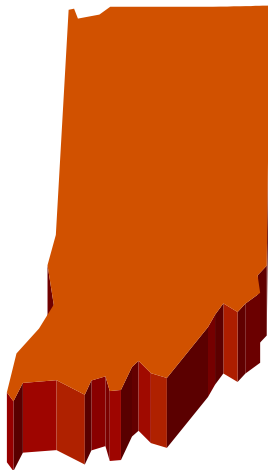
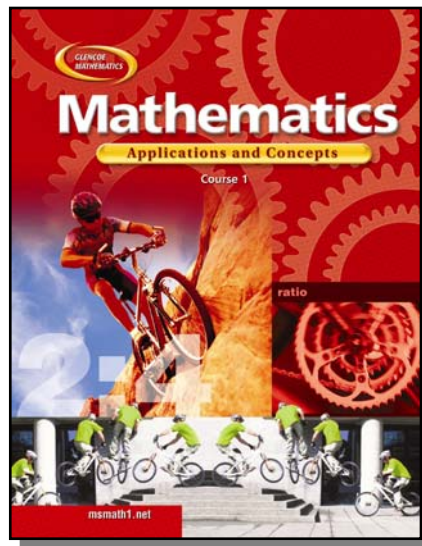


# Glencoe/McGraw-Hill

**Mathematics: Applications and Concepts,  
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INDIANA EDITION



alignment to  
**Indiana  
Academic Mathematics Standards  
Grade 6**

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**ALIGNMENT TO**

**INDIANA ACADEMIC MATHEMATICS STANDARDS  
GRADE 6**

<b>OBJECTIVES</b>	<b>PAGE REFERENCES</b>
<b>Standard 1</b>	
<b>Number Sense</b>	
<b>Students compare and order positive and negative integers, decimals, fractions, and mixed numbers. They find multiples and factors.</b>	
Understand and apply the basic concept of negative numbers (e.g., on a number line, in counting, in temperature, in “owing”).	SE: 294-298, 308, 324, 327 TWE: 294-298, 308, 324, 327
Interpret the absolute value of a number as the distance from zero on a number line, and find the absolute value of real numbers.	SE: 298 TWE: 298
Compare and represent on a number line positive and negative integers, fractions, decimals (to hundredths), and mixed numbers.	SE: 108, 186, 294–296, 324–325 TWE: 108, 186, 294–296, 324–325
Convert between any two representations of numbers (fractions, decimals, and percents) without the use of a calculator.	SE: 202–203, 400–401, 404–405 TWE: 202–203, 400–401, 404–405
Recognize decimal equivalents for commonly used fractions without the use of a calculator.	SE: 203, 206-209, 212 TWE: 203, 206-209, 212
Use models to represent ratios.	SE: 380–381, 384–385, 386 TWE: 380–381, 384–385, 386
Find the least common multiple and the greatest common factor of whole numbers. Use them to solve problems with fractions (e.g., to find a common denominator to add two fractions or to find the reduced form for a fraction).	SE: 177-180, 183-185, 194-197, 198–201, 235-238, 240-243, 244-247, 249, 250 TWE: 177-180, 183-185, 194-197, 198–201, 235-238, 240-243, 244-247, 249, 250
<b>Standard 2</b>	
<b>Computation</b>	
<b>Students solve problems involving addition, subtraction, multiplication, and division of integers. They solve problems involving fractions, decimals, ratios, proportions, and percentages.</b>	
Add and subtract positive and negative integers.	SE: 300–303, 304–307, 308, 325, 327 TWE: 300–303, 304–307, 308, 325, 327

