

**THE FOLLOWING STATE CURRICULUM STANDARDS ARE ADDRESSED BY
THE QUARTER MILE MATH SOFTWARE
FOR THE STATE OF CALIFORNIA**

Subject: MATH
Standard: Number Sense
Strand: 1.0 Students Understand The Relationship Between Numbers And Quantities

Substrand **Titles that Address the Substrand**

(Gr. PreK-K) 1.2 Count, recognize, represent, name, and order a number of objects (up to 30).
Quarter Mile Math Level 1

(Gr. PreK-K) 1.3 Know that the larger numbers describe sets with more objects in them than the smaller numbers have.
Quarter Mile Math Level 1

Subject: MATH
Standard: Number Sense
Strand: 3.0 Students Use Estimation Strategies In Computation And Problem Solving That Involve Numbers That Use The Ones And Tens Places

Substrand **Titles that Address the Substrand**

(Gr. PreK-K) 3.1 Recognize when an estimate is reasonable.
Quarter Mile Math Level 1

Grades 1 - 1

Subject: MATH
Standard: Algebra And Functions
Strand: 1.0 Students Use Number Sentences With Operational Symbols And Expressions To Solve Problems

Substrand **Titles that Address the Substrand**

(Gr. 1) 1.2 Understand the meaning of the symbols +, -, =.
Quarter Mile Math Level 1

Subject: MATH
Standard: Mathematical Reasoning
Strand: 1.0 Students Make Decisions About How To Set Up A Problem

Substrand **Titles that Address the Substrand**

(Gr. 1) 1.1 Determine the approach, materials, and strategies to be used.
Quarter Mile Math Level 1

Subject: MATH
Standard: Number Sense
Strand: 1.0 Students Understand And Use Numbers Up To 100

Strand: 1.0 Students Model, Represent, And Interpret Number Relationships To Create And Solve Problems Involving Addition And Subtraction

Substrand Titles that Address the Substrand

(Gr. 2) 1.2 Relate problem situations to number sentences involving addition and subtraction.
Quarter Mile Math Level 1

Subject: MATH

Standard: Mathematical Reasoning

Strand: 3.0 Students Note Connections Between One Problem And Another.

Substrand Titles that Address the Substrand

(Gr. 2) 3.0 Students note connections between one problem and another.
Quarter Mile Math Level 1

Subject: MATH

Standard: Number Sense

Strand: 1.0 Students Understand The Relationship Between Numbers, Quantities, And Place Value In Whole Numbers Up To 1,000

Substrand Titles that Address the Substrand

(Gr. 2) 1.1 Count, read, and write whole numbers to 1,000 and identify the place value for each digit.
Quarter Mile Math Level 1

(Gr. 2) 1.2 Use words, models, and expanded forms (e. g., $45 = 4 \text{ tens} + 5$) to represent numbers (to 1,000).
Quarter Mile Math Level 1

(Gr. 2) 1.3 Order and compare whole numbers to 1,000 by using the symbols $<$, $=$, $>$.
Quarter Mile Math Level 1

Subject: MATH

Standard: Number Sense

Strand: 2.0 Students Estimate, Calculate, And Solve Problems Involving Addition And Subtraction Of Two And Three Digit Numbers

Substrand Titles that Address the Substrand

(Gr. 2) 2.1 Understand and use the inverse relationship between addition and subtraction (e. g., an opposite number sentence for $8 + 6 = 14$ is $14 - 6 = 8$) to solve problems and check solutions.
Quarter Mile Math Level 1

(Gr. 2) 2.2 Find the sum or difference of two whole numbers up to three digits long. 2.3 Use mental arithmetic to find the sum or difference of two two- digit numbers.
Quarter Mile Math Level 1

Subject: MATH

Standard: Number Sense

Strand: 3.0 Students Model And Solve Simple Problems Involving Multiplication And Division

Substrand Titles that Address the Substrand

(Gr. 2) 3.1 Use repeated addition, arrays, and counting by multiples to do multiplication.

Quarter Mile Math Level 1

(Gr. 2) 3.2 Use repeated subtraction, equal sharing, and forming equal groups with remainders to do division.

Quarter Mile Math Level 1

(Gr. 2) 3.3 Know the multiplication tables of 2s, 5s, and 10s (to times 10) and commit them to memory.

