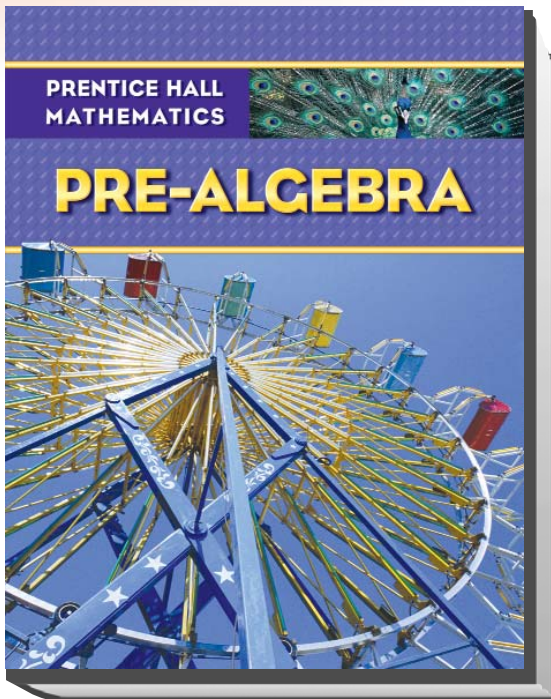


Prentice Hall

Mathematics, Pre-Algebra © 2009



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

Indiana Math Standards Final Draft from March 2009

Grade 8

PEARSON

Prentice Hall Mathematics, Pre-Algebra © 2009

Correlated to:

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Problem Solving	
• Build new mathematical knowledge through problem solving.	SE/TE: Addressed throughout the program. Sample citations follow: T21, T27, T33, 5, 13, 40-43, 134, 149, 154, 252-253
• Solve problems that arise in mathematics and in other contexts.	SE/TE: Addressed throughout the program. Sample citations follow: 16, 29, 106, 113, 124-125, 141, 145, 162, 181, 402-403
• Apply and adapt a variety of appropriate strategies to solve problems.	SE/TE: 40-43, 98-100, 166-169, 201-203, 263-266, 338-341, 366-369, 434-437, 480-483, 568-571, 604-607, 682-685, 732-735
• Monitor and reflect on the process of mathematical problem solving.	SE/TE: Addressed throughout the program. Sample citations follow: 7, 8, 37, 72, 110, 183, 207, 233, 458, 636
Reasoning and Proof	
• Recognize reasoning and proof as fundamental aspects of mathematics.	SE/TE: Addressed throughout the program. Sample citations follow: 72, 182, 228, 306, 332, 449, 529, 570, 650, 710
• Make and investigate mathematical conjectures.	SE/TE: 35-39, 61, 98-99, 185
• Develop and evaluate mathematical arguments and proofs.	SE/TE: Addressed throughout the program. Sample citations follow: 56, 114, 188, 207, 247, 312, 472, 536, 595, 660
• Select and use various types of reasoning and methods of proof.	SE/TE: Addressed throughout the program. Sample citations follow: 10, 100, 131, 203, 265, 340, 436, 482, 570, 606
Communication	
• Organize and consolidate their mathematical thinking through communication.	SE/TE: Addressed throughout the program. Sample citations follow: T33, 8, 35, 44, 48, 73, 149, 158, 217, 223
• Communicate their mathematical thinking coherently and clearly to peers, teachers, and others.	SE/TE: Addressed throughout the program. Sample citations follow: 55, 111, 168, 223, 275, 286, 323, 374, 419, 449
• Analyze and evaluate the mathematical thinking and strategies of others.	SE/TE: Addressed throughout the program. Sample citations follow: 10, 114, 131, 249, 260, 301, 334, 339, 363, 441
• Use the language of mathematics to express mathematical ideas precisely.	SE/TE: Addressed throughout the program. Sample citations follow: 4, 107, 117, 119, 134, 184, 404, 427, 445, 500
Connections	
• Recognize and use connections among mathematical ideas.	SE/TE: Addressed throughout the program. Sample citations follow: T21, 2-3, 66C-66D, 126C-126D, 126-127, 129, 145, 290C-290D, 350-351, 400-401
• Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.	SE/TE: Addressed throughout the program. Sample citations follow: 2C-2D, 66-67, 126C-126D, 184, , 290-291, 350C-350D, 350-351, 400-401, 460C-460D, 460-461

