

Standard: Number Sense

Strand: Students understand symbols, objects, and pictures used to represent numbers up to 100 and show an understanding of fractions.

Substrand Titles that Address the Substrand

(Gr. 1) 1.1.1 Count, read, and write whole numbers* up to 100.

Quarter Mile Math Level 1

(Gr. 1) 1.1.3 Identify the number of tens and ones in numbers less than 100.

Quarter Mile Math Level 1

(Gr. 1) 1.1.4 Name the number that is one more than or one less than any number up to 100.

Quarter Mile Math Level 1

(Gr. 1) 1.1.5 Compare whole numbers up to 10 and arrange them in numerical order.

Subject: MATH

Standard: Problem Solving

Strand: Students make decisions about how to set up a problem.

Substrand Titles that Address the Substrand

(Gr. 1) 1.6.1 Choose the approach, materials, and strategies to use in solving problems.

Quarter Mile Math Level 1

Grades 2 - 2

Subject: MATH

Standard: Algebra And Functions

Strand: Students model, represent, and interpret number relationships to create and solve problems involving addition and subtraction.

Substrand Titles that Address the Substrand

(Gr. 2) 2.3.4 Create, describe, and extend number patterns using addition and subtraction.

Quarter Mile Math Level 1

Subject: MATH

Standard: Computation

Strand: Students solve simple problems involving addition and subtraction of numbers up to 100.

Substrand Titles that Address the Substrand

(Gr. 2) 2.2.2 Add two whole numbers less than 100 with and without regrouping.

Quarter Mile Math Level 1

(Gr. 2) 2.2.3 Subtract two whole numbers less than 100 without regrouping.

Quarter Mile Math Level 1

(Gr. 2) 2.2.4 Understand and use the inverse relationship between addition and subtraction.

Quarter Mile Math Level 1

(Gr. 2) 2.2.5 Use estimation to decide whether answers are reasonable in addition problems.

Quarter Mile Math Level 1

(Gr. 2) 2.2.6 Use mental arithmetic to add or subtract 0, 1, 2, 3, 4, 5, or 10 with numbers less than 100.

Quarter Mile Math Level 1

Subject: MATH

Standard: Number Sense

Strand: Students understand the relationships among numbers, quantities, and place value in whole numbers up to 100. They understand that fractions may refer to parts of a set and parts of a whole.

Substrand Titles that Address the Substrand

(Gr. 2) 2.1.1 Count by ones, twos, fives, and tens to 100.

Quarter Mile Math Level 1

(Gr. 2) 2.1.2 Identify the pattern of numbers in each group of ten, from tens through nineties.

Quarter Mile Math Level 1

(Gr. 2) 2.1.3 Identify numbers up to 100 in various combinations of tens and ones.

Quarter Mile Math Level 1

(Gr. 2) 2.1.4 Name the number that is ten more or ten less than any number 10 through 90.

Quarter Mile Math Level 1

(Gr. 2) 2.1.5 Compare whole numbers up to 100 and arrange them in numerical order.

Quarter Mile Math Level 1

(Gr. 2) 2.1.7 Identify odd and even numbers up to 100.

Quarter Mile Math Level 1

Grades 3 - 3

Subject: MATH

Standard: Algebra And Functions

Strand: Students select appropriate symbols, operations, and properties to represent, describe, simplify, and solve simple number and functional relationships.

Substrand Titles that Address the Substrand

(Gr. 3) 3.3.2 Solve problems involving numeric equations.

Quarter Mile Math Level 1

(Gr. 3) 3.3.3 Choose appropriate symbols for operations and relations to make a number sentence true.

Quarter Mile Math Level 1

(Gr. 3) 3.3.5 Create, describe, and extend number patterns using multiplication.

Quarter Mile Math Level 1

Subject: MATH

Standard: Computation

Strand: Students solve problems involving addition and subtraction of whole numbers. They model and solve simple problems involving multiplication and division.

