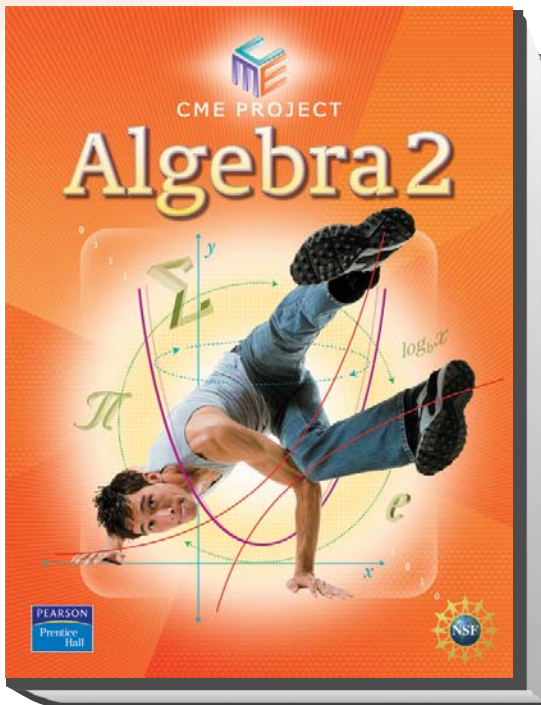


Prentice Hall

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C O R R E L A T E D T O

Indiana Math Standards Final Draft from March 2009

Algebra 2

PEARSON

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A2.1 Functions	
A2.1.1 Find the zeros, domain, and range of a function.	SE/TE: 97-98, 109, 119, 121, 147, 155-156, 190, 199, 264-265, 430-432, 461, 479
A2.1.2 Use and interpret function notation, including evaluation of functions represented by tables, graphs, words, equations or a set of ordered pairs.	SE/TE: 9, 16-18, 22-23, 29-34, 69, 72-74, 77-79, 82-83, 97-98, 100-105, 109-111, 115-121, 127-128, 131-133, 147, 190, 428-429, 436-439, 444-445, 453, 463, 463-466, 478-479, 513-515, 522-525
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.	SE/TE: 147, 151-152, 155-158, 163, 173-174, 190-191, 199, 264-265, 269-272
A2.2 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.	SE/TE: 283, 286-288, 291-296, 391
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.	SE/TE: 283, 290, 298, 299, 338, 340
A2.2.3 Graph piecewise-defined functions.	SE/TE: 107
A2.2.4 Solve equations and inequalities involving the absolute value of a linear function.	This topic is covered in the CME Algebra I text. Related material: SE/TE: 103, 501, 504
A2.3 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.	SE/TE: 201-202, 206-209, 212-215, 218-220, 229-230, 234-238, 242-247, 253, 255-259, 263-265, 269-272
A2.3.2 Solve quadratic equations in the complex number system.	SE/TE: 199, 269, 515, 547-548
A2.3.3 Analyze, describe, and sketch graphs of quadratic functions including the lines of symmetry.	SE/TE: 501, 504, 513-517, 522-523, 562-563, 565-566
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.	SE/TE: 501, 513-517, 522-523, 562-563, 565-566
A2.3.5 Solve problems that can be modeled using quadratic equations and functions, interpret the solutions, and determine whether the solutions are reasonable.	This topic is covered in the CME Algebra I text. Related material: SE/TE: 501, 504, 513-517, 522-523, 562-563, 565-566
A2.4 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.	SE/TE: Cubics in the form: $y = x^3 \pm x$ can be found on: 508-509; all other cubics can be found on: 548-552, 560-569

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A2.4.2 Use the binomial theorem to expand binomial expressions raised to positive integer powers.	SE/TE: 668-669, 678
A2.4.3 Perform arithmetic operations, including long division and division with remainders, on polynomials by others of equal or lower degree.	SE/TE: 91-92, 147, 149-152, 155-158
A2.4.4 Factor polynomials completely and solve polynomial equations by factoring.	SE/TE: 155-156, 163, 165-166, 169-174, 176-180, 199, 265, 269-270
A2.4.5 Use graphing technology to find approximate solutions for polynomial equations.	This topic is covered in the CME Algebra I text.
A2.4.6 Solve problems that can be represented or modeled using polynomial equations, interpret the solutions, and determine whether the solutions are reasonable.	This topic is covered in the CME Algebra I text.
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.	SE/TE: 137, 147, 155-158, 265 Additional related material: SE/TE: 91-97, 98-104
A2.5 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.	This topic is covered in the CME Precalculus text. Related material: SE/TE: 503, 504
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.	SE/TE: 183-184, 191
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.	SE/TE: 412-415, 418-420, 429-430, 444-446, 451, 495
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.	SE/TE: 501, 504
A2.5.5 Solve equations that contain radical expressions and identify extraneous roots when they occur.	Related material: SE/TE: 501, 504
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.	Related material: SE/TE: 501, 503-505