Quarter Mile Math Level 1

Subject: MATH

Standard: Number Sense

Strand: 4.0 Students Understand That Fractions And Decimals May Refer To Parts Of A Set And Parts Of A Whole

Substrand

Titles that Address the Substrand

(Gr. 2) 4.1 Recognize, name, and compare unit fractions from $\frac{1}{12}$ to $\frac{1}{2}$.

Quarter Mile Math Level 2

(Gr. 2) 4.3 Know that when all fractional parts are included, such as four-fourths, the result is equal to the whole and to one.

Quarter Mile Math Level 2

Subject: MATH

Standard: Number Sense

Strand: 5.0 Students Model And Solve Problems By Representing, Adding, And Subtracting Amounts Of Money

Substrand

Titles that Address the Substrand

(Gr. 2) 5.2 Know and use the decimal notation and the dollar and cent symbols for money

Quarter Mile Math Level 2

Subject: MATH

Standard: Number Sense

Strand: 6.0 Students Use Estimation Strategies In Computation And Problem Solving That Involve Numbers That Use The Ones, Tens, Hundreds, And Thousands Places

Substrand

Titles that Address the Substrand

(Gr. 2) 6.1 Recognize when an estimate is reasonable in measurements (e. g., closest inch).

Quarter Mile Math Level 1

Subject: MATH

Standard: Statistics, Data Analysis, And Probability

Strand: 2.0 Students Demonstrate An Understanding Of Patterns And How Patterns Grow And Describe Them In General Ways

Substrand

Titles that Address the Substrand

(Gr. 2) 2.2 Solve problems involving simple number patterns

Quarter Mile Math Level 1

Subject: MATH

Standard: Mathematical Reasoning

Strand: 2.0 Students Use Strategies, Skills, And Concepts In Finding Solutions

(Gr. 3) 2.8 Solve problems that require two or more of the skills mentioned above.

Quarter Mile Math Level 1

Subject: MATH

Standard: Number Sense

Strand: 3.0 Students Understand The Relationship Between Whole Numbers, Simple Fractions, And Decimals

Substrand

Titles that Address the Substrand

(Gr. 3) 3.2 Add and subtract simple fractions (e.g., determine that $1/8 + 3/8$ is the same as $1/2$).

Quarter Mile Math Level 2

(Gr. 3) 3.3 Solve problems involving addition, subtraction, multiplication, and division of money amounts in decimal notation and multiply and divide money amounts in decimal notation by using whole-number multipliers and divisors.

Quarter Mile Math Level 2

(Gr. 3) 3.4 Know and understand that fractions and decimals are two different representations of the same concept (e.g., 50 cents is $1/2$ of a dollar, 75 cents is $3/4$ of a dollar).

Quarter Mile Math Level 2

Subject: MATH

Standard: Mathematical Reasoning

Strand: 2.0 Students Use Strategies, Skills, And Concepts In Finding Solutions

Substrand

Titles that Address the Substrand

(Gr. 4) 2.1 Use estimation to verify the reasonableness of calculated results.

Quarter Mile Math Level 2

(Gr. 4) 2.2 Apply strategies and results from simpler problems to more complex problems.

Quarter Mile Math Level 2

(Gr. 4) 2.3 Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.

Quarter Mile Math Level 2

Subject: MATH

Standard: Number Sense

Strand: 1.0 Students Understand The Place Value Of Whole Numbers And Decimals To Two Decimal Places And How Whole Numbers And Decimals Relate To Simple Fractions. Students Use The Concepts Of Negative Numbers

Substrand

Titles that Address the Substrand

(Gr. 4) 1.1 Read and write whole numbers in the millions.

Quarter Mile Math Level 2

(Gr. 4) 1.2 Order and compare whole numbers and decimals to two decimal places.

Quarter Mile Math Level 2

(Gr. 4) 1.3 Round whole numbers through the millions to the nearest ten, hundred, thousand, ten thousand, or hundred thousand.

Quarter Mile Math Level 2

(Gr. 4) 1.6 Write tenths and hundredths in decimal and fraction notations and know the fraction and decimal equivalents for halves and fourths (e.g., $1/2 = 0.5$ or $.50$; $7/4 = 1 \frac{3}{4} = 1.75$).

Quarter Mile Math Level 2

(Gr. 4) 1.8 Use concepts of negative numbers (e.g., on a number line, in counting, in temperature, in owing).