Substrand Titles that Address the Substrand

(Gr. 3) 3.2.1 Add and subtract whole numbers up to 1,000 with or without regrouping, using relevant properties of the number system.

Quarter Mile Math Level 1

(Gr. 3) 3.2.2 Represent the concept of multiplication as repeated addition.

Quarter Mile Math Level 1

(Gr. 3) 3.2.3 Represent the concept of division as repeated subtraction, equal sharing, and forming equal groups.

Quarter Mile Math Level 1

(Gr. 3) 3.2.4 Know and use the inverse relationship between multiplication and division facts, such as $6 \cdot 7 = 42$, $42 \div 7 = 6$, $7 \cdot 6 = 42$, $42 \div 6 = 7$.

Quarter Mile Math Level 1

(Gr. 3) 3.2.5 Show mastery of multiplication facts for 2, 5, and 10.

Quarter Mile Math Level 1

(Gr. 3) 3.2.6 Add and subtract simple fractions with the same denominator.

Quarter Mile Math Level 2

(Gr. 3) 3.2.7 Use estimation to decide whether answers are reasonable in addition and subtraction problems.

Quarter Mile Math Level 1

(Gr. 3) 3.2.8 Use mental arithmetic to add or subtract with numbers less than 100.

Quarter Mile Math Level 1

Subject: MATH

Standard: Number Sense

Strand: Students understand the relationships among numbers, quantities, and place value in whole numbers up to 1,000. They understand the relationship among whole numbers, simple fractions, and decimals.

Substrand **Titles that Address the Substrand**

(Gr. 3) 3.1.1 Count, read, and write whole numbers up to 1,000.

Quarter Mile Math Level 1

(Gr. 3) 3.1.2 Identify and interpret place value in whole numbers up to 1,000.

Quarter Mile Math Level 1

(Gr. 3) 3.1.4 Identify any number up to 1,000 in various combinations of hundreds, tens, and ones.

Quarter Mile Math Level 1

(Gr. 3) 3.1.5 Compare whole numbers up to 1,000 and arrange them in numerical order.

Quarter Mile Math Level 1

(Gr. 3) 3.1.6 Round numbers less than 1,000 to the nearest ten and the nearest hundred.

Quarter Mile Math Level 1

(Gr. 3) 3.1.7 Identify odd and even numbers up to 1,000 and describe their characteristics.

Quarter Mile Math Level 1

Subject: MATH

Standard: Problem Solving

Strand: Students make decisions about how to approach problems and communicate their ideas.

Substrand **Titles that Address the Substrand**

(Gr. 3) 3.6.6 Know and use strategies for estimating results of whole-number addition and subtraction.

Quarter Mile Math Level 1

Grades 4 - 4

Subject: MATH

Standard: Algebra And Functions

Strand: Students use and interpret variables, mathematical symbols, and properties to write and simplify expressions and sentences. They understand relationships among the operations of addition, subtraction, multiplication, and division.

Substrand

Titles that Address the Substrand

(Gr. 4) 4.3.6 Recognize and apply the relationships between addition and multiplication, between subtraction and division, and the inverse relationship between multiplication and division to solve problems.

Quarter Mile Math Level 2

(Gr. 4) 4.3.7 Relate problem situations to number sentences involving multiplication and division.

Quarter Mile Math Level 2

Subject: MATH

Standard: Computation

Strand: Students solve problems involving addition, subtraction, multiplication, and division of whole numbers and understand the relationships among these operations. They extend their use and understanding of whole numbers to the addition and subtraction of simple fractions and decimals.

Substrand

Titles that Address the Substrand

(Gr. 4) 4.2.1 Understand and use standard algorithms for addition and subtraction.

Quarter Mile Math Level 2

(Gr. 4) 4.2.2 Represent as multiplication any situation involving repeated addition.

Quarter Mile Math Level 2

(Gr. 4) 4.2.4 Demonstrate mastery of the multiplication tables for numbers between 1 and 10 and of the corresponding division facts.

