

## Mathematics - LV 4 (with QuickTables)

This course covers the topics shown below.  
Students navigate learning paths based on their level of readiness.  
Institutional users may customize the scope and sequence to meet curricular needs.

Curriculum (194 topics + 153 additional topics)

- Whole Number Place Value, Addition, and Subtraction (41 topics)
  - Whole Number Place Value and Numeral Translation (7 topics)
    - Whole number place value: Problem type 1
    - Whole number place value: Problem type 2
    - Comparing place values of digits in a whole number: Problem type 1
    - Numeral translation: Problem type 1
    - Expanded form: 2 and 3-digit numbers
    - Expanded form: 4 and 5-digit numbers
    - Expanded form with zeros
  - Ordering Whole Numbers (2 topics)
    - Introduction to inequalities
    - Ordering large numbers
  - Rounding Whole Numbers (3 topics)
    - Rounding to tens or hundreds
    - Rounding to hundreds or thousands
    - Rounding to thousands, ten thousands, or hundred thousands
  - Adding Whole Numbers (14 topics)
    - One-digit addition with regrouping
    - Addition of 3 or 4 one-digit numbers
    - Adding 2-digit numbers without regrouping
    - Adding a 2-digit number and a 1-digit number with regrouping
    - Finding numbers that add to a multiple of 10
    - Adding by making a ten
    - Adding 2-digit numbers with regrouping a ten
    - Adding multiples of 10 and 100
    - Adding 2-digit numbers with regrouping a hundred
    - Adding 3-digit numbers with regrouping
    - Adding 3 or 4 numbers with two-digits with regrouping
    - Adding by making a hundred
    - Addition without regrouping using place values
    - Adding 3 numbers with two, three, and four-digits
  - Subtracting Whole Numbers (9 topics)
    - Subtracting a 1-digit number from a 2-digit number
    - Subtraction of 2-digit numbers without regrouping
    - Subtracting multiples of 10 and 100
    - Subtraction involving 3-digit numbers without regrouping
    - Subtraction of 2-digit numbers with regrouping
    - Subtraction with multiple regrouping steps involving 3-digit numbers
    - Subtraction with multiple regrouping steps involving 4-digit numbers
    - Subtraction and regrouping with zeros
    - Word problem with addition or subtraction of whole numbers
  - Properties of Addition and Fact Families (2 topics)
    - Introduction to properties of addition
    - Fact families for addition and subtraction
  - Estimating Sums and Differences (4 topics)
    - Estimating a sum of whole numbers: Problem type 1
    - Estimating a sum of whole numbers: Problem type 2
    - Estimating a difference of whole numbers: Problem type 1
    - Estimating a difference of whole numbers: Problem type 2
- Multiplying Whole Numbers (27 topics)
  - Multiplication Facts and Repeated Addition (5 topics)
    - Using equal groups to find a total
    - Multiplying one-digit numbers: Problem type 1
    - Multiplying one-digit numbers: Problem type 2