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GRADE 6**

<b>OBJECTIVES</b>	<b>PAGE REFERENCES</b>
Multiply and divide positive and negative integers.	SE: 310–313, 316–319, 326, 327 TWE: 310–313, 316–319, 326, 327
Multiply and divide decimals.	SE: 135, 136, 139, 140, 141–142, 144–145, 150–151, 152–153 TWE: 135, 136, 139, 140, 141–142, 144–145, 150–151, 152–153
Explain how to multiply and divide positive fractions and perform the calculations.	SE: 259–260, 261–262, 272–273 TWE: 259–260, 261–262, 272–273
Solve problems involving addition, subtraction, multiplication, and division of positive fractions and explain why a particular operation was used for a given situation.	SE: 228, 229, 236, 261, 262, 270–271, 272, 273 TWE: 228, 229, 236, 261, 262, 270–271, 272, 273
Interpret and use ratios to show the relative sizes of two quantities. Use the notations: $a/b$ , $a$ to $b$ , $a:b$ .	SE: 380-383 TWE: 380-383
Understand proportions and use them to solve problems.	SE: 386–389, 391-393, 398, 401, 419, 421 TWE: 386–389, 391-393, 398, 401, 419, 421
Calculate given percentages of quantities and solve problems involving discounts at sales, interest earned, and tips.	SE: 407, 408, 409, 410-412, 413-414, 415-417, 421 TWE: 407, 408, 409, 410-412, 413-414, 415-417, 421
Use estimation to decide whether answers are reasonable in decimal problems.	SE: 116-117, 121, 122, 141, 144, 145, 156-157, 158 TWE: 116-117, 121, 122, 141, 144, 145, 156-157, 158

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<b>OBJECTIVES</b>	<b>PAGE REFERENCES</b>
Use mental arithmetic to add or subtract simple fractions and decimals.	SE: 121, 122, 125, 228, 231, 235-238, 240-243, 244-247  TWE: 121, 122, 125, 228, 231, 235-238, 240-243, 244-247
<b>Standard 3</b> <b>Algebra and Functions</b> <i>Students write verbal expressions and sentences as algebraic expressions and equations. They evaluate algebraic expressions, solve simple linear equations, and graph and interpret their results. They investigate geometric relationships and describe them algebraically.</i>	
Write and solve one-step linear equations and inequalities in one variable and check the answers.	SE: 34, 35, 37. 344–345, 350–351, 354  TWE: 34, 35, 37. 344–345, 350–351, 354
Write and use formulas with up to three variables to solve problems.	SE: 30, 31, 39-41, 158-160, 161-164, 412, 445-447, 497, 546-549, 551-554, 555, 556-559, 570-573, 575-578  TWE: 30, 31, 39-41, 158-160, 161-164, 412, 445-447, 497, 546-549, 551-554, 555, 556-559, 570-573, 575-578
Interpret and evaluate mathematical expressions that use grouping symbols such as parentheses.	SE: 25-26, 30, 49, 278, 313, 318  TWE: 25-26, 30, 49, 278, 313, 318
Use parentheses to indicate which operation to perform first when writing expressions containing more than two terms and different operations.	SE: 332, 333-336  TWE: 332, 333-336
Use variables in expressions describing geometric quantities.	SE: 30, 31, 39-41, 158-160, 161-164, 412, 445-447, 497, 546-549, 551-554, 555, 556-559, 570-573, 575-578  TWE: 30, 31, 39-41, 158-160, 161-164, 412, 445-447, 497, 546-549, 551-554, 555, 556-559, 570-573, 575-578

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Apply the correct order of operations and the properties of real numbers (e.g., identity, inverse, commutative, associative, and distributive properties) to evaluate numerical expressions. Justify each step in the process.	SE: 333–336 TWE: 333–336
Identify and graph ordered pairs in the four quadrants of the coordinate plane.	SE: 320-323, 326, 327, 366, 369, 372 TWE: 320-323, 326, 327, 366, 369, 372
Solve problems involving linear functions with integer values. Write the equation and graph the resulting ordered pairs of integers on a grid.	SE: 322-323, 362-365, 366-369, 372-373 TWE: 322-323, 362-365, 366-369, 372-373
Investigate how a change in one variable relates to a change in a second variable.	SE: 322-323, 366-369, 372, 373 TWE: 322-323, 366-369, 372, 373
<b>Standard 4</b>	
<b>Geometry</b>	
<i>Students identify, describe, and classify the properties of plane and solid geometric shapes and the relationships between them.</i>	
Identify and draw vertical, adjacent, complementary, and supplementary angles and describe these angle relationships.	SE: 507–509 TWE: 507–509
Use the properties of complementary, supplementary, and vertical angles to solve problems involving an unknown angle. Justify solutions.	SE: 506–509, 518, 538, 541 TWE: 506–509, 518, 538, 541
Draw quadrilaterals and triangles from given information about them.	SE: 524, 526–527 TWE: 524, 526–527
Understand that the sum of the interior angles of any triangle is $180^\circ$ and that the sum of the interior angles of any quadrilateral is $360^\circ$ . Use this information to solve problems.	SE: 525, 526-527 TWE: 525, 526-527

