

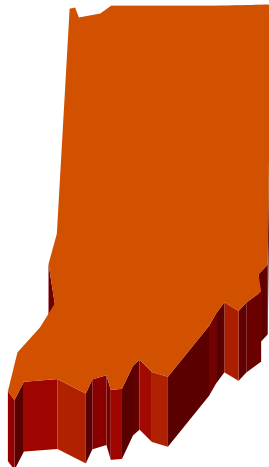
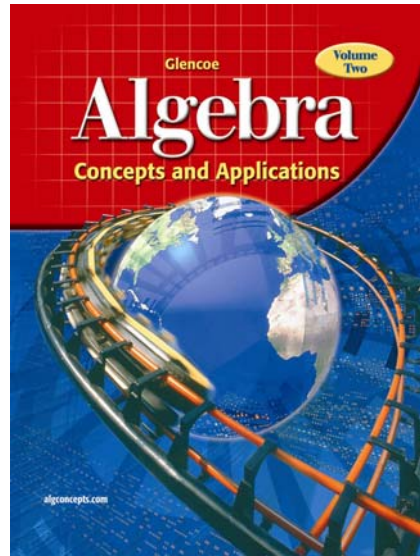
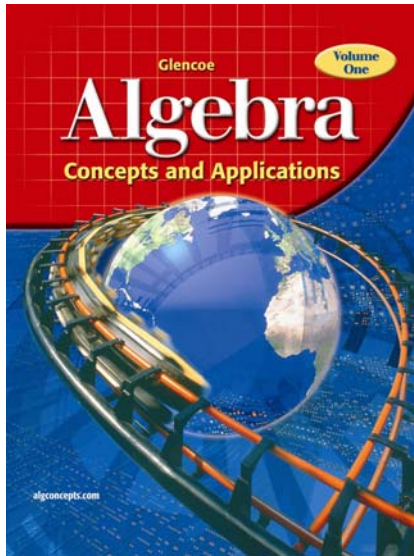
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alignment to

**Indiana  
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Algebra I**

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<b>OBJECTIVES</b>	<b>PAGE REFERENCES</b>
<b>Operations with Real Numbers</b>	
Students simplify and compare expressions. They use rational exponents, and simplify square roots.	
A1.1.1 Compare real number expressions.	PE: 52–54, 58, 64, 75, 86, 94–95, 98, 109, 129, 132, 125, 170, 211, 379, 604–605, 633, 673  TWE: 52–54, 58, 64, 75, 86, 94–95, 98, 109, 129, 132, 125, 170, 211, 379, 604–605, 633, 673
A1.1.2 Simplify square roots using factors.	PE: 358, 360, 371, 358, 375, 616, 631  TWE: 358, 360, 371, 358, 375, 616, 631
A1.1.3 Understand and use the distributive, associative, and commutative properties.	PE: 14–16, 17, 19–23, 63, 67, 74, 85, 206–207, 235, 337, 354, 399–404, 476, 780, 490  TWE: 14–16, 17, 19–23, 63, 67, 74, 85, 206–207, 235, 337, 354, 399–404, 476, 780, 490
A1.1.4 Use the laws of exponents for rational exponents.	PE: 336–337, 348, 374–375, 455  TWE: 336–337, 348, 374–375, 455
A1.1.5 Use dimensional (unit) analysis to organize conversions and computations.	PE: 190–191  TWE: 190–191

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<b>OBJECTIVES</b>	<b>PAGE REFERENCES</b>
<b>Linear Equations and Inequalities</b>	
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: 29, 122–126, 160–164, 165–170, 454, 554–559, 566–571, 572–577  TWE: 29, 122–126, 160–164, 165–170, 454, 554–559, 566–571, 572–577
A1.2.2 Solve equations and formulas for a specified variable.	PE: 24, 28, 27, 109, 111, 115, 151, 173–174, 179, 205, 361, 365, 379, 386, 477, 499, 547, 596, 654  TWE: 24, 28, 27, 109, 111, 115, 151, 173–174, 179, 205, 361, 365, 379, 386, 477, 499, 547, 596, 654
A1.2.3 Find solution sets of linear inequalities when possible numbers are given for the variable.	PE: 519, 522, 523, 543, 545  TWE: 519, 522, 523, 543, 545
A1.2.4 Solve linear inequalities using properties of order.	PE: 95, 515, 517, 519, 5439544, 549, 586–591, 594, 673  TWE: 95, 515, 517, 519, 5439544, 549, 586–591, 594, 673
A1.2.5 Solve combined linear inequalities.	PE: 525–526, 542  TWE: 525–526, 542

