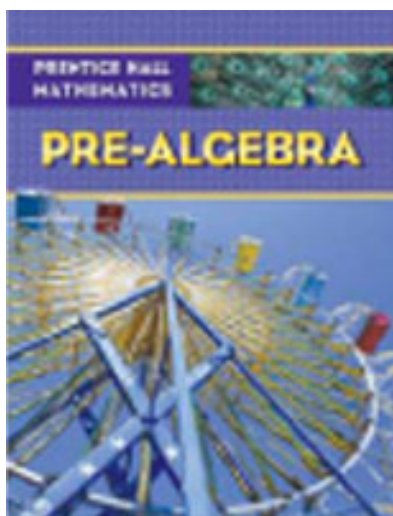


A Correlation of  
Prentice Hall Mathematics  
**Pre-Algebra**  
© 2009



To the  
**Virginia Mathematics  
Standards of Learning**  
Grades 7 and 8  
February 2009

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## INTRODUCTION

This document demonstrates how *Prentice Hall Mathematics: Pre-Algebra* © 2009 meets the objectives of the Virginia Mathematics Standards of Learning for Public Schools. Correlation page references are to the Student and Teacher’s Edition.

*Prentice Hall Mathematics: Pre-Algebra* puts an emphasis on mastery of basic skills. The text provides numerous opportunities to assess basic skills along with abundant remediation and intervention activities. The program is algebra-appropriate for both middle school and high school students.

Solid preparation for algebra and geometry integers and algebraic concepts are introduced beginning in Chapter 1 to develop students’ algebraic thinking skills.

- Algebraic concepts are connected to arithmetic skills to build on what students know.
- Geometry concepts are integrated when appropriate to foster connections.
- Real world applications in every chapter include Chapter Projects, Dorling Kindersley Real-World Snapshot, and Math at Work.
- Chapter assessments include lesson quizzes, a vocabulary quiz, and chapter test.

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<b>Virginia Mathematics Standards of Learning for Public Schools – February 2009</b>	<b>Prentice Hall Mathematics: Pre-Algebra ©2009</b>
<b>Grade Seven</b>	
Number and Number Sense	
Focus: Proportional Reasoning	
7.1 The student will	
a) investigate and describe the concept of negative exponents for powers of ten;	<b>SE/TE:</b> 216-217
b) determine scientific notation for numbers greater than zero;	<b>SE/TE:</b> 219-224, 225, 229
c) compare and order fractions, decimals, percents, and numbers written in scientific notation;	<b>SE/TE:</b> 128, 221, 223, 237-238, 283, 242
d) determine square roots; and	<b>SE/TE:</b> 588-591, 627
e) identify and describe absolute value for rational numbers.	<b>SE/TE:</b> 19-21, 25-26, 60-61, 208
7.2 The student will describe and represent arithmetic and geometric sequences, using variable expressions.	<b>SE/TE:</b> 696-700, 701, 737
Computation and Estimation	
Focus: Integer Operations and Proportional Reasoning	
7.3 The student will	
a) model addition, subtraction, multiplication, and division of integers; and	<b>SE/TE:</b> 24-28,30-34,44, 47
b) add, subtract, multiply, and divide integers.	<b>SE/TE:</b> 24-28, 30-34, 44-48, 60-61
7.4 The student will solve single-step and multistep practical problems, using proportional reasoning.	<b>SE/TE:</b> 298-302, 303-307, 343-344, 604-607, 628
Measurement	
Focus: Proportional Reasoning	
7.5 The student will	
a) describe volume and surface area of cylinders;	<b>SE/TE:</b> 545-547, 550, 553-556, 557, 564-565, 567, 580-581

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Grades 7 and 8 – February 2009**