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A2.6 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.	SE/TE: 425, 428-432, 436, 444, 451-452, 495, 524-525
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.	SE/TE: 452-453, 461, 463-466, 469-472, 496, 501
A2.6.3 Solve exponential and logarithmic equations.	SE/TE: 399, 414, 445-446, 451, 453, 461, 464-465, 470-472, 479-480, 496
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.	SE/TE: 72-74, 82-83, 417, 434, 438, 441, 443, 449, 456-457, 470-471, 474, 477, 485-488
A2.7 Sequences and Series	
A2.7.1 Write the recursive formula for arithmetic and geometric sequences and find specific terms of arithmetic and geometric sequences.	SE/TE: 9-11, 16, 69, 72-74, 82-83, 84, 629, 632-633, 639-640, 678
A2.7.2 Write the formula for the general term for arithmetic and geometric sequences and make connections to linear and exponential functions.	SE/TE: 5, 9, 17-18, 22-23, 69, 84, 412-414, 590, 593, 594, 597, 609, 632-633, 639-640, 678
A2.7.3 Find partial sums of arithmetic and geometric series.	SE/TE: 590, 593-595, 597, 602, 607, 609-611, 634, 640-642, 649-652, 656-657, 678
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.	SE/TE: 417, 589, 597-598, 622-623, 629, 641-642, 656-657
A2.8 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.	Related material: SE/TE: 379-383, 392
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.	Related material: SE/TE: 379-383, 392
A2.8.3 Know and apply the characteristics of the normal distribution.	This topic is covered in the CME Precalculus text.
A2.8.4 Identify settings in which the normal distribution may be useful.	This topic is covered in the CME Precalculus text.
A2.8.5 Determine whether a set of data appears to be uniform, skewed or normally distributed.	This topic is covered in the CME Precalculus text.

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A2.8. • 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.	This topic is covered in the CME Precalculus text.
A2.8.4 Use permutations, combinations, and other counting methods to determine number of ways that events can occur and to calculate probabilities, including the probability of compound events.	This topic is covered in the CME Precalculus text. Related material: SE/TE: 77-79
Process Standards	
Problem Solving	
• Build new mathematical knowledge through problem solving.	This standard is addressed throughout the text. Sample citations follow: SE/TE: 72-76, 201-204, 244-249, 303-307, 372-378, 463-465, 629-631, 632-637, 689-690, 699
• Solve problems that arise in mathematics and in other contexts.	This standard is addressed throughout the text. Sample citations follow: SE/TE: 5, 69, 139-143, 199-200, 213, 381-386, 463-465, 504-512, 629-631, 717-721
• Apply and adapt a variety of appropriate strategies to solve problems.	This standard is addressed throughout the text. Sample citations follow: SE/TE: 5-7, 41-45, 97-99, 127-130, 199-200, 283-285, 399-400, 501-503, 589-592, 737-739
• Monitor and reflect on the process of mathematical problem solving.	This standard is addressed throughout the text. Sample citations follow: SE/TE: 31, 107-108, 167-168, 205-207, 277-278, 295-296, 343-344, 441-442, 539, 633-635
Reasoning and Proof	
• Recognize reasoning and proof as fundamental aspects of mathematics.	This standard is addressed throughout the text. Sample citations follow: SE/TE: 29-34, 131-135, 151-152, 213, 381-386, 401-402, 537-538, 704, 707, 728-732
• Make and investigate mathematical conjectures.	This standard is addressed throughout the text. Sample citations follow: SE/TE: 225, 235-238, 242
• Develop and evaluate mathematical arguments and proofs.	This standard is addressed throughout the text. Sample citations follow: SE/TE: 29-34, 131-135, 151-152, 213, 381-386, 401-402, 537-538, 704, 707, 728-732
• Select and use various types of reasoning and methods of proof.	This standard is addressed throughout the text. Sample citations follow: SE/TE: 225, 235-238, 242, 245-246, 257-258, 747-750, 755-759, 764-766