- Multiplication as repeated addition
  - Writing addition and multiplication sentences for equal groups
- Rectangular Arrays and Introduction to Area (4 topics)
  - Using multiplication to find the number of squares
  - Multiplying 2-digit and 1-digit numbers without regrouping
  - Area of a rectangle on a grid
  - Area of a rectangle with one-digit side lengths
- Multiplying by Multiples of 10, 100, and 1000 (3 topics)
  - Multiplication by 10, 100, and 1000
  - Introduction to multiplication with a trailing zero
  - Multiplication with trailing zeros: Problem type 1
- Properties of Multiplication (4 topics)
  - Using the distributive property to multiply two whole numbers
  - Introduction to properties of multiplication
  - Multiples: Problem type 1
  - Multiples: Problem type 2
- Multiplying by One-Digit Numbers (6 topics)
  - Multiplying 2-digit and 1-digit numbers with regrouping: Problem type 1
  - Multiplying 2-digit and 1-digit numbers with regrouping: Problem type 2
  - Understanding multiplication of a one-digit number with a larger number
  - Multiplying multi-digit and 1-digit numbers with regrouping
  - Introduction to multiplication using an area model
  - Multiplying a multi-digit and a 1-digit number using an area model
- Multiplying by Multi-Digit Numbers (1 topics)
  - Introduction to multiplication of large numbers
- Comparisons and Word Problems Involving Multiplication (3 topics)
  - Word problem with multiplication of whole numbers
  - Multiplicative comparison involving groups of objects
  - Word problem involving multiplicative or additive comparison
- Estimating Products (1 topics)
  - Estimating a product
- Dividing Whole Numbers (21 topics)
  - Division Facts (4 topics)
    - Division facts: Problem type 1
    - Division facts: Problem type 2
    - Relating multiplication and division facts
    - Fact families for multiplication and division
  - Word Problems Involving Division (3 topics)
    - Word problem with division of whole numbers
    - Word problem with multiplication or division of whole numbers
    - Word problem with multiplication and addition or subtraction of whole numbers
  - Dividing Two-Digit Dividends (5 topics)
    - Division without regrouping
    - Division with regrouping: 1-digit divisor, 2-digit dividend
    - Quotient with remainder: 1-digit divisor, 2-digit dividend
    - Writing a division sentence for equal groups
    - Writing a division sentence for equal groups and a remainder
  - Interpreting Remainders (2 topics)
    - Word problem on quotient and remainder
    - Word problem with division of whole numbers and rounding: Problem type 1
  - Dividing Multiples of 10, 100, and 1000 (1 topics)
    - Division with trailing zeros: Problem type 1
  - Dividing Three- and Four-Digit Dividends (5 topics)
    - Division with regrouping: 1-digit divisor, 3-digit or 4-digit dividend
    - Quotient with remainder: 1-digit divisor, 3-digit or 4-digit dividend
    - Division involving quotients with intermediate zeros: Problem type 1
    - Division involving quotients with intermediate zeros: Problem type 2
    - Division with remainder involving quotients with intermediate zeros: Problem type 1
  - Estimating Quotients (1 topics)

- Estimating a quotient
- Expressions and Equations (12 topics)
  - Patterns and Sequences (5 topics)
    - Describing an increasing or decreasing pattern from a table of values
    - Function tables with one-step rules
    - Finding the next terms of an arithmetic sequence with whole numbers
    - Finding the next terms of a geometric sequence with whole numbers
    - Finding patterns in shapes
  - Order of Operations (1 topics)
    - Introduction to parentheses
  - Evaluating and Writing Expressions (3 topics)
    - Evaluating an algebraic expression: Whole number addition or subtraction
    - Evaluating an algebraic expression: Whole number multiplication or division
    - Division of whole numbers given in fractional form
  - Solving Addition and Subtraction Equations (1 topics)
    - Additive property of equality with whole numbers
  - Solving Multiplication and Division Equations (2 topics)
    - Introduction to solving an equation with multiplication or division
    - Writing an equation and solving a multiplicative comparison word problem
- Fraction Equivalence (24 topics)
  - Prime Numbers and Factors (4 topics)
    - Even and odd numbers
    - Divisibility rules for 2, 5, and 10
    - Factors
    - Prime numbers
  - Fractions of a Whole (2 topics)
    - Introduction to unit fractions
    - Introduction to non-unit fractions
  - Equivalent Fractions (10 topics)
    - Understanding equivalent fractions: Problem type 1
    - Understanding equivalent fractions: Problem type 2
    - Modeling and writing equivalent fractions
    - Conversions involving division in fractional form and whole numbers
    - Introduction to finding equivalent fractions: Multiplying
    - Introduction to finding equivalent fractions: Dividing
    - Writing a fraction with denominator 10 as a fraction with denominator 100
    - Equivalent fractions
    - Introduction to simplifying a fraction
    - Simplifying a fraction
  - Fractions on the Number Line (2 topics)
    - Position of fractions on a number line
    - Plotting fractions using a number line
  - Ordering Fractions (3 topics)
    - Comparing fractions with the same denominator
    - Comparing fractions with the same numerator
    - Comparing fractions by finding a common denominator
  - Mixed Numbers and Improper Fractions (3 topics)
    - Writing a mixed number and an improper fraction for a shaded region
    - Writing an improper fraction as a mixed number
    - Writing a mixed number as an improper fraction
- Operations with Fractions (12 topics)
  - Adding and Subtracting Fractions with Like Denominators (4 topics)
    - Addition or subtraction of fractions with the same denominator
    - Addition or subtraction of fractions with the same denominator and simplification
    - Decomposing a fraction into a sum of fractions with the same denominator
    - Word problem involving addition or subtraction of fractions with the same denominator
  - Adding and Subtracting Mixed Numbers with Like Denominators (5 topics)
    - Addition or subtraction of mixed numbers with the same denominator