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b) solve practical problems involving the volume and surface area of rectangular prisms and cylinders; and	<b>SE/TE:</b> 547-548, 550, 553, 555-556, 564-566, 568-570, 581
c) describe how changing one measured attribute of a rectangular prism affects its volume and surface area.	<b>SE/TE:</b> 551, 554-556, 564-565, 568-570, 576-577, 581
7.6 The student will determine whether plane figures—quadrilaterals and triangles—are similar and write proportions to express the relationships between corresponding sides of similar figures.	<b>SE/TE:</b> 303-307, 308, 344, 531-532, 604-607, 614, 617, 628
Geometry	
Focus: Relationships between Figures	
7.7 The student will compare and contrast the following quadrilaterals based on properties: parallelogram, rectangle, square, rhombus, and trapezoid.	<b>SE/TE:</b> 474-478, 480-481, 500, 518
7.8 The student, given a polygon in the coordinate plane, will represent transformations (reflections, dilations, rotations, and translations) by graphing in the coordinate plane.	<b>SE/TE:</b> 501-504, 506, 508-510, 511-514, 519
Probability and Statistics	
Focus: Applications of Statistics and Probability	
7.9 The student will investigate and describe the difference between the experimental probability and theoretical probability of an event.	<b>SE/TE:</b> 658-660, 672, 673-676, 688, 689
7.10 The student will determine the probability of compound events, using the Fundamental (Basic) Counting Principle.	<b>SE/TE:</b> 657-660, 688
7.11 The student, given data for a practical situation, will	
a) construct and analyze histograms; and	<b>SE/TE:</b> 637-638, 640, 687
b) compare and contrast histograms with other types of graphs presenting information from the same data set.	<b>SE/TE:</b> 637-638, 687

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Patterns, Functions, and Algebra	
Focus: Linear Equations	
7.12 The student will represent relationships with tables, graphs, rules, and words.	<b>SE/TE:</b> 376,404-408,409-413
7.13 The student will	
a) write verbal expressions as algebraic expressions and sentences as equations and vice versa; and	<b>SE/TE:</b> 14-17, 60, 82-85, 120, 366-367, 394
b) evaluate algebraic expressions for given replacement values of the variables.	<b>SE/TE:</b> 14-17, 60,213
7.14 The student will	
a) solve one- and two-step linear equations in one variable; and	<b>SE/TE:</b> 82-85, 86-87,88-92, 94-97, 120-121, 352-355, 394
b) solve practical problems requiring the solution of one- and two-step linear equations.	<b>SE/TE:</b> 82-85, 86-87, 88-92, 94-97 ,120-121, 352-355, 394
7.15 The student will	
a) solve one-step inequalities in one variable; and	<b>SE/TE:</b> 108-110,112-116, 121
b) graph solutions to inequalities on the number line.	<b>SE/TE:</b> 104-107, 121
7.16 The student will apply the following properties of operations with real numbers:	
a) the commutative and associative properties for addition and multiplication;	<b>SE/TE:</b> 68, 70-71, 119, 186, 210, 278
b) the distributive property;	<b>SE/TE:</b> 73-77, 79, 723, 727
c) the additive and multiplicative identity properties;	<b>SE/TE:</b> 69-71, 78
d) the additive and multiplicative inverse properties; and	<b>SE/TE:</b> 69-71, 78, 94
e) the multiplicative property of zero.	<b>SE/TE:</b> 803