Quarter Mile Math Level 2

Subject: MATH

Standard: Number Sense

Strand: 2.0 Students Extend Their Use And Understanding Of Whole Numbers To The Addition And Subtraction Of Simple Decimals

Substrand

Titles that Address the Substrand

(Gr. 4) 2.1 Estimate and compute the sum or difference of whole numbers and positive decimals to two places.

Quarter Mile Math Level 2

(Gr. 4) 2.2 Round two-place decimals to one decimal or the nearest whole number and judge the reasonableness of the rounded answer.

Quarter Mile Math Level 2

Subject: MATH

Standard: Number Sense

Strand: 3.0 Students Solve Problems Involving Addition, Subtraction, Multiplication, And Division Of Whole Numbers And Understand The Relationships Among The Operations

Substrand

Titles that Address the Substrand

(Gr. 4) 3.1 Demonstrate an understanding of, and the ability to use, standard algorithms for the addition and subtraction of multidigit numbers.

Quarter Mile Math Level 2

(Gr. 4) 3.2 Demonstrate an understanding of, and the ability to use, standard algorithms for multiplying a multidigit number by a two-digit number and for dividing a multidigit number by a one-digit number; use relationships between them to simplify computations and to check results.

Quarter Mile Math Level 2

(Gr. 4) 3.3 Solve problems involving multiplication of multidigit numbers by two-digit numbers.

Quarter Mile Math Level 2

(Gr. 4) 3.4 Solve problems involving division of multidigit numbers by one-digit numbers.

Quarter Mile Math Level 2

Subject: MATH

Standard: Number Sense

Strand: 4.0 Students Know How To Factor Small Whole Numbers

Substrand

Titles that Address the Substrand

(Gr. 4) 4.1 Understand that many whole numbers break down in different ways (e.g., $12 = 4 \cdot 3 = 2 \cdot 6 = 2 \cdot 2 \cdot 3$).

Quarter Mile Math Level 2

(Gr. 4) 4.2 Know that numbers such as 2, 3, 5, 7, and 11 do not have any factors except 1 and themselves and that such numbers are called prime numbers.

Quarter Mile Math Level 2

Grades 5 - 5

Subject: MATH

Standard: Algebra And Functions

Strand: 1.0 Students Use Variables In Simple Expressions, Compute The Value Of The Expression For Specific Values Of The Variable, And Plot And Interpret The Results

Substrand Titles that Address the Substrand

(Gr. 5) 1.2 Use a letter to represent an unknown number; write and evaluate simple algebraic expressions in one variable by substitution.

Quarter Mile Math Level 2

Subject: MATH

Standard: Mathematical Reasoning

Strand: 2.0 Students Use Strategies, Skills, And Concepts In Finding Solutions

Substrand Titles that Address the Substrand

(Gr. 5) 2.1 Use estimation to verify the reasonableness of calculated results.

Quarter Mile Math Level 2

(Gr. 5) 2.2 Apply strategies and results from simpler problems to more complex problems.

Quarter Mile Math Level 2

(Gr. 5) 2.3 Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.

Quarter Mile Math Level 2

Subject: MATH

Standard: Number Sense

Strand: 1.0 Students Compute With Very Large And Very Small Numbers, Positive Integers, Decimals, And Fractions And Understand The Relationship Between Decimals, Fractions, And Percents. They Understand The Relative Magnitudes Of Numbers

Substrand Titles that Address the Substrand

(Gr. 5) 1.1 Estimate, round, and manipulate very large (e.g., millions) and very small (e.g., thousandths) numbers.

Quarter Mile Math Level 2

(Gr. 5) 1.2 Interpret percents as a part of a hundred; find decimal and percent equivalents for common fractions and explain why they represent the same value; compute a given percent of a whole number.

Quarter Mile Math Level 2

(Gr. 5) 1.3 Understand and compute positive integer powers of nonnegative integers; compute examples as repeated multiplication.

Quarter Mile Math Level 2

(Gr. 5) 1.4 Determine the prime factors of all numbers through 50 and write the numbers as the product of their prime factors by using exponents to show multiples of a factor (e.g., $24 = 2 \cdot 2 \cdot 2 \cdot 3 = 2^3 \cdot 3$).

Quarter Mile Math Level 2

(Gr. 5) 1.5 Identify and represent on a number line decimals, fractions, mixed numbers, and positive and negative integers.