- Addition of mixed numbers with the same denominator and renaming: Problem type 1
  - Addition of mixed numbers with the same denominator and renaming: Problem type 2
  - Subtraction of mixed numbers with the same denominator and renaming: Problem type 1
  - Subtraction of mixed numbers with the same denominator and renaming: Problem type 2
- Multiplying Fractions by Whole Numbers (3 topics)
  - Product of a unit fraction and a whole number
  - Product of a fraction and a whole number: Problem type 2
  - Word problem involving multiplying a fraction and a whole number
- Fractions and Decimals (13 topics)
  - Decimal Place Value (2 topics)
    - Decimal place value: Tenths and hundredths
    - Writing a decimal number less than 1 given its name
  - Relating Fractions and Decimals (3 topics)
    - Writing a decimal and a fraction for a shaded region
    - Converting a fraction with a denominator of 10 or 100 to a decimal
    - Converting a decimal to a proper fraction without simplifying: Basic
  - Adding Tenths and Hundredths (1 topics)
    - Adding and subtracting fractions with denominators of 10 and 100
  - Decimals on the Number Line (2 topics)
    - Reading decimal position on a number line: Tenths
    - Reading decimal position on a number line: Hundredths
  - Ordering Decimals (1 topics)
    - Introduction to ordering decimals
  - Addition and Subtraction with Money (4 topics)
    - Finding the value of a collection of coins
    - Finding the value of a collection of bills and coins
    - Addition with money
    - Subtraction with money
- Measurement (20 topics)
  - Measuring with U.S. Customary Units (3 topics)
    - Choosing U.S. Customary measurement units
    - Measuring length to the nearest inch
    - Measuring length to the nearest quarter or half inch
  - Converting with U.S. Customary Units of Length (1 topics)
    - Conversion table with U.S. Customary length
  - Converting with U.S. Customary Units of Volume and Weight (2 topics)
    - Conversion table with U.S. Customary weight
    - Conversion table with U.S. Customary volume
  - Measuring with Metric Units (4 topics)
    - Choosing metric measurement units
    - Measuring length to the nearest centimeter
    - Word problem involving metric mass or volume: Addition or subtraction
    - Word problem involving metric mass or volume: Multiplication or division
  - Converting with Metric Units (2 topics)
    - Conversion table with metric distance
    - Conversion table with metric mass or volume
  - Measurements of Time (5 topics)
    - Word problem involving adding or subtracting time within the hour
    - Introduction to adding time
    - Word problem on elapsed time within the hour
    - Word problem on elapsed time less than one hour
    - Word problem on elapsed time more than one hour
  - Line Plots (3 topics)
    - Interpreting a tally table
    - Constructing a line plot
    - Constructing a line plot with fractional values: Fourths
- Perimeter and Area (11 topics)

