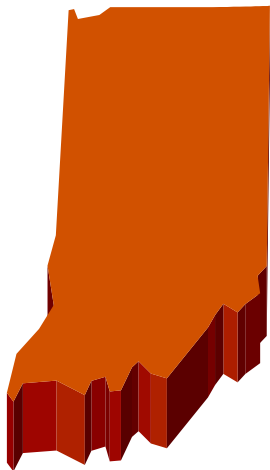
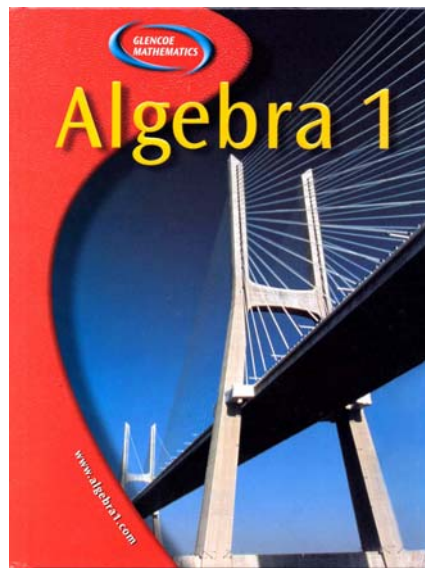


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INDIANA EDITION



alignment to

**Indiana
Academic Mathematics Standards
Algebra I**

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**ALIGNMENT TO
INDIANA
ACADEMIC MATHEMATICS STANDARDS FOR
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OBJECTIVES	PAGE REFERENCES
Operations with Real Numbers	
Students simplify and compare expressions. They use rational exponents, and simplify square roots.	
A1.1.1 Compare real number expressions.	PE: 68–70, 105–106, 593–594 TWE: 68–70, 105–106, 593–594
A1.1.2 Simplify square roots using factors.	PE: 586, 587, 589, 590, 595, 597, 603, 610 TWE: 586, 587, 589, 590, 595, 597, 603, 610
A1.1.3 Understand and use the distributive, associative, and commutative properties.	PE: 26–31, 32–33, 60, 140, 148, 150, 170, 191, 196, 351, 386, 443, 451, 454, 464, 467, 468, 473, 479, 821 TWE: 26–31, 32–33, 60, 140, 148, 150, 170, 191, 196, 351, 386, 443, 451, 454, 464, 467, 468, 473, 479, 821
A1.1.4 Use the laws of exponents for rational exponents.	PE: 7, 410, 418, 419–421, 469 TWE: 7, 410, 418, 419–421, 469
A1.1.5 Use dimensional (unit) analysis to organize conversions and computations.	PE: 167–168, 656, 661 TWE: 167–168, 656, 661
Linear Equations and Inequalities	
Students solve linear equations and inequalities in one variable. They solve word problems that involve linear equations, inequalities, or formulas.	
A1.2.1 Solve linear equations.	PE: 118, 121–126, 218, 221–222, 225, 238, 272, 287, 337, 829, 855, 857 TWE: 118, 121–126, 218, 221–222, 225, 238, 272, 287, 337, 829, 855, 857