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<b>OBJECTIVES</b>	<b>PAGE REFERENCES</b>
Identify and draw two-dimensional shapes that are similar.	SE: 534-536, 540, 541 TWE: 534-536, 540, 541
Draw the translation (slide) and reflection (flip) of shapes.	SE: 532-533 TWE: 532-533
Visualize and draw two-dimensional views of three-dimensional objects made from rectangular solids.	SE: 567, 570, 572, 574, 575-578 TWE: 567, 570, 572, 574, 575-578
<b>Standard 5</b> <b>Measurement</b> <i>Students deepen their understanding of the measurement of plane and solid shapes and use this understanding to solve problems. They calculate with temperature and money, and choose appropriate units of measure in other areas.</i>	
Select and apply appropriate standard units and tools to measure length, area, volume, weight, time, temperature, and the size of angles.	SE: 464, 465, 466-467, 468, 471, 476-477, 484-485, 497, 506, 570-571, 573, 575 TWE: 464, 465, 466-467, 468, 471, 476-477, 484-485, 497, 506, 570-571, 573, 575
Understand and use larger units for measuring length by comparing miles to yards and kilometers to meters.	SE: 465-468, 476-479, 490-493 TWE: 465-468, 476-479, 490-493
Understand and use larger units for measuring area by comparing acres and square miles to square yards and square kilometers to square meters.	SE: 548, 553, 554 TWE: 548, 553, 554
Understand the concept of the constant $\pi$ as the ratio of the circumference to the diameter of a circle. Develop and use the formulas for the circumference and area of a circle.	SE: 161, 162, 556 TWE: 161, 162, 556

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<b>OBJECTIVES</b>	<b>PAGE REFERENCES</b>
Know common estimates of $\pi$ (3.14, $\frac{22}{7}$ ) and use these values to estimate and calculate the circumference and the area of circles. Compare with actual measurements.	SE: 161–164, 168, 169, 557-559 TWE: 161–164, 168, 169, 557-559
Understand the concept of significant figures and round answers to an appropriate number of significant figures.	SE: 480-481 TWE: 480-481
Construct a cube and rectangular box from two-dimensional patterns and use these patterns to compute the surface area of these objects	SE: 570, 574, 575, 576 TWE: 570, 574, 575, 576
Use strategies to find the surface area and volume of right prisms and cylinders using appropriate units.	SE: 570-573, 575–578 TWE: 570-573, 575–578
Use a formula to convert temperatures between Celsius and Fahrenheit.	SE: 497 TWE: 497
Add, subtract, multiply, and divide with money in decimal notation.	SE: 121–122, 131, 135, 138, 141–142, 143, 146, 147, 148, 412 TWE: 121–122, 131, 135, 138, 141–142, 143, 146, 147, 148, 412
<b>Standard 6</b>	
<b>Data Analysis and Probability</b>	
<i>Students compute and analyze statistical measures for data sets. They determine theoretical and experimental probabilities and use them to make predictions about events.</i>	
Organize and display single-variable data in appropriate graphs and stem-and-leaf plots, and explain which types of graphs are appropriate for various data sets.	SE: 56–59, 72–75, 60-61 TWE: 56–59, 72–75, 60-61