- Perimeter (4 topics)
  - Perimeter of a polygon
  - Perimeter of a rectangle on a grid
  - Perimeter of a square or a rectangle
  - Finding the missing length in a figure
- Applications Involving Perimeter (1 topics)
  - Word problem on finding the perimeter of a rectangle
- Area of Rectangles (2 topics)
  - Relating the area of a rectangle to multiplying its side lengths
  - Area of a rectangle with two-digit by one-digit side lengths
- Applications Involving Area (1 topics)
  - Word problem involving the area of a rectangle: Problem type 1
- Area of Composite Figures (3 topics)
  - Finding the area of a composite figure on a grid
  - Introduction to area of a piecewise rectangular figure
  - Word problem on finding the area of a piecewise rectangular figure
- Geometry (13 topics)
  - Segments, Rays, and Lines (1 topics)
    - Naming segments, rays, and lines
  - Parallel and Perpendicular Lines (1 topics)
    - Identifying parallel and perpendicular lines
  - Classifying and Measuring Angles (4 topics)
    - Classifying angles as smaller than right, right, larger than right
    - Acute, obtuse, and right angles
    - Measuring an angle with the protractor
    - Drawing an angle with the protractor
  - Finding Angle Measures (2 topics)
    - Introduction to angle addition
    - Finding an angle measure in a figure with a right or straight angle
  - Classifying Triangles (2 topics)
    - Acute, obtuse, and right triangles
    - Classifying scalene, isosceles, and equilateral triangles by side lengths
  - Quadrilaterals (2 topics)
    - Shared attributes among categories of quadrilaterals
    - Identifying parallelograms, rectangles, and squares
  - Symmetry and Transformations (1 topics)
    - Drawing lines of symmetry
- Other Topics Available(\*) (153 additional topics)
  - Whole Number Place Value, Addition, and Subtraction (3 topics)
    - Numeral translation: Problem type 2
    - Addition or subtraction with 10 or 100
    - Addition or subtraction with 10, 100, or 1000
  - Multiplying Whole Numbers (6 topics)
    - Using addition and multiplication to count the objects on a grid
    - Using an area model to represent the distributive property
    - Comparing a numerical expression with a number
    - Multiplication of large numbers
    - Multiplication with trailing zeros: Problem type 2
    - Writing a multiplication shown in a picture
  - Dividing Whole Numbers (10 topics)
    - Writing a division shown in a picture
    - Whole number division: 2-digit by 2-digit, no remainder
    - Filling in missing operations to make an equation
    - Division with remainder involving quotients with intermediate zeros: Problem type 2
    - Division with trailing zeros: Problem type 2
    - Whole number division: 3-digit by 2-digit, no remainder
    - Division with no remainder and a two-digit divisor: Problem type 2

- Division with remainder and a two-digit divisor: Problem type 1
- Division with remainder and a two-digit divisor: Problem type 2
- Word problem with division of whole numbers and rounding: Problem type 2
- Expressions and Equations (15 topics)
  - Introduction to order of operations
  - Introduction to the distributive property
  - Understanding the distributive property
  - Order of operations with whole numbers
  - Order of operations with whole numbers and grouping symbols
  - Comparing numerical expressions with parentheses
  - Evaluating an algebraic expression: Whole numbers with two operations
  - Evaluating a formula
  - Writing a one-step expression for a real-world situation
  - Translating a phrase into a one-step expression
  - Identifying solutions to a one-step linear equation: Problem type 1
  - Identifying solutions to a one-step linear equation: Problem type 2
  - Multiplicative property of equality with whole numbers
  - Translating a sentence into a one-step equation
  - Writing a function rule given a table of ordered pairs: One-step rules
- Fraction Equivalence (6 topics)
  - Divisibility rules for 3 and 9
  - Prime factorization
  - Greatest common factor of 2 numbers
  - Least common multiple of 2 numbers
  - Position of mixed numbers on a number line
  - Plotting mixed numbers on a number line
- Operations with Fractions (9 topics)
  - Product of a fraction and a whole number: Problem type 1
  - Multiplying a mixed number and a whole number: Problem type 1
  - Multiplying a mixed number and a whole number: Problem type 2
  - Finding the LCD of two fractions
  - Writing unit fractions with a common denominator to add or subtract
  - Writing fractions with a common denominator to add or subtract
  - Addition or subtraction of fractions with different denominators
  - Word problem involving addition or subtraction of fractions with different denominators
  - Fractional part of a circle
- Fractions and Decimals (24 topics)
  - Decimal place value: Hundreds to ten thousandths
  - Writing a decimal number greater than 1 given its name
  - Writing a decimal number given its name: Advanced
  - Converting a fraction with a denominator of 100 or 1000 to a decimal
  - Converting a decimal to a proper fraction in simplest form: Basic
  - Converting a decimal to a proper fraction without simplifying: Advanced
  - Converting a decimal to a proper fraction in simplest form: Advanced
  - Converting a decimal to a mixed number and an improper fraction without simplifying
  - Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
  - Understanding decimal position on a number line using zoom: Hundredths
  - Understanding decimal position on a number line using zoom: Thousandths
  - Ordering decimals
  - Addition of decimals: Vertically aligned
  - Decimal addition with 2 numbers
  - Decimal addition with 3 numbers
  - Word problem with addition of 3 or 4 decimals and whole numbers
  - Subtraction of aligned decimals
  - Decimal subtraction: Basic
  - Decimal subtraction: Advanced
  - Word problem with addition or subtraction of 2 decimals
  - Word problem with subtraction of a whole number and a decimal: Regrouping with zeros
  - Rounding decimals
  - Estimating a decimal sum or difference
  - Using a calculator to convert a fraction to a rounded decimal
- Measurement (19 topics)
  - Choosing a measuring tool
  - U.S. Customary length conversion with whole number values
  - Conversions involving measurements in feet and inches
  - Adding measurements in feet and inches
  - U.S. Customary volume conversion with whole number values
  - U.S. Customary weight conversions with whole number values
  - U.S. Customary unit conversion with whole number values: Two-step conversion