Quarter Mile Math Level 2

(Gr. 4) 4.2.5 Use a standard algorithm to multiply numbers up to 100 by numbers up to 10, using relevant properties of the number system.

Quarter Mile Math Level 2

(Gr. 4) 4.2.6 Use a standard algorithm to divide numbers up to 100 by numbers up to 10 without remainders, using relevant properties of the number system.

Quarter Mile Math Level 2

(Gr. 4) 4.2.7 Understand the special properties of 0 and 1 in multiplication and division.

Quarter Mile Math Level 2

(Gr. 4) 4.2.8 Add and subtract simple fractions with different denominators, using objects or pictures.

Quarter Mile Math Level 2

(Gr. 4) 4.2.9 Add and subtract decimals (to hundredths), using objects or pictures.

Quarter Mile Math Level 2

(Gr. 4) 4.2.10 Use a standard algorithm to add and subtract decimals (to hundredths).

Quarter Mile Math Level 2

(Gr. 4) 4.2.11 Know and use strategies for estimating results of any whole-number computations.

Quarter Mile Math Level 2

(Gr. 4) 4.2.12 Use mental arithmetic to add or subtract numbers rounded to hundredths or thousandths.

Quarter Mile Math Level 2

Subject: MATH

Standard: Number Sense

Strand: Students understand the place value of whole numbers and decimals to two decimal places and how whole numbers and decimals relate to simple fractions.

Substrand **Titles that Address the Substrand**

(Gr. 4) 4.1.1 Read and write whole numbers up to 1,000,000.

Quarter Mile Math Level 2

(Gr. 4) 4.1.2 Identify and write whole numbers up to 1,000,000, given a place-value model.

Quarter Mile Math Level 2

(Gr. 4) 4.1.3 Round whole numbers up to 10,000 to the nearest ten, hundred, and thousand.

Quarter Mile Math Level 2

(Gr. 4) 4.1.4 Order and compare whole numbers using symbols for less than (<), equal to (=), and greater than (>).

Quarter Mile Math Level 2

(Gr. 4) 4.1.5 Rename and rewrite whole numbers as fractions.

Quarter Mile Math Level 2

(Gr. 4) 4.1.6 Name and write mixed numbers, using objects or pictures.

Quarter Mile Math Level 2

(Gr. 4) 4.1.7 Name and write mixed numbers as improper fractions, using objects or pictures.

Quarter Mile Math Level 2

(Gr. 4) 4.1.8 Write tenths and hundredths in decimal and fraction notations. Know the fraction and decimal equivalents for halves and fourths (e.g., $\frac{1}{2} = 0.5 = 0.50$, $\frac{7}{4} = 1\frac{3}{4} = 1.75$).

Quarter Mile Math Level 2

(Gr. 4) 4.1.9 Round two-place decimals to tenths or to the nearest whole number.

Quarter Mile Math Level 2

Subject: MATH

Standard: Problem Solving

Strand: Students make decisions about how to approach problems and communicate their ideas.

Substrand **Titles that Address the Substrand**

(Gr. 4) 4.7.1 Analyze problems by identifying relationships, telling relevant from irrelevant information, sequencing and prioritizing information, and observing patterns.

Quarter Mile Math Level 2

(Gr. 4) 4.7.2 Decide when and how to break a problem into simpler parts.

Quarter Mile Math Level 2

(Gr. 4) 4.7.3 Apply strategies and results from simpler problems to more complex problems.

Quarter Mile Math Level 2

(Gr. 4) 4.7.6 Recognize the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.

Quarter Mile Math Level 2

(Gr. 4) 4.7.7 Know and use appropriate methods for estimating results of whole-number computations.

Quarter Mile Math Level 2

(Gr. 4) 4.7.8 Make precise calculations and check the validity of the results in the context of the problem.

Quarter Mile Math Level 2

(Gr. 4) 4.7.10 Note the method of finding the solution and show a conceptual understanding of the method by solving similar problems.