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<ul style="list-style-type: none"> Recognize and apply mathematics in contexts outside of mathematics. 	SE/TE: Addressed throughout the program. Sample citations follow: T20-T22, 76, 110, 176-177, 182, 212, 261, 306, 530, 725
Representation	
<ul style="list-style-type: none"> Create and use representations to organize, record, and communicate mathematical ideas. 	SE/TE: Addressed throughout the program. Sample citations follow: 20, 37, 43, 379, 381, 429, 440, 447, 468, 617
<ul style="list-style-type: none"> Select, apply, and translate among mathematical representations to solve problems. 	SE/TE: Addressed throughout the program. Sample citations follow: 10, 114, 131, 249, 334, 363, 441, 471, 560, 674
<ul style="list-style-type: none"> Use representations to model and interpret physical, social, and mathematical phenomena. 	SE/TE: Addressed throughout the program. Sample citations follow: 23, 44-45, 86-87, 120, 319-320, 352, 402-403, 568-569, 739, 727
Estimation and Mental Computation	
<ul style="list-style-type: none"> Know and apply appropriate methods for estimating the results of computations. 	SE/TE: 33, 64, 130, 132, 134, 135, 136-137, 143, 148, 156, 159, 162, 163, 169, 171, 172, 174, 218, 246, 250, 259, 260, 266, 300, 336, 342, 679
<ul style="list-style-type: none"> Round numbers to a specified place value. 	SE/TE: 129-131, 135, 171-172, 246, 320, 321, 780, 785
<ul style="list-style-type: none"> Use estimation to decide whether answers are reasonable. 	SE/TE: 130, 135, 159, 246, 321
<ul style="list-style-type: none"> Decide when estimation is an appropriate strategy for solving a problem. 	SE/TE: 131, 135, 138, 159, 246, 260, 296-297, 300, 328, 342, 678
<ul style="list-style-type: none"> Determine appropriate accuracy and precision of measurement in problem situations. 	SE/TE: 164-165
<ul style="list-style-type: none"> Use properties of numbers and operations to perform mental computation. 	SE/TE: 8, 27, 33, 47, 69-72, 74, 76-77, 81, 92, 96, 97, 120, 152, 160, 161, 162, 173, 189, 239, 244, 250, 255, 300, 327, 331, 354, 364, 374, 736
<ul style="list-style-type: none"> Recognize when the numbers involved in a computation allow for a mental computation strategy. 	SE/TE: 47, 69-70, 74, 120, 160, 239, 244, 296-297, 331, 342, 374
Technology	
<ul style="list-style-type: none"> Technology should be used as a tool in mathematics education to support and extend the mathematics curriculum. 	SE/TE: Addressed throughout the program. Sample citations follow: T23, T28, 4, 8, 57, 102-103, 198, 308, 382, 391
<ul style="list-style-type: none"> Technology can contribute to concept development, simulation, representation, communication, and problem solving. 	SE/TE: Addressed throughout the program. Sample citations follow: 57, 144, 213, 225, 308, 376, 391, 421, 451, 567
<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. 	SE/TE: Addressed throughout the program. Sample citations follow: 9, 57, 376, 589, 593, 609, 610, 615, 619, 701

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o Elementary students should learn how to perform thoroughly the basic arithmetic operations independent of the use of a calculator.	SE/TE: 8-11, 13, 24-28, 30-34
o The focus must be on learning mathematics, using technology as a tool rather than as an end in itself.	SE/TE: Addressed throughout the program. Sample citations follow: 9, 168, 186, 187, 242, 248, 270, 388, 615, 640
Standard 1 Number Sense and Computation	
8.1.1 Interpret calculator or computer displays of numbers given in scientific notation and read, write, compare and solve problems using decimals in scientific notation.	SE/TE: 219-224, 225, 229
8.1.2 Recognize positive integer powers as repeated multiplication and negative integer powers as repeated division or multiplication by the multiplicative inverse.	SE/TE: 185, 186-189, 214-217, T799
8.1.3 Use the laws of exponents for integer exponents and evaluate expressions with negative integer exponents.	SE/TE: 216-218, 219-223, 225, 229
8.1.4 Identify, compare and order irrational numbers.	SE/TE: 589-591, 627
8.1.5 Calculate square roots of perfect squares, estimate square roots of numbers less than 1,000, and use the inverse relationship between squares and square roots.	SE/TE: 588-591, 613, 627, T798
8.1.6 Solve percent, ratio and proportion problems. <ul style="list-style-type: none"> • Find average rates. • Express one quantity as a percentage of another. • Compare two quantities by percentage. • Use percentages greater than 100%. • Increase or decrease a quantity by a given percentage. • Find the original amount for a given percentage increase or decrease. • Solve problems involving percents, ratios and proportions. • Solve problems involving simple and compound interest. 	SE/TE: 292-294, 298-301, 304, 319-320, 324, 329-330, 333, 336-339, 343, 345, 387-389, 391, 395, 414, 420, 490-491, 604-607, 614-617, 628, 629, 632-633
Standard 2 Algebra and Functions	
8.2.1 Write and solve linear equations and inequalities, interpret the solution or solutions in their context, and verify the reasonableness of the results.	SE/TE: 410-412, 415-417, 421, 440-441, 445-447, 454, 455
8.2.2 Solve equations and formulas for a specified variable.	SE/TE: 82-83, 88-90, 94-95, 109, 121, 145-146, 150-151, 154-155, 172, 268-269, 272-273, 324-325, 345, 352-353, 361-362, 366-367, 382, 394, 526, 534-535, 538, 540, 552-553, 560, 572, 580, 581, 802