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OBJECTIVES		PAGE REFERENCES	
A1.2.2	Solve equations and formulas for a specified variable.	PE:	118, 122, 183–184, 218, 221–222, 225, 238, 254, 272, 287, 337, 825–829, 855, 857
		TWE:	118, 122, 183–184, 218, 221–222, 225, 238, 254, 272, 287, 337, 825–829, 855, 857
A1.2.3	Find solution sets of linear inequalities when possible numbers are given for the variable.	PE:	352–354, 374, 858
		TWE:	352–354, 374, 858
A1.2.4	Solve linear inequalities using properties of order.	PE:	352–354, 858
		TWE:	352–354, 858
A1.2.5	Solve combined linear inequalities.	PE:	394–398, 399, 402–403, 552, 647
		TWE:	394–398, 399, 402–403, 552, 647
A1.2.6	Solve word problems that involve linear equations, formulas, and inequalities.	PE:	121–126, 220–222, 238, 274–275, 354, 356–357, 855–859
		TWE:	121–126, 220–222, 238, 274–275, 354, 356–357, 855–859
Relations and Functions			
Students sketch and interpret graphs representing given situations. They understand the concept of a function and analyze the graphs of functions.			
A1.3.1	Sketch a reasonable graph for a given relationship.	PE:	44–45, 300–301, 306–307
		TWE:	44–45, 300–301, 306–307
A1.3.2	Interpret a graph representing a given situation.	PE:	44–45, 49, 50–55, 62, 88–90, 288–301
		TWE:	44–45, 49, 50–55, 62, 88–90, 288–301

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OBJECTIVES		PAGE REFERENCES	
A1.3.3	Understand the concept of a function, decide if a given relation is a function, and link equations to functions.	PE:	43, 61–62, 190, 226–227, 229–231, 249, 263, 436, 830
		TWE:	43, 61–62, 190, 226–227, 229–231, 249, 263, 436, 830
A1.3.4	Find the domain and range of a relation.	PE:	45, 206, 209–216, 219, 221, 223, 248, 271, 285, 323, 344, 354, 356, 443
		TWE:	45, 206, 209–216, 219, 221, 223, 248, 271, 285, 323, 344, 354, 356, 443
Graphing Linear Equations and Inequalities			
Students graph linear equations and inequalities in two variables. They write equations of lines and find and use the slope and y -intercept of lines. They use linear equations to model real data.			
A1.4.1	Graph a linear equation.	PE:	218–221, 219, 248–249, 351, 367
		TWE:	218–221, 219, 248–249, 351, 367
A1.4.2	Find the slope, x -intercept and y -intercept of a line given its graph, its equation, or two points on the line.	PE:	266–359, 269–270, 275, 277, 292–293, 370, 423, 556, 558, 565, 831, 832, 843
		TWE:	266–359, 269–270, 275, 277, 292–293, 370, 423, 556, 558, 565, 831, 832, 843
A1.4.3	Write the equation of a line in slope-intercept form. Understand how the slope and y -intercept of the graph are related to the equation.	PE:	266–359, 269–270, 275, 277, 292–293, 370, 423, 556, 558, 565, 831, 832, 843
		TWE:	266–359, 269–270, 275, 277, 292–293, 370, 423, 556, 558, 565, 831, 832, 843

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OBJECTIVES		PAGE REFERENCES	
A1.4.4	Write the equation of a line given appropriate information.	PE:	266–359, 269–270, 275, 277, 286–291, 292–293, 370, 423, 556, 558, 565, 831, 832, 843
		TWE:	266–359, 269–270, 275, 277, 286–291, 292–293, 370, 423, 556, 558, 565, 831, 832, 843
A1.4.5	Write the equation of a line that models a data set and use the equation (or the graph of the equation) to make predictions. Describe the slope of the line in terms of the data, recognizing that the slope is the rate of change.	PE:	242, 258–259, 271, 274, 306–307
		TWE:	242, 258–259, 271, 274, 306–307
A1.4.6	Graph a linear inequality in two variables.	PE:	352–354, 358, 394–396, 398
		TWE:	352–354, 358, 394–396, 398
Pairs of Linear Equations and Inequalities			
Students solve pairs of linear equations using graphs and using algebra. They solve pairs of linear inequalities using graphs. They solve word problems involving pairs of linear equations.			
A1.5.1	Use a graph to estimate the solution of a pair of linear equations in two variables.	PE:	369–374, 381, 386, 389, 835–836, 859
		TWE:	369–374, 381, 386, 389, 835–836, 859
A1.5.2	Use a graph to find the solution set of a pair of linear inequalities in two variables.	PE:	369–374, 381, 386, 389, 835–836, 859
		TWE:	369–374, 381, 386, 389, 835–836, 859
A1.5.3	Understand and use the substitution method to solve a pair of linear equations in two variables.	PE:	376–381, 386, 389, 390, 392, 400–401, 630, 835
		TWE:	376–381, 386, 389, 390, 392, 400–401, 630, 835
A1.5.4	Understand and use the addition or subtraction method to solve a pair of linear equations in two variables.	PE:	382–384, 387–390, 400–401
		TWE:	382–384, 387–390, 400–401