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Communication	
<ul style="list-style-type: none"> Organize and consolidate their mathematical thinking through communication. 	<p>This standard is addressed throughout the text. Sample citations follow: SE/TE: 56, 139-143, 199-200, 256-259, 283-285, 406-410, 546-551, 589-592, 639-645, 715-716</p>
<ul style="list-style-type: none"> Communicate their mathematical thinking coherently and clearly to peers, teachers, and others. 	<p>This standard is addressed throughout the text. Sample citations follow: SE/TE: 82-83, 188-189, 276-277, 389-390, 494, 578-579, 673-676, 771-772</p>
<ul style="list-style-type: none"> Analyze and evaluate the mathematical thinking and strategies of others. 	<p>This standard is addressed throughout the text. Sample citations follow: SE/TE: 32-33, 131-133, 179-180, 256-257, 337, 418, 505-506, 550, 609, 754-755</p>
<ul style="list-style-type: none"> Use the language of mathematics to express mathematical ideas precisely. 	<p>This standard is addressed throughout the text. Sample citations follow: SE/TE: 56, 139-143, 199-200, 256-259, 283-285, 406-410, 546-551, 589-592, 639-645, 715-716</p>
Connections	
<ul style="list-style-type: none"> Recognize and use connections among mathematical ideas. 	<p>This standard is addressed throughout the text. Sample citations follow: SE/TE: 29-34, 131-135, 151-152, 213, 381-386, 401-402, 537-538, 704, 707, 728-732</p>
<ul style="list-style-type: none"> Understand how mathematical ideas interconnect and build on one another produce a coherent whole. 	<p>This standard is addressed throughout the text. Sample citations follow: SE/TE: 72-76, 201-204, 244-249, 303-307, 372-378, 463-465, 629-631, 632-637, 689-690, 699</p>
<ul style="list-style-type: none"> Recognize and apply mathematics in contexts outside of mathematics. 	<p>This standard is addressed throughout the text. Sample citations follow: SE/TE: 41-43, 46-52, 303-306, 326-327, 379-385, 438, 470-471, 485-491, 589, 641-642</p>
Representation	
<ul style="list-style-type: none"> Create and use representations to organize, record, and communicate mathematical ideas. 	<p>This standard is addressed throughout the text. Sample citations follow: SE/TE: 53-59, 102-107, 234-241, 269-274, 291-300, 428-433, 451-457, 504-512, 602-604, 717-721</p>
<ul style="list-style-type: none"> Select, apply, and translate among mathematical representations to solve problems. 	<p>This standard is addressed throughout the text. Sample citations follow: SE/TE: 72-76, 201-204, 244-249, 303-307, 372-378, 463-465, 629-631, 632-637, 689-690, 699</p>

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<ul style="list-style-type: none"> • Use representations to model and interpret physical, social, and mathematical phenomena. 	<p>This standard is addressed throughout the text. Sample citations follow: SE/TE: 53-59, 102-107, 234-241, 269-274, 291-300, 428-433, 451-457, 504-512, 602-604, 717-721</p>
Estimation and Mental Computation	
<ul style="list-style-type: none"> • Know and apply appropriate methods for estimating the results of computations. 	<p>This standard is addressed throughout the text. Sample citations follow: SE/TE: 48, 53-56, 60-62, 84-85, 425, 431, 445-446, 457, 471, 649-652</p>
<ul style="list-style-type: none"> • Use estimation to decide whether answers are reasonable. 	<p>This standard is addressed throughout the text. Sample citations follow: SE/TE: 48, 53-56, 60-62, 84-85, 425, 431, 457, 489-491, 589, 748-749</p>
<ul style="list-style-type: none"> • Decide when estimation is an appropriate strategy for solving a problem. 	<p>This standard is addressed throughout the text. Sample citations follow: SE/TE: 47-48, 53-56, 60-62, 84-85, 373, 445-446, 457, 471, 649-650, 709</p>
<ul style="list-style-type: none"> • Determine appropriate accuracy and precision of measurement in problem situations. 	<p>This standard is addressed throughout the text. Sample citations follow: SE/TE: 53-56, 60-62, 84-85, 136, 246, 255, 373, 431, 445-446, 471</p>
<ul style="list-style-type: none"> • Use properties of numbers and operations to perform mental computation. 	<p>This standard is addressed throughout the text. Sample citations follow: SE/TE: 5, 136, 149, 199, 271-272, 399, 403, 593-595</p>
<ul style="list-style-type: none"> • Recognize when the numbers involved in a computation allow for a mental computation strategy. 	<p>This standard is addressed throughout the text. Sample citations follow: SE/TE: 5, 136, 199, 271-272, 399, 403, 593-595, 656-657</p>
Technology	
<ul style="list-style-type: none"> • Technology should be used as a tool in mathematics education to support and extend the mathematics curriculum. 	<p>This standard is addressed throughout the text. Sample citations follow: SE/TE: 53-57, 60-65, 72-76, 339-341, 373-377, 436-443, 478-482, 589, 641-647</p>
<ul style="list-style-type: none"> • Technology can contribute to concept development, simulation, representation, communication, and problem solving. 	<p>This standard is addressed throughout the text. Sample citations follow: SE/TE: 53-57, 60-65, 72-76, 339-341, 373-377, 436-443, 478-482, 589, 641-647</p>
<ul style="list-style-type: none"> • The challenge is to ensure that technology supports-but is not a substitute for- the development of skills with basic operations, quantitative reasoning, and problem solving skills. 	<p>This standard is addressed throughout the text. Sample citations follow: SE/TE: 13, 74, 295, 339-340, 405, 406-407, 419, 615, 692-693, 719</p>

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o Graphing calculators should be used to enhance middle school and high school students' understanding and skills.	This standard is addressed throughout the text. Sample citations follow: SE/TE: 9, 55, 60, 140, 296, 339-340, 406, 540, 615
o The focus must be on learning mathematics, using technology as a tool rather than as an end in itself.	This standard is addressed throughout the text. Sample citations follow: SE/TE: 13, 74, 295, 339-340, 405, 406-407, 419, 615, 692-693, 719