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**ALGEBRA I**

<b>OBJECTIVES</b>	<b>PAGE REFERENCES</b>
A1.2.6 Solve word problems that involve linear equations, formulas, and inequalities.	<p>PE: 288–289, 292–295, 299–301, 306–309, 504, 508, 509, 511–513, 515–518, 521–523, 527–529, 532–534, 537–539</p> <p>TWE: 288–289, 292–295, 299–301, 306–309, 504, 508, 509, 511–513, 515–518, 521–523, 527–529, 532–534, 537–539</p>
<b>Relations and Functions</b>	
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.	<p>This objective is addressed throughout. See for example:</p> <p>PE: 251, 277, 288–289, 306–307, 329, 454, 459, 468–469, 489–490, 498–499, 529, 550, 556, 639</p> <p>TWE: 251, 277, 288–289, 306–307, 329, 454, 459, 468–469, 489–490, 498–499, 529, 550, 556, 639</p>
A1.3.2 Interpret a graph representing a given situation.	<p>This objective is addressed throughout. See for example:</p> <p>PE: 251, 277, 288–289, 306–307, 329, 454, 459, 468–469, 489–490, 498–499, 529, 550, 556, 639</p> <p>TWE: 251, 277, 288–289, 306–307, 329, 454, 459, 468–469, 489–490, 498–499, 529, 550, 556, 639</p>

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ALGEBRA I**

<b>OBJECTIVES</b>	<b>PAGE REFERENCES</b>
A1.3.3 Understand the concept of a function, decide if a given relation is a function, and link equations to functions.	PE: 238–242, 257, 259–260, 275–277, 304–305, 314, 455 TWE: 238–242, 257, 259–260, 275–277, 304–305, 314, 455
A1.3.4 Find the domain and range of a relation.	PE: 238–242, 245–249, 255–256, 276–277, 279, 289, 295, 301–302, 304–305, 308, 310, 371, 537, 649 TWE: 238–242, 245–249, 255–256, 276–277, 279, 289, 295, 301–302, 304–305, 308, 310, 371, 537, 649
<b>Graphing Linear Equations and Inequalities</b>	
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: 251, 277, 307, 312, 329, 454, 550, 556 TWE: 251, 277, 307, 312, 329, 454, 550, 556
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: 284–289, 301, 310, 321, 328, 454–455, 470–470, 473, 475, 504, 547, 556–557, 562 TWE: 284–289, 301, 310, 321, 328, 454–455, 470–470, 473, 475, 504, 547, 556–557, 562
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: 296–300, 307, 311–312, 322, 325, 327, 329, 331, 454, 534, 562 TWE: 296–300, 307, 311–312, 322, 325, 327, 329, 331, 454, 534, 562

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ALGEBRA I**

<b>OBJECTIVES</b>		<b>PAGE REFERENCES</b>	
A1.4.4	Write the equation of a line given appropriate information.	PE:	290–295, 296–300, 307, 311–312, 322, 325, 327, 329, 331, 454, 534, 562
		TWE:	290–295, 296–300, 307, 311–312, 322, 325, 327, 329, 331, 454, 534, 562
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:	290–295, 296–300, 307, 311–312, 322, 325, 327, 329, 331, 454, 534, 562
		TWE:	290–295, 296–300, 307, 311–312, 322, 325, 327, 329, 331, 454, 534, 562
A1.4.6	Graph a linear inequality in two variables.	PE:	535–537, 539, 544–545, 586–588
		TWE:	535–537, 539, 544–545, 586–588
<b>Pairs of Linear Equations and Inequalities</b>			
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.	The opportunity to address this objective is available. See the following:	
		PE:	549–552, 586–591, 594, 673
		TWE:	549–552, 586–591, 594, 673
A1.5.2	Use a graph to find the solution set of a pair of linear inequalities in two variables.	PE:	549, 586–591, 594, 673
		TWE:	549, 586–591, 594, 673

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<b>OBJECTIVES</b>		<b>PAGE REFERENCES</b>
A1.5.3	Understand and use the substitution method to solve a pair of linear equations in two variables.	PE: 560–565, 593  TWE: 560–565, 593
A1.5.4	Understand and use the addition or subtraction method to solve a pair of linear equations in two variables.	PE: 562–565, 567–571, 573–577, 593, 595, 649  TWE: 562–565, 567–571, 573–577, 593, 595, 649
A1.5.5	Understand and use multiplication with the addition or subtraction method to solve a pair of linear equations in two variables.	PE: 562–565, 567–571, 573–577, 593, 595, 649  TWE: 562–565, 567–571, 573–577, 593, 595, 649
A1.5.6	Use pairs of linear equations to solve word problems.	PE: 552–553, 557–559, 562–565, 567–571, 573–577  TWE: 552–553, 557–559, 562–565, 567–571, 573–577
<b>Polynomials</b>		
Students add, subtract, multiply, and divide polynomials. They factor quadratics.		
A1.6.1	Add and subtract polynomials.	PE: 388–391, 413, 415  TWE: 388–391, 413, 415
A1.6.2	Multiply and divide monomials.	PE: 394–398, 413, 415, 428, 439, 620  TWE: 394–398, 413, 415, 428, 439, 620