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OBJECTIVES		PAGE REFERENCES	
A1.5.5	Understand and use multiplication with the addition or subtraction method to solve a pair of linear equations in two variables.	PE:	385, 389–392, 398, 401–402, 415, 463, 621, 836
		TWE:	385, 389–392, 398, 401–402, 415, 463, 621, 836
A1.5.6	Use pairs of linear equations to solve word problems.	PE:	385, 390–392, 398, 415, 463, 621, 859
		TWE:	385, 390–392, 398, 415, 463, 621, 859
Polynomials			
Students add, subtract, multiply, and divide polynomials. They factor quadratics.			
A1.6.1	Add and subtract polynomials.	PE:	437–438, 439–440, 443, 467, 671
		TWE:	437–438, 439–440, 443, 467, 671
A1.6.2	Multiply and divide monomials.	PE:	410–415, 417–423, 450–451, 452–457, 465, 468, 664, 667–671, 698
		TWE:	410–415, 417–423, 450–451, 452–457, 465, 468, 664, 667–671, 698
A1.6.3	Find powers and roots of monomials (only when the answer has an integer exponent).	PE:	413–414, 430, 435, 649–652, 837
		TWE:	413–414, 430, 435, 649–652, 837
A1.6.4	Multiply polynomials.	PE:	450–451, 452–457, 468, 666–671, 698
		TWE:	450–451, 452–457, 468, 666–671, 698
A1.6.5	Divide polynomials by monomials.	PE:	666–671, 698
		TWE:	666–671, 698
A1.6.6	Find a common monomial factor in a polynomial.	PE:	480, 481–486, 839
		TWE:	480, 481–486, 839

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OBJECTIVES		PAGE REFERENCES	
A1.6.7	Factor the difference of two squares and other quadratics.	PE:	487–492, 495–498, 501–506, 508–511, 517–518
		TWE:	487–492, 495–498, 501–506, 508–511, 517–518
A1.6.8	Understand 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.	PE:	222–223, 227, 230–231, 533–538, 546–552, 574–575, 576–577, 767, 842
		TWE:	222–223, 227, 230–231, 533–538, 546–552, 574–575, 576–577, 767, 842
Algebraic Fractions			
Students simplify algebraic ratios and solve algebraic proportions.			
A1.7.1	Simplify algebraic ratios.	PE:	155–157, 182, 217, 567, 569, 578, 585, 649–650, 736, 802–803
		TWE:	155–157, 182, 217, 567, 569, 578, 585, 649–650, 736, 802–803
A1.7.2	Solve algebraic proportions.	PE:	155–157, 182, 217, 585, 615, 641, 643, 827
		TWE:	155–157, 182, 217, 585, 615, 641, 643, 827
Quadratic, Cubic, and Radical Equations			
Students graph and solve quadratic and radical equations. They graph cubic equations.			
A1.8.1	Graph quadratic, cubic, and radical equations.	PE:	533–538, 544, 574–575, 604, 842
		TWE:	533–538, 544, 574–575, 604, 842
A1.8.2	Solve quadratic equations by factoring.	PE:	534, 539–541, 546, 691
		TWE:	534, 539–541, 546, 691
A1.8.3	Solve quadratic equations in which a perfect square equals a constant.	PE:	539–544, 545, 552, 560, 575–576, 585, 742, 758, 842
		TWE:	539–544, 545, 552, 560, 575–576, 585, 742, 758, 842

