

## Massachusetts Curriculum Matrix for Mathematics

Massachusetts Mathematics Strands/Learning Standards Grade 7 Excerpt	Common Core Mathematics Domains/Clusters/Standards Grade 7	National Essential Skills Study (NESS) National Rankings Rank		NESS	MCAS	Priority
<p><b>7.N.1</b> Compare, order, estimate, and translate among integers, fractions and mixed <math>\neg</math>numbers (i.e., rational numbers), decimals, and percents. <i>This standard is intentionally the same as standard 8.N.1.</i></p>	<p><b><u>The Number System</u></b> <b>Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.</b> 2. Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If <math>p</math> and <math>q</math> are integers, then <math>-(p/q) = (-p)/q = p/(-q)</math>. Interpret quotients of rational numbers by describing real-world contexts. d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.</p>	M1	Perform operations fluently with positive and negative numbers, including decimals, ratios, percents, and fractions, and show reasoning to justify results.	H	H	H
		M35	Use the properties of real (rational and irrational) numbers and demonstrate understanding of ordering and absolute value.			
		M13	Use the technique of dimensional analysis to convert units of measure (e.g., kilometers/hour to meters/minute) and apply ratios in real-world situations (e.g., scale drawings).			
<p><b>7.N.3</b> Represent numbers in scientific notation (positive powers of ten only) and use that notation in problem situations.</p>	<p><i>There is no Massachusetts Mathematics Learning Standard-Common Core alignment.</i></p>	M20	Understand and apply the basic properties and laws of exponents and scientific notation to solve problems, including those with fractional, negative, and zero exponents.	M	H	H

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<p><b>7.N.8</b> Determine when an estimate rather than an exact answer is appropriate and apply in problem situations.  <i>This standard is intentionally the same as standard 8.N.11.</i></p>	<p><b><u>Expressions &amp; Equations</u></b>  <b>Solve real-life and mathematical problems using numerical and algebraic expressions and equations.</b>            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>	M10	Understand and apply a systematic methodology or procedure (e.g., direct or indirect measurement, direct or indirect proof, inductive or deductive reasoning) to model and solve problems.	H	L	M

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<p><b>7.N.9</b> Select and use appropriate operations—addition, subtraction, multiplication, division, and positive integer exponents—to solve problems with rational numbers (including negatives). <i>This standard is intentionally the same as standard 8.N.12.</i></p>	<p><b><u>The Number System</u></b> <b>Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.</b> 3. Solve real-world and mathematical problems involving the four operations with rational numbers. <i>[Computations with rational numbers extend the rules for manipulating fractions to complex fractions.]</i></p> <p><b><u>Expressions &amp; Equations</u></b> <b>Solve real-life and mathematical problems using numerical and algebraic expressions and equations.</b> 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>	M1	Perform operations fluently with positive and negative numbers, including decimals, ratios, percents, and fractions, and show reasoning to justify results.	H	H	H