, subtraction and absolute value of complex numbers, in the complex plane. | Book 3a: 48 – 56, 116 |
| A2.3.2 Solve quadratic equations in the complex number system. | Book 3a: 84 – 86, 88 |
| A2.3.3 Analyze, describe, and sketch graphs of quadratic functions, including the lines of symmetry. | Book 3a: 24 – 36, 57 – 65, 116 |
| A2.3.4 Determine how the graph of a parabola changes if a , b , and c changes in the equation $y = a(x - b)^2 + c$. Find an equation for a parabola given sufficient information. | Book 3a: 57 – 64 |
| A2.3.5 Solve problems that can be modeled using quadratic equations and functions, interpret the solutions, and determine whether the solutions are reasonable. | Book 3a: 16 – 23, 34, 47, 64, 65, 114, 115 |
| Standard 4: Polynomial Expressions, Equations and Functions | |
| A2.4.1 Analyze, describe, and sketch graphs of polynomial functions by examining intercepts, zeros, domain and range, and end behavior. | Book 3a: 72 – 76, 81, 82, 86, 88 |
| A2.4.2 Use the binomial theorem to expand binomial expressions raised to positive integer powers. | Book 3a: 86, 87, 89 |

| Indicators | Location/Page where Standard is found |
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| Standard 4: Continued | |
| A2.4.3 Perform arithmetic operations, including long division and division with remainders, on polynomials by others of equal or lower degree. | Book 3a: 80 – 89, 142 – 148 |
| A2.4.4 Factor polynomials completely and solve polynomial equations by factoring. | Book 3a: 80 – 88, 104, 115, 131 – 141, 143 – 147 Book 3b: 565, 566, 647 – 654, 672 – 677, 696 – 700 |
| A2.4.5 Use graphing technology to find approximate solutions for polynomial equations. | Book 3a: 37, 38, 75, 77, 78 |
| A2.4.6 Solve problems that can be represented or modeled using polynomial equations, interpret the solutions, and determine whether the solutions are reasonable. | Book 3a: 66 – 78 |
| A2.4.7 Find a polynomial function of lowest degree with real coefficients given its roots and use the relationship between solutions of an equation, zeros of a function, x-intercepts of a graph and factors of a polynomial expression to solve problems. | Book 3a: 80 – 82, 88 |
| Standard 5: Rational and Radical Expressions, Equations and Functions | |
| A2.5.1 Analyze, describe, and sketch graphs of rational functions by examining intercepts, zeros, domain and range, and asymptotic and end behavior. | Book 3a: 98 – 105, 109 Book 3b: 643 – 654, 672 |
| A2.5.2 Add, subtract, multiply, divide, reduce and evaluate rational expressions with polynomial denominators. Simplify rational expressions, including expressions with negative exponents in the denominator. | Book 3a: 229, 230 Book 3b: 673 – 680 |
| A2.5.3 Understand the properties of rational exponents and use the properties to simplify, multiply, divide, and find powers of expressions containing negative and fractional exponents. Relate expressions containing rational exponents to the corresponding radical expressions. | Book 3a: 155 – 162, 217, 218 |
| A2.5.4 Analyze, describe, and sketch graphs of square root and cube root functions by examining intercepts, zeros, domain and range, and end behavior. | Book 3a: 66 – 76, 117, 316, 317, 320 |
| A2.5.5 Solve equations that contain radical expressions and identify extraneous roots when they occur. | Book 3a: 163, 227 – 234 |
| A2.5.6 Solve problems that can be modeled using equations involving rational and radical functions, including problems of direct and inverse variation. Interpret the solutions, and determine whether the solutions are reasonable. | Book 3a: 98 – 100, 109, 110, 162, 163 Also see Book 2a, Section 1.9 |
| Standard 6: Exponential and Logarithmic Functions | |
| A2.6.1 Analyze, describe, and sketch graphs of exponential functions by examining intercepts, zeros, domain and range, and asymptotic and end behavior. | Book 3a: 153, 154, 167 – 171, 173, 175, 182, 184, 204 |
| A2.6.2 Know that the inverse of an exponential function is a logarithm, use laws of exponents to derive laws of logarithms, and use the inverse relationship between exponential functions and logarithms and the laws of logarithms to solve problems. | Book 3a: 188 – 215, 221, 222 |
| A2.6.3 Solve exponential and logarithmic equations. | Book 3a: 163, 212 – 214, 224 – 226 |
| A2.6.4 Solve problems that can be modeled using exponential and logarithmic equations, interpret the solutions, and determine whether the solutions are reasonable using technology as appropriate. | Book 3a: 151 – 154, 162 – 181, 186, 187, 205 – 208, 212 – 215, 218 – 222 |

| Indicators | Location/Page where Standard is found |
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| Standard 7: Sequences and Series | |
| A2.7.1 Write the recursive formula for arithmetic and geometric sequences and find specific terms of arithmetic and geometric sequences. | Book 3b: 577, 579 Also see Book 1b, Ch. 6 |
| A2.7.2 Write the formula for the general term for arithmetic and geometric sequences and make connections to linear and exponential functions. | Book 3b: 577, 615 – 617 Also see Book 1b, Ch. 6 |
| A2.7.3 Find partial sums of arithmetic and geometric series. | Book 3b: 578 – 582, 607 – 613, 616, 617, 676 Also see Book 1b, Ch. 6 |
| A2.7.4 Solve problems involving applications that can be modeled using sequences and finite arithmetic and geometric series, interpret the solutions, and determine whether the solutions are reasonable using spreadsheets as appropriate. | Book 3b: 582, 606 – 609, 616, 617 |
| Standard 8: Data Analysis and Probability | |
| A2.8.1 Use the relative frequency of a specified outcome of an event to estimate the probability of the outcome and apply the law of large numbers in simple examples. | Book 3b: 425, 432, 435, 442, 446, 457, 458, 460, 463 – 466 |
| A2.8.2 Determine the probability of simple events involving independent and dependent events and conditional probability. Analyze probabilities to interpret odds and risk of events. | Book 3b: 428 – 434, 470, 471 |
| A2.8.3 Know and apply the characteristics of the normal distribution. <ul style="list-style-type: none"> • Identify settings in which the normal distribution may be useful. • Determine whether a set of data appears to be uniform, skewed or normally distributed. • Use the empirical rule to find probabilities that an event will occur in a specific interval that can be described in terms of one, two or three standard deviations about the mean. | Book 3b: 448 – 466, 472 |
| A2.8.4 Use permutations, combinations, and other counting methods to determine the number of ways that events can occur, and to calculate probabilities, including the probability of compound events. | Book 3b: 403 – 410, 418 – 424, 434 – 442, 469, 470 |