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OBJECTIVES		PAGE REFERENCES	
A1.8.4	Complete the square to solve quadratic equations.	PE:	539–544, 545, 552, 560, 575–576, 585, 742, 758, 842
		TWE:	539–544, 545, 552, 560, 575–576, 585, 742, 758, 842
A1.8.5	Derive the quadratic formula by completing the square.	PE:	587-588
		TWE:	587-588
A1.8.6	Solve quadratic equations by using the quadratic formula.	PE:	546–552, 560, 565, 576–577, 713, 767, 842, 862
		TWE:	546–552, 560, 565, 576–577, 713, 767, 842, 862
A1.8.7	Use quadratic equations to solve word problems.	PE:	529, 535–537, 541, 543, 548, 550–552, 862
		TWE:	529, 535–537, 541, 543, 546–552, 560, 565, 576–577, 713, 767, 842
A1.8.8	Solve equations that contain radical expressions.	PE:	598–604, 611–612
		TWE:	598–604, 611–612
A1.8.9	Use graphing technology to find approximate solutions of quadratic and cubic equations.	PE:	148, 535, 538, 545, 547, 553
		TWE:	148, 535, 538, 545, 547, 553
Mathematical Reasoning and Problem Solving			
Students use a variety of strategies to solve problems.			
A1.9.1	Use a variety of problem solving strategies, such as drawing a diagram, making a chart, guess-and-check, solving a simpler problem, writing an equation, and working backwards.	PE:	121, 123, 131, 141, 142, 145, 146, 151, 157, 320–321
		TWE:	121, 123, 131, 141, 142, 145, 146, 151, 157, 320–321
A1.9.2	Decide whether a solution is reasonable in the context of the original situation.	PE:	121, 123, 141, 142–144, 151, 157
		TWE:	121, 123, 141, 142–144, 151, 157

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OBJECTIVES		PAGE REFERENCES	
Students develop and evaluate mathematical arguments and proofs.			
A1.9.3	Use the properties of the real number system and the order of operations to justify the steps of simplifying functions and solving equations.	PE:	11–15, 17, 22, 58, 119, 140, 181
		TWE:	11–15, 17, 22, 58, 119, 140, 181
A1.9.4	Understand that the logic of equation solving begins with the assumption that the variable is a number that satisfies the equation, and that the steps taken when solving equations create new equations that have, in most cases, the same solution set as the original. Understand that similar logic applies to solving systems of equations simultaneously.	PE:	118, 122, 166–167, 183–184, 191, 218, 221–222, 225, 238, 254, 272, 287, 337, 367, 377, 825–829, 855, 857
		TWE:	118, 122, 166–167, 183–184, 191, 218, 221–222, 225, 238, 254, 272, 287, 337, 367, 377, 825–829, 855, 857
A1.9.5	Decide whether a given algebraic statement is true always, sometimes, or never (statements involving linear or quadratic expressions, equations, or inequalities).	PE:	132, 323, 350, 429, 557, 572, 720
		TWE:	132, 323, 350, 429, 557, 572, 720
A1.9.6	Distinguish between inductive and deductive reasoning, identifying and providing examples of each.	PE:	38, 39, 239, 240
		TWE:	38, 39, 239, 240
A1.9.7	Identify the hypothesis and conclusion in a logical deduction.	PE:	37–38, 39, 40, 48, 61, 217, 822
		TWE:	37–38, 39, 40, 48, 61, 217, 822
A1.9.8	Use counterexamples to show that statements are false, recognizing that a single counterexample is sufficient to prove a general statement false.	PE:	38–39, 40, 41, 55, 83, 91, 154, 210, 228, 330, 371, 414, 694, 707, 733, 772, 822
		TWE:	38–39, 40, 41, 55, 83, 91, 154, 210, 228, 330, 371, 414, 694, 707, 733, 772, 822

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