Quarter Mile Math Level 2

Subject: MATH

Standard: Computation

Strand: Students solve problems involving multiplication and division of whole numbers and solve problems involving addition, subtraction, and simple multiplication and division of fractions and decimals.

Substrand

Titles that Address the Substrand

(Gr. 5) 5.2.1 Solve problems involving multiplication and division of any whole numbers.

Quarter Mile Math Level 2

(Gr. 5) 5.2.2 Add and subtract fractions (including mixed numbers) with different denominators.

Quarter Mile Math Level 2

(Gr. 5) 5.2.3 Use models to show an understanding of multiplication and division of fractions.

Quarter Mile Math Level 2

(Gr. 5) 5.2.4 Multiply and divide fractions to solve problems.

Quarter Mile Math Level 2

(Gr. 5) 5.2.5 Add and subtract decimals and verify the reasonableness of the results.

Quarter Mile Math Level 2

(Gr. 5) 5.2.6 Use estimation to decide whether answers are reasonable in addition, subtraction, multiplication, and division problems.

Quarter Mile Math Level 2

(Gr. 5) 5.2.7 Use mental arithmetic to add or subtract simple decimals.

Quarter Mile Math Level 2

Subject: MATH

Standard: Data Analysis And Probability

Strand: Students collect, display, analyze, compare, and interpret data sets. They use the results of probability experiments to predict future events.

Substrand

Titles that Address the Substrand

(Gr. 5) 5.6.2 Find the mean, median, mode, and range of a set of data and describe what each does and does not tell about the data set.

Quarter Mile Math Level 2

Subject: MATH

Standard: Measurement

Strand: Students understand and compute the areas and volumes of simple objects, as well as measuring weight, temperature, time, and money.

Substrand Titles that Address the Substrand

(Gr. 5) 5.5.7 Add and subtract with money in decimal notation.

Quarter Mile Math Level 2

Subject: MATH

Standard: Number Sense

Strand: Students compute with whole numbers, decimals, and fractions and understand the relationship among decimals, fractions, and percents. They understand the relative magnitudes of numbers. They understand prime and composite numbers.

Substrand Titles that Address the Substrand

(Gr. 5) 5.1.1 Convert between numbers in words and numbers in figures, for numbers up to millions and decimals to thousandths.

Quarter Mile Math Level 2

(Gr. 5) 5.1.2 Round whole numbers and decimals to any place value.

Quarter Mile Math Level 2

(Gr. 5) 5.1.3 Arrange in numerical order and compare whole numbers or decimals to two decimal places by using the symbols for less than (<), equals (=), and greater than (>).

Quarter Mile Math Level 1

(Gr. 5) 5.1.4 Interpret percents as a part of a hundred. Find decimal and percent equivalents for common fractions and explain why they represent the same value.

Quarter Mile Math Level 2

(Gr. 5) 5.1.5 Explain different interpretations of fractions: as parts of a whole, parts of a set, and division of whole numbers by whole numbers.

Quarter Mile Math Level 2

Subject: MATH

Standard: Problem Solving

Strand: Students make decisions about how to approach problems and communicate their ideas.

Substrand Titles that Address the Substrand

(Gr. 5) 5.7.5 Recognize the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.

Quarter Mile Math Level 2

(Gr. 5) 5.7.6 Know and apply appropriate methods for estimating results of rational-number computations.

Quarter Mile Math Level 2

(Gr. 5) 5.7.9 Note the method of finding the solution and show a conceptual understanding of the method by solving similar problems.

Quarter Mile Math Level 2

Grades 6 - 6

Subject: MATH

Standard: Algebra And Functions

Strand: 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.