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<b>OBJECTIVES</b>	<b>PAGE REFERENCES</b>
Make frequency tables for numerical data, grouping the data in different ways to investigate how different groupings describe the data. Understand and find relative and cumulative frequency for a data set. Use histograms of the data and of the relative frequency distribution, and a broken line graph for cumulative frequency to interpret the data.	SE: 50-53, 185, 222, 238  TWE: 50-53, 185, 222, 238
Compare the mean, median, and mode for a set of data and explain which measure is most appropriate in a given context.	SE: 76-78, 79, 80-83, 84-85, 86-82  TWE: 76-78, 79, 80-83, 84-85, 86-82
Show all possible outcomes for compound events in an organized way and find the theoretical probability of each outcome.	SE: 432, 433-436, 450  TWE: 432, 433-436, 450
Use data to estimate the probability of future events.	SE: 438-441, 442, 444-447, 455, 456, 457  TWE: 438-441, 442, 444-447, 455, 456, 457
Understand and represent probabilities as ratios, measures of relative frequency, decimals between 0 and 1, and percentages between 0 and 100 and verify that the probabilities computed are reasonable.	SE: 426, 427, 429, 434, 450-451  TWE: 426, 427, 429, 434, 450-451
<b>Standard 7</b>	
<b>Problem Solving</b>	
<b>Students make decisions about how to approach problems and communicate their ideas.</b>	
Analyze problems by identifying relationships, telling relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns.	SE: 6-8, 125-126, 156, 192, 226, 314, 358, 413, 448-449, 520, 568  TWE: 6-8, 125-126, 156, 192, 226, 314, 358, 413, 448-449, 520, 568
Make and justify mathematical conjectures based on a general description of a mathematical question or problem.	SE: 101, 106, 107, 111, 134, 135, 139, 141, 144, 181, 218, 234, 260, 299, 310, 332, 338, 343, 354, 464, 469, 515  TWE: 101, 106, 107, 111, 134, 135, 139, 141, 144, 181, 218, 234, 260, 299, 310, 332, 338, 343, 354, 464, 469, 515

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<b>OBJECTIVES</b>	<b>PAGE REFERENCES</b>
Decide when and how to break a problem into simpler parts.	SE: 413-414  TWE: 413-414
<b>Students use strategies, skills, and concepts in finding and communicating solutions to problems.</b>	
Apply strategies and results from simpler problems to more complex problems.	SE: 6, 9, 13, 33, 55, 119, 124, 138, 147, 164, 193, 204, 205, 225, 238, 243, 275, 319, 336, 412, 413-414, 417, 446, 473, 487, 489, 497, 573  TWE: 6, 9, 13, 33, 55, 119, 124, 138, 147, 164, 193, 204, 205, 225, 238, 243, 275, 319, 336, 412, 413-414, 417, 446, 473, 487, 489, 497, 573
Express the solution clearly and logically by using the appropriate mathematical terms and notation. Support solutions with evidence in both verbal and symbolic work.	SE: 32, 40, 54, 125, 226, 280, 413, 416  TWE: 32, 40, 54, 125, 226, 280, 413, 416
Recognize the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.	SE: 116-119, 219-222, 223-225, 256-258, 415-417, 477, 510-512, 592  TWE: 116-119, 219-222, 223-225, 256-258, 415-417, 477, 510-512, 592
Select and apply appropriate methods for estimating results of rational-number computations.	SE: 116-117, 125, 223, 256, 477, 592-593  TWE: 116-117, 125, 223, 256, 477, 592-593
Use graphing to estimate solutions and check the estimates with analytic approaches.	SE: 66-69, 111, 125  TWE: 66-69, 111, 125
Make precise calculations and check the validity of the results in the context of the problem.	SE: 139, 141, 470, 471, 484, 485, 486  TWE: 139, 141, 470, 471, 484, 485, 486
<b>Students determine when a solution is complete and reasonable and move beyond a particular problem by generalizing to other situations.</b>	

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Decide whether a solution is reasonable in the context of the original situation.	SE: 49, 139, 141, 142, 224, 266, 306, 382 TWE: 49, 139, 141, 142, 224, 266, 306, 382
Note the method of finding the solution and show a conceptual understanding of the method by solving similar problems.	SE: 40, 116, 117, 280, 413, 415, 416 TWE: 40, 116, 117, 280, 413, 415, 416

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