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<b>Grade Eight</b>	
Number and Number Sense	
Focus: Relationships within the Real Number System	
8.1 The student will	
a) simplify numerical expressions involving positive exponents, using rational numbers, order of operations, and properties of operations with real numbers; and	<b>SE/TE:</b> 8-12, 13, 59
b) compare and order decimals, fractions, percents, and numbers written in scientific notation.	<b>SE/TE:</b> 128, 221, 223, 237-240, 242, 244, 283, 317, 784
8.2 The student will describe orally and in writing the relationships between the subsets of the real number system.	<b>SE/TE:</b> 180, 190-191, 193, 589-590
Computation and Estimation	
Focus: Practical Applications of Operations with Real Numbers	
8.3 The student will	
a) solve practical problems involving rational numbers, percents, ratios, and proportions; and	<b>SE/TE:</b> 128, 221, 223, 237-238, 242, 283
b) determine the percent increase or decrease for a given situation.	<b>SE/TE:</b> 329-332, 333-336, 345
8.4 The student will apply the order of operations to evaluate algebraic expressions for given replacement values of the variables.	<b>SE/TE:</b> 78-81, 120
8.5 The student will	
a) determine whether a given number is a perfect square; and	<b>SE/TE:</b> 588-589
b) find the two consecutive whole numbers between which a square root lies.	<b>SE/TE:</b> Can be developed from material on the following pages: 588-591, 627

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Measurement	
Focus: Problem Solving	
8.6 The student will	
a) verify by measuring and describe the relationships among vertical angles, adjacent angles, supplementary angles, and complementary angles; and	<b>SE/TE:</b> 469-473, 518
b) measure angles of less than $360^\circ$ .	<b>SE/TE:</b> 468, 619
8.7 The student will	
a) investigate and solve practical problems involving volume and surface area of prisms, cylinders, cones, and pyramids; and	<b>SE/TE:</b> 547-548, 550, 553, 555-556, 561-562, 564-566, 568-570, 573-575, 576-577, 581
b) describe how changing one measured attribute of a figure affects the volume and surface area.	<b>SE/TE:</b> 551, 554-556, 561-562, 564-565, 568-570, 575, 576-577, 581
Geometry	
Focus: Problem Solving with 2- and 3-Dimensional Figures	
8.8 The student will	
a) apply transformations to plane figures; and	<b>SE/TE:</b> 501-504, 506, 508-510, 511-514, 519
b) identify applications of transformations.	<b>SE/TE:</b> 501, 502, 507, 512-513, 515
8.9 The student will construct a three-dimensional model, given the top or bottom, side, and front views.	<b>SE/TE:</b> 568-570
8.10 The student will	
a) verify the Pythagorean Theorem; and	<b>SE/TE:</b> 592, 595-596
b) apply the Pythagorean Theorem.	<b>SE/TE:</b> 593-596, 598-599, 601, 628
8.11 The student will solve practical area and perimeter problems involving composite plane figures.	<b>SE/TE:</b> 528-529, 534, 536-537, 540-542, 580

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Probability and Statistics	
Focus: Statistical Analysis of Graphs and Problem Situations	
8.12 The student will determine the probability of independent and dependent events with and without replacement.	<b>SE/TE:</b> 662-666, 688-689
8.13 The student will	
a) make comparisons, predictions, and inferences, using information displayed in graphs; and	<b>SE/TE:</b> 41-42, 102-103, 427-431, 491-493, 637-639, 641-645, 646-647, 648-652, 654, 688
b) construct and analyze scatterplots.	<b>SE/TE:</b> 427-431, 455
Patterns, Functions, and Algebra	
Focus: Linear Relationships	
8.14 The student will make connections between any two representations (tables, graphs, words, and rules) of a given relationship.	<b>SE/TE:</b> 376, 404-408, 409-413, 422-425, 454
8.15 The student will	
a) solve multistep linear equations in one variable with the variable on one and two sides of the equation;	<b>SE/TE:</b> 352-355, 356-360, 361-365, 371-374, 376, 394
b) solve two-step linear inequalities and graph the results on a number line; and	<b>SE/TE:</b> 377-380, 394
c) identify properties of operations used to solve an equation.	<b>SE/TE:</b> 68-71, 88-92, 94-97, 352-355, 356-360, 361-365, 371-374, 376, 394
8.16 The student will graph a linear equation in two variables.	<b>SE/TE:</b> 410-411, 417, 421, 454
8.17 The student will identify the domain, range, independent variable, or dependent variable in a given situation.	<b>SE/TE:</b> 404, 405, 453