Substrand	Titles that Address the Substrand
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(Gr. 6) 6.3.1 Write and solve one-step linear equations and inequalities in one variable and check the answers.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6) 6.3.2 Write and use formulas with up to three variables to solve problems.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6) 6.3.3 Interpret and evaluate mathematical expressions that use grouping symbols such as parentheses.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6) 6.3.4 Use parentheses to indicate which operation to perform first when writing expressions containing more than two terms and different operations.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

Subject: MATH

Standard: Computation

Strand: Students solve problems involving addition, subtraction, multiplication, and division of integers. They solve problems involving fractions, decimals, ratios, proportions, and percentages.

Substrand	Titles that Address the Substrand
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(Gr. 6) 6.2.1 Add and subtract positive and negative integers.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6) 6.2.2 Multiply and divide positive and negative integers.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6) 6.2.3 Multiply and divide decimals.

Quarter Mile Math Level 2

(Gr. 6) 6.2.4 Explain how to multiply and divide positive fractions and perform the calculations.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6) 6.2.5 Solve problems involving addition, subtraction, multiplication, and division of positive fractions and explain why a particular operation was used for a given situation.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6) 6.2.7 Understand proportions and use them to solve problems.

Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. 6) 6.2.8 Calculate given percentages of quantities and solve problems involving discounts at sales, interest earned, and tips.

Quarter Mile Math Level 2

(Gr. 6) 6.2.9 Use estimation to decide whether answers are reasonable in decimal problems.

Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. 6) 6.2.10 Use mental arithmetic to add or subtract simple fractions and decimals.

Quarter Mile Math Level 2
Quarter Mile Math Level 3

Subject: MATH

Standard: Data Analysis And Probability

Strand: Students compute and analyze statistical measures for data sets. They determine theoretical and experimental probabilities and use them to make predictions about events.

Substrand Titles that Address the Substrand

(Gr. 6) 6.6.3 Compare the mean, median, and mode for a set of data and explain which measure is most appropriate in a given context.

Quarter Mile Math Level 2

Subject: MATH

Standard: Measurement

Strand: 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.

Substrand Titles that Address the Substrand

(Gr. 6) 6.5.10 Add, subtract, multiply, and divide with money in decimal notation.

Quarter Mile Math Level 2
Quarter Mile Math Level 3

Subject: MATH

Standard: Number Sense

Strand: Students compare and order positive and negative integers, decimals, fractions, and mixed numbers. They find multiples and factors.

Substrand Titles that Address the Substrand

(Gr. 6) 6.1.1 Understand and apply the basic concept of negative numbers (e.g., on a number line, in counting, in temperature, in owing).

Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. 6) 6.1.3 Compare and represent on a number line: positive and negative integers, fractions, decimals (to hundredths), and mixed numbers.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6) 6.1.4 Convert between any two of these representations of numbers: fractions, decimals, and percents, without the use of a calculator.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6) 6.1.5 Recognize decimal equivalents for commonly used fractions without the use of a calculator.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6) 6.1.7 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).

Quarter Mile Math Level 2

Quarter Mile Math Level 3

Subject: MATH

Standard: Problem Solving

Strand: Students make decisions about how to approach problems and communicate their ideas.

Substrand

Titles that Address the Substrand

(Gr. 6) 6.7.6 Recognize the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6) 6.7.7 Select and apply appropriate methods for estimating results of rational-number computations.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

Grades 7 - 7

Subject: MATH

Standard: Algebra And Functions

Strand: Students express quantitative relationships using algebraic terminology, expressions, equations, inequalities, and graphs.

Substrand

Titles that Address the Substrand

(Gr. 7) 7.3.2 Write and solve two-step linear equations and inequalities in one variable and check the answers.

Quarter Mile Math Level 3

(Gr. 7) 7.3.4 Evaluate numerical expressions and simplify algebraic expressions by applying the correct order of operations and the properties of rational numbers (e.g., identity, inverse, commutative, associative, distributive). Justify each step in the process.

Quarter Mile Math Level 3

(Gr. 7) 7.3.5 Solve an equation or formula with two variables for a particular variable.

Quarter Mile Math Level 3

Subject: MATH

Standard: Computation

Strand: Students solve problems involving integers, fractions, decimals, ratios, and percentages.

