



Hattiesburg Public School District

Grade 7 Mathematics Units

2015 – 2016



Unit 3: Algebraic Reasoning	Time Frame: 35 Days/Dec 1-17 & Jan 2-29
Content Standards	Standards for Mathematical Practice
Major Standards	
<p>7.EE.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. <i>For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or \$2.50, for a new salary of \$27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.</i></p> <p>7.EE.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.</p> <ul style="list-style-type: none"> a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. <i>For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?</i> b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. <i>For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want</i> 	<ul style="list-style-type: none"> (1) Make sense of problems and persevere in solving them. (2) Reason abstractly and quantitatively. (3) Construct viable arguments and critique the reasoning of others. (4) Model with mathematics. (5) Use appropriate tools strategically. (6) Attend to precision. (7) Look for and make use of structure. (8) Look for and express regularity in repeated reasoning.



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your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions.

7.RP.3 Use proportional relationships to solve multistep ratio and percent problems. *Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.*

Supporting Standards

Additional Standards

7.G.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

Pre-requisite Standards

7.EE.3

- Identify equivalent expressions using properties of operations.
- Solve one-step linear equations involving non-negative rational numbers.
- Understand that positive and negative numbers describe quantities that have opposite values or directions.
- Convert between fractions, decimals, and percentages.

7.EE.4a/7.EE.4b

- Identify parts of an algebraic or numerical expression using mathematical terms.
- Solve one-step equations and inequalities.
- Identify equivalent expressions.
- Analyze the relationship between dependent and independent variables.

7.RP.3

- Solve problems involving finding the whole, given part, and the percent.
- Find the percent of a number.



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7.G.1 <ul style="list-style-type: none"> • Use ratio and rate reasoning to solve real-world and mathematical problems. • Calculate proportions. • Identify geometric figures. • Find area of geometric figures. 				
Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
Lesson Topic Generating Equivalent Expressions Standard Ref 7.EE.3, 7.EE.4 Resource/Strategy https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit engageny.org tenmark.com learnzillion.com georgiastandards.com	Lesson Topic Writing Products as Sums and Sums as Products Standard Ref 7.EE.3, 7.EE.4 Resource/Strategy https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit engageny.org tenmark.com learnzillion.com georgiastandards.com	Lesson Topic Using the Identity and Inverse to Write Equivalent Expressions Standard Ref 7.EE.3, 7.EE.4 Resource/Strategy https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit engageny.org tenmark.com learnzillion.com georgiastandards.com	Lesson Topic Collecting Rational Number Like Terms Standard Ref 7.EE.3, 7.EE.4 Resource/Strategy https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit engageny.org tenmark.com learnzillion.com georgiastandards.com	Lesson Topic Understanding Equations Standard Ref 7.EE.3, 7.EE.4, 7.G.5 Resource/Strategy https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit engageny.org tenmark.com learnzillion.com georgiastandards.com
Lesson 6	FAL	Lesson 7	Lesson 8	Lesson 9
Lesson Topic Using If-then moves in solving equations Standard Ref 7.EE.B.3, 7.EE.B.4, 7.G.B.5 Resource/Strategy https://docs.google.com/doc	Lesson Topic Steps to Solving Equations http://map.mathshell.org/lessons.php?collection=8&unit=7220#task431	Lesson Topic Angle Problems and Solving Equations Standard Ref 7.EE.4b Resource/Strategy https://docs.google.com/doc	Lesson Topic Comparing Tape Diagram Solution to Algebraic Solutions Standard Ref 7.EE.4b Resource/Strategy https://docs.google.com/doc	Lesson Topic Writing, Evaluating, and Finding Equivalent Expressions with Rational Numbers Standard Ref 7.EE.B.3, 7.EE.B.4, 7.G.B.5 Resource/Strategy



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Lesson 10
Lesson Topic Performance Task Standard Ref 7.EE.B.3, 7.EE.B.4, 7.G.B.5 Resource/Strategy https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_00R9Au5bkKXHsE/edit engageny.org tenmark.com learnzillion.com georgiastandards.com