Quarter Mile Math Level 2

Subject: MATH

Standard: Number Sense

Strand: 2.0 Students Perform Calculations And Solve Problems Involving Addition, Subtraction, And Simple Multiplication And Division Of Fractions And Decimals

Substrand Titles that Address the Substrand

(Gr. 5) 2.1 Add, subtract, multiply, and divide with decimals; add with negative integers; subtract positive integers from negative integers; and verify the reasonableness of the results.

Quarter Mile Math Level 2

(Gr. 5) 2.2 Demonstrate proficiency with division, including division with positive decimals and long division with multidigit divisors.

Quarter Mile Math Level 2

(Gr. 5) 2.3 Solve simple problems, including ones arising in concrete situations, involving the addition and subtraction of fractions and mixed numbers (like and unlike denominators of 20 or less), and express answers in the simplest form.

Quarter Mile Math Level 2

(Gr. 5) 2.4 Understand the concept of multiplication and division of fractions.

Quarter Mile Math Level 2

(Gr. 5) 2.5 Compute and perform simple multiplication and division of fractions and apply these procedures to solving problems.

Quarter Mile Math Level 2

Subject: MATH

Standard: Statistics, Data Analysis, And Probability

Strand: 1.0 Students Display, Analyze, Compare, And Interpret Different Data Sets, Including Data Sets Of Different Sizes

Substrand Titles that Address the Substrand

(Gr. 5) 1.1 Know the concepts of mean, median, and mode; compute and compare simple examples to show that they may differ.

Quarter Mile Math Level 2

(Gr. 5) 1.3 Use fractions and percentages to compare data sets of different sizes.

Quarter Mile Math Level 2

Grades 6 - 6

Subject: MATH

Standard: Algebra And Functions

Strand: 1.0 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

Substrand Titles that Address the Substrand

(Gr. 6) 1.1 Write and solve one-step linear equations in one variable.

Quarter Mile Math Level 2

Quarter Mile Math Level 3

(Gr. 6) 1.4 Solve problems manually by using the correct order of operations or by using a scientific calculator.

Quarter Mile Math Level 2
Quarter Mile Math Level 3

Subject: MATH
Standard: Mathematical Reasoning
Strand: 2.0 Students Use Strategies, Skills, And Concepts In Finding Solutions

Substrand **Titles that Address the Substrand**

(Gr. 6) 2.1 Use estimation to verify the reasonableness of calculated results.
Quarter Mile Math Level 2

(Gr. 6) 2.2 Apply strategies and results from simpler problems to more complex problems.
Quarter Mile Math Level 2
Quarter Mile Math Level 3

Subject: MATH
Standard: Number Sense
Strand: 1.0 Students Compare And Order Positive And Negative Fractions, Decimals, And Mixed Numbers. Students Solve Problems Involving Fractions, Ratios, Proportions, And Percentages

Substrand **Titles that Address the Substrand**

(Gr. 6) 1.1 Compare and order positive and negative fractions, decimals, and mixed numbers and place them on a number line.
Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. 6) 1.3 Use proportions to solve problems (e.g., determine the value of N if $4/7 = N/21$, find the length of a side of a polygon similar to a known polygon). Use cross-multiplication as a method for solving such problems, understanding it as the multiplication of both sides of an equation by a multiplicative inverse.
Quarter Mile Math Level 2

(Gr. 6) 1.4 Calculate given percentages of quantities and solve problems involving discounts at sales, interest earned, and tips.
Quarter Mile Math Level 2

Subject: MATH
Standard: Number Sense
Strand: 2.0 Students Calculate And Solve Problems Involving Addition, Subtraction, Multiplication, And Division

Substrand **Titles that Address the Substrand**

(Gr. 6) 2.1 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

(Gr. 6) 2.3 Solve addition, subtraction, multiplication, and division problems, including those arising in concrete situations, that use positive and negative integers and combinations of these operations.
Quarter Mile Math Level 2
Quarter Mile Math Level 3

(Gr. 6) 2.4 Determine the least common multiple and the greatest common divisor 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

Subject: MATH

Standard: Statistics, Data Analysis, And Probability

Strand: 1.0 Students Compute And Analyze Statistical Measurements For Data Sets

Substrand **Titles that Address the Substrand**

(Gr. 6) 1.1 Compute the range, mean, median, and mode of data sets.