Substrand Titles that Address the Substrand

(Gr. 7) 7.2.1 Solve addition, subtraction, multiplication, and division problems that use integers, fractions, and decimals, and combinations of the four operations.

Quarter Mile Math Level 3

(Gr. 7) 7.2.2 Calculate the percentage increase and decrease of a quantity.

Quarter Mile Math Level 3

(Gr. 7) 7.2.3 Solve problems that involve discounts, markups, and commissions.

Quarter Mile Math Level 3

(Gr. 7) 7.2.4 Use estimation to decide whether answers are reasonable in problems involving fractions and decimals.

Quarter Mile Math Level 3

(Gr. 7) 7.2.5 Use mental arithmetic to compute with simple fractions, decimals, and powers.

Quarter Mile Math Level 3

Subject: MATH

Standard: Data Analysis And Probability

Strand: Students collect, organize, and represent data sets and identify relationships among variables within a data set by hand and through the use of an electronic spreadsheet software program. They determine probabilities and use them to make predictions about events.

Substrand Titles that Address the Substrand

(Gr. 7) 7.6.3 Describe how additional data, particularly outliers, added to a data set may affect the mean, median, and mode.

Quarter Mile Math Level 2

Subject: MATH

Standard: Number Sense

Strand: Students understand and use scientific notation and square roots. They convert between fractions and decimals.

Substrand Titles that Address the Substrand

(Gr. 7) 7.1.4 Understand and compute positive integer powers of positive integers.

Quarter Mile Math Level 3

(Gr. 7) 7.1.7 Convert terminating decimals into reduced fractions.

Quarter Mile Math Level 3

Subject: MATH

Standard: Problem Solving

Strand: Students make decisions about how to approach problems and communicate their ideas.

Substrand Titles that Address the Substrand

(Gr. 7) 7.7.7 Recognize the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.

Quarter Mile Math Level 3

Subject: MATH
Standard: Computation
Strand: Students compute with rational numbers expressed in a variety of forms. They solve problems involving ratios, proportions, and percentages.

Substrand **Titles that Address the Substrand**

(Gr. 8) 8.2.1 Add, subtract, multiply, and divide rational numbers (integers, fractions, and terminating decimals) in multi-step problems.

Quarter Mile Math Level 3

(Gr. 8) 8.2.3 Use estimation techniques to decide whether answers to computations on a calculator are reasonable.

Quarter Mile Math Level 3

(Gr. 8) 8.2.4 Use mental arithmetic to compute with common fractions, decimals, powers, and percents.

Quarter Mile Math Level 3

Subject: MATH
Standard: Number Sense
Strand: Students know the properties of rational and irrational numbers expressed in a variety of forms. They understand and use exponents, powers, and roots.

Substrand **Titles that Address the Substrand**

(Gr. 8) 8.1.5 Use the laws of exponents for integer exponents.

Quarter Mile Math Level 3

Subject: MATH
Standard: Problem Solving
Strand: Students make decisions about how to approach problems and communicate their ideas.

Substrand **Titles that Address the Substrand**

(Gr. 8) 8.7.8 Select and apply appropriate methods for estimating results of rational-number computations.

Quarter Mile Math Level 3

Subject: MATH
Standard: Algebra I
Strand: Linear Equations and Inequalities

Substrand **Titles that Address the Substrand**

(Gr. 9-12) A1.2.1 Solve linear equations.

Quarter Mile Math Level 3

(Gr. 9-12) A1.2.2 Solve equations and formulas for a specified variable.

Quarter Mile Math Level 3

(Gr. 9-12) A1.2.4 Solve linear inequalities using properties of order.

Quarter Mile Math Level 3

Subject: MATH
Standard: Algebra I
Strand: Operations with Real Numbers

Substrand

Titles that Address the Substrand

(Gr. 9-12) A1.1.4 Use the laws of exponents for rational exponents.

Quarter Mile Math Level 3