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8.2.3 Simplify algebraic expressions involving powers.	SE/TE: 187, 209-210, 214-216, 220, 229
8.2.4 Identify and graph linear functions and identify lines with positive and negative slope.	SE/TE: 410-412, 415-417, 421, 429, 440-441, 445-447, 454, 455
8.2.5 Find the slope of a linear function given the equation and write the equation of a line given the slope and any point on the line.	SE/TE: 415-419, 422-425, 429, 454
8.2.6 Translate among tables, equations, verbal expressions and graphs of linear functions and recognize that in $(y = mx + b)$ that m is the rate of change and b is the vertical intercept of the graph.	SE/TE: 415-419, 422-425, 429, 454
8.2.7 Identify functions as linear or nonlinear and contrast their characteristics from tables, graphs and equations.	SE/TE: 404-405, 410, 411, 415-419, 422-425, 702-704, 711
8.2.8 Use linear functions and linear equations to represent, analyze and solve problems.	SE/TE: 410-413, 415-417, 421, 429, 440-441, 445-447, 454, 455
Standard 3 Geometry and Measurement	
8.3.1 Perform basic compass and straight edge constructions: angle and segment bisectors, copies of segments and angles, and perpendicular segments. Describe and justify the constructions.	SE/TE: 495-499, 519
8.3.2 Identify, define, and describe properties of three-dimensional geometric objects, describe how two or more figures intersect in a plane or in space, and visualize or describe the cross section of a solid.	SE/TE: 545-548, 551
8.3.3 Explain why the Pythagorean Theorem is valid using a variety of methods and use the Pythagorean Theorem and its converse to calculate lengths of line segments.	SE/TE: 592-596, 628
8.3.4 Solve simple problems involving rates and other derived measurements, including problems involving speed, uniform speed, average speed and density, by applying the concept of proportionality to measurement in different contexts. Express measurements in a given unit or in terms of other units of the same type.	SE/TE: 158-162, 173, 257-261, 292-295, 298-302
8.3.5 Use scale factors to find the area and volume of similar figures.	SE/TE: 303-307, 344, 604-607, 614, 628
8.3.6 Find and use the surface area and volume of cones, spheres and pyramids.	SE/TE: 551-556, 557, 558-562, 580, 581, T799
8.3.7 Estimate and compute the area of irregular two-dimensional shapes and the volume of irregular three-dimensional objects by breaking them down into more basic geometric objects.	SE/TE: 10, 12, 540, 575

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8.3.8 Solve problems involving conversions within the same measurement system and estimate the measure of an object in one system given the measure of that object in another system and the approximate conversion factor.	SE/TE: 158-162, 173, 257-261, 296-297
Standard 4 Data Analysis and Probability	
8.4.1 Identify claims based on statistical data and, in simple cases, evaluate the reasonableness of the claims. Design a study to investigate the claim.	SE/TE: 648-652, 688
8.4.2 Identify different methods of selecting samples, analyzing the strengths and weaknesses of each method and the possible bias in a sample or display.	SE/TE: 648-652, 677-679, 688-689
8.4.3 Use mean, median, mode, upper and lower quartiles and range to compare data sets. Organize and display data to highlight important features such as the range and how the data is spread around a central value. Investigate what happens to the display when some of the data values are changed.	SE/TE: 139-143, 172, 646-647
8.4.4 Analyze, interpret and display data in box-and-whisker plots.	SE/TE: 641-645, 688
8.4.5 Display two-variable data in scatter plots and describe how the data points are distributed. If the pattern appears to be linear, draw a line that appears to best fit the data and write the equation of that line.	SE/TE: 427-431, 433, 434-437, 455
8.4.6 Describe and apply the addition rule for probabilities for simple events that are mutually exclusive and for simple events that are not.	SE/TE: 657-660, 688
8.4.7 Compute probabilities of events from simple experiments with equally probable outcomes, using such methods as organized list, tree diagrams and area models.	SE/TE: 657-660, 688