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<b>OBJECTIVES</b>		<b>PAGE REFERENCES</b>	
A1.6.3	Find powers and roots of monomials (only when the answer has an integer exponent).	PE:	336–339, 341–345, 347–351, 374–375, 455
		TWE:	336–339, 341–345, 347–351, 374–375, 455
A1.6.4	Multiply polynomials.	PE:	396, 399–402, 405–407, 413, 429
		TWE:	396, 399–402, 405–407, 413, 429
A1.6.5	Divide polynomials by monomials.	PE:	429–433, 676–677
		TWE:	429–433, 676–677
A1.6.6	Find a common monomial factor in a polynomial.	PE:	420, 422–425, 429–433, 449, 450–451, 453, 623
		TWE:	420, 422–425, 429–433, 449, 450–451, 453, 623
A1.6.7	Factor the difference of two squares and other quadratics.	PE:	434–437, 440–442, 445–448, 452, 500
		TWE:	434–437, 440–442, 445–448, 452, 500
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:	53, 468–471, 474–480, 496
		TWE:	53, 468–474, 474–480, 496
<b>Algebraic Fractions</b>			
Students simplify algebraic ratios and solve algebraic proportions.			

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<b>OBJECTIVES</b>		<b>PAGE REFERENCES</b>	
A1.7.1	Simplify algebraic ratios.	PE:	638, 640–642, 644–647, 650–653, 656–659, 664–665, 668–671, 676
		TWE:	638, 640–642, 644–647, 650–653, 656–659, 664–665, 668–671, 676
A1.7.2	Solve algebraic proportions.	PE:	264–266, 267–268, 270, 273–274, 278, 356, 444, 575–576, 637
		TWE:	264–266, 267–268, 270, 273–274, 278, 356, 444, 575–576, 637
<b>Quadratic, Cubic, and Radical Equations</b>			
Students graph and solve quadratic and radical equations. They graph cubic equations.			
A1.8.1	Graph quadratic, cubic, and radical equations.	PE:	458–460, 464–465, 468–470, 475, 485, 487, 499, 611, 623, 625
		TWE:	458–460, 464–465, 468–470, 475, 485, 487, 499, 611, 623, 625
A1.8.2	Solve quadratic equations by factoring.	PE:	474–476, 482, 487, 497
		TWE:	474–476, 482, 487, 497
A1.8.3	Solve quadratic equations in which a perfect square equals a constant.	PE:	478–481, 483, 496, 498
		TWE:	478–481, 483, 496, 498
A1.8.4	Complete the square to solve quadratic equations.	PE:	478–481, 483, 496, 498
		TWE:	478–481, 483, 496, 498
A1.8.5	Derive the quadratic formula by completing the square.	PE:	483–485, 487, 498–499
		TWE:	483–485, 487, 498–499

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<b>OBJECTIVES</b>		<b>PAGE REFERENCES</b>
A1.8.6	Solve quadratic equations by using the quadratic formula.	PE: 483–485, 487, 498–499, 508  TWE: 483–485, 487, 498–499, 508
A1.8.7	Use quadratic equations to solve word problems.	PE: 460–461, 465, 468, 475, 480–482, 485–487, 498–499  TWE: 460–461, 465, 468, 475, 480–482, 485–487, 498–499
A1.8.8	Solve equations that contain radical expressions.	PE: 608, 624–627  TWE: 608, 624–627
A1.8.9	Use graphing technology to find approximate solutions of quadratic and cubic equations.	The opportunity to address this objective is available. See the following:  PE: 464–465, 471, 475, 485, 491, 499  TWE: 464–465, 471, 475, 485, 491, 499
<b>Mathematical Reasoning and Problem Solving</b>		
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.	This objective is addressed throughout. See for example:  PE: 28, 110–111, 133–134, 165, 168, 231, 244–245, 291–292, 332, 378, 501  TWE: 28, 110–111, 133–134, 165, 168, 231, 244–245, 291–292, 332, 378, 501

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<b>OBJECTIVES</b>	<b>PAGE REFERENCES</b>
A1.9.2 Decide whether a solution is reasonable in the context of the original situation.	The opportunity to address this objective is available throughout. See for example:  PE: 28, 110–111, 133–134, 165, 168, 231, 244–245, 291–292, 332, 378, 501  TWE: 28, 110–111, 133–134, 165, 168, 231, 244–245, 291–292, 332, 378, 501
<b>OBJECTIVES</b>	<b>PAGE REFERENCES</b>
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.	This objective is addressed throughout. See for example:  PE: 8–9, 11–12, 14–15, 26, 45, 47, 66, 91, 114, 168, 171–172, 338, 341, 359, 487  TWE: 8–9, 11–12, 14–15, 26, 45, 47, 66, 91, 114, 168, 171–172, 338, 341, 359, 487
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: 133, 165, 171–172, 176, 181–182, 395, 476, 487, 494–495, 498–499, 518, 560  TWE: 133, 165, 171–172, 176, 181–182, 395, 476, 487, 494–495, 498–499, 518, 560

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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: 143, 173 TWE: 143, 173
A1.9.6 Distinguish between inductive and deductive reasoning, identifying and providing examples of each.	PE: 30–31 TWE: 30–31
A1.9.7 Identify the hypothesis and conclusion in a logical deduction.	PE: 30–31 TWE: 30–31
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: 16–18, 22, 517, 603, 605 TWE: 16–18, 22, 517, 603, 605

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