Quarter Mile Math Level 2

Grades 7 - 7

Subject: MATH

Standard: Algebra And Functions

Strand: 1.0 Students Express Quantitative Relationships By Using Algebraic Terminology, Expressions, Equations, Inequalities, And Graphs

Substrand **Titles that Address the Substrand**

(Gr. 7) 1.2 Use the correct order of operations to evaluate algebraic expressions such as $3(2x + 5)^2$.

Quarter Mile Math Level 3

Subject: MATH

Standard: Algebra And Functions

Strand: 2.0 Students Interpret And Evaluate Expressions Involving Integer Powers And Simple Roots

Substrand **Titles that Address the Substrand**

(Gr. 7) 2.1 Interpret positive whole-number powers as repeated multiplication and negative whole-number powers as repeated division or multiplication by the multiplicative inverse. Simplify and evaluate expressions that include exponents.

Quarter Mile Math Level 2

(Gr. 7) 2.2 Multiply and divide monomials; extend the process of taking powers and extracting roots to monomials when the latter results in a monomial with an integer exponent.

Quarter Mile Math Level 2

Subject: MATH

Standard: Mathematical Reasoning

Strand: 2.0 Students Use Strategies, Skills, And Concepts In Finding Solutions

Substrand **Titles that Address the Substrand**

(Gr. 7) 2.1 Use estimation to verify the reasonableness of calculated results.

Quarter Mile Math Level 2

(Gr. 7) 2.2 Apply strategies and results from simpler problems to more complex problems.

Quarter Mile Math Level 3

Subject: MATH

Standard: Number Sense

Strand: 1.0 Students Know The Properties Of, And Compute With, Rational Numbers Expressed In A Variety Of Forms

Substrand Titles that Address the Substrand

(Gr. 7) 1.1 Read, write, and compare rational numbers in scientific notation (positive and negative powers of 10) with approximate numbers using scientific notation.

Quarter Mile Math Level 2

(Gr. 7) 1.2 Add, subtract, multiply, and divide rational numbers (integers, fractions, and terminating decimals) and take positive rational numbers to whole-number powers.

Quarter Mile Math Level 2

(Gr. 7) 1.3 Convert fractions to decimals and percents and use these representations in estimations, computations, and applications.

Quarter Mile Math Level 2

(Gr. 7) 1.6 Calculate the percentage of increases and decreases of a quantity.

Quarter Mile Math Level 2

(Gr. 7) 1.7 Solve problems that involve discounts, markups, commissions, and profit and compute simple and compound interest.

Quarter Mile Math Level 2

Subject: MATH

Standard: Number Sense

Strand: 2.0 Students Use Exponents, Powers, And Roots And Use Exponents In Working With Fractions

Substrand Titles that Address the Substrand

(Gr. 7) 2.1 Understand negative whole-number exponents. Multiply and divide expressions involving exponents with a common base.

Quarter Mile Math Level 2

(Gr. 7) 2.2 Add and subtract fractions by using factoring to find common denominators.

Quarter Mile Math Level 2

(Gr. 7) 2.3 Multiply, divide, and simplify rational numbers by using exponent rules.

Quarter Mile Math Level 2

Subject: MATH

Standard: Secondary School

Strand: Advanced Placement Probability And Statistics

Substrand Titles that Address the Substrand

(Gr. 8-12) 10.0 Students know the definitions of the mean, median, and mode of distribution of data and can compute each of them in particular situations.

Quarter Mile Math Level 2

Subject: MATH

Standard: Secondary School

Strand: Algebra I

Substrand**Titles that Address the Substrand**

(Gr. 8-12) 1.0 Students identify and use the arithmetic properties of subsets of integers and rational, irrational, and real numbers, including closure properties for the four basic arithmetic operations where applicable:

Quarter Mile Math Level 3

(Gr. 8-12) 3.0 Students solve equations and inequalities involving absolute values.

Quarter Mile Math Level 3

(Gr. 8-12) 4.0 Students simplify expressions before solving linear equations and inequalities in one variable, such as $3(2x-5) + 4(x-2) = 12$.

Quarter Mile Math Level 3

(Gr. 8-12) 5.0 Students solve multistep problems, including word problems, involving linear equations and linear inequalities in one variable and provide justification for each step.

Quarter Mile Math Level 3

(Gr. 8-12) 10.0 Students add, subtract, multiply, and divide monomials and polynomials. Students solve multistep problems, including word problems, by using these techniques.

Quarter Mile Math Level 3