- U.S. Customary unit conversion with mixed number values: One-step conversion
- U.S. Customary unit conversion with mixed number values: Two-step conversion
- Measuring length to the nearest millimeter
- Metric distance conversion with whole number values
- Metric mass or volume conversion with whole number values
- Time unit conversion with whole number values
- Telling time: Minutes are a multiple of 5
- Telling time: Minutes are not a multiple of 5
- Telling time and determining a.m. or p.m.
- Adding time
- Word problem on elapsed times crossing a.m. and p.m.
- Reading a calendar
  
- Perimeter and Area (14 topics)
  - Perimeter of a piecewise rectangular figure
  - Finding an unknown side length of a polygon given the perimeter
  - Sides of polygons having the same perimeter
  - Estimates and exact answers
  - Area of a piecewise rectangular figure
  - Areas of rectangles with the same perimeter
  - Distinguishing between the area and perimeter of a rectangle
  - Classifying solids
  - Vertices, edges, and faces of a solid
  - Nets of solids
  - Counting the cubes in a solid made of cubes
  - Side views of a solid made of cubes
  - Volume of a rectangular prism made of unit cubes
  - Volume of a rectangular prism
  
- Geometry (15 topics)
  - Introduction to a circle: Diameter, radius, and chord
  - Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
  - Finding an angle measure of a triangle given two angles
  - Naming polygons
  - Properties of quadrilaterals
  - Reading a point in quadrant 1
  - Plotting a point in quadrant 1
  - Graphing whole number functions
  - Function tables with two-step rules
  - Graphing a line in quadrant 1
  - Identifying congruent shapes on a grid
  - Identifying similar or congruent shapes on a grid
  - Introduction to translations
  - Introduction to reflections
  - Identifying transformations
  
- Data, Graphs, and Probability (32 topics)
  - Introduction to interpreting a pictograph
  - Interpreting a pictograph table
  - Constructing a bar graph for non-numerical data
  - Interpreting a bar graph
  - Interpreting a double bar graph
  - Constructing a histogram for numerical data
  - Interpreting a line graph
  - Mode of a data set
  - Finding the mode and range of a data set
  - Finding the mode and range from a line plot
  - Average of two numbers
  - Mean of a data set
  - Mean and median of a data set
  - Finding outliers in a data set
  - Interpreting a stem-and-leaf plot
  - Interpreting a Venn diagram of 2 sets
  - Interpreting a tree diagram
  - Introduction to the counting principle
  - Classifying likelihood
  - Introduction to the probability of an event
  - Probability of an event
  - Understanding likelihood
  - Converting a fraction with a denominator of 100 to a percentage
  - Converting a percentage to a fraction with a denominator of 100
  - Finding the percentage of a grid that is shaded
  - Introduction to converting a percentage to a decimal
  - Introduction to converting a decimal to a percentage



- Plotting integers on a number line
- Ordering integers
- Reading a positive temperature from a thermometer
- Reading the temperature from a thermometer
- Writing a signed number for a real-world situation

**\*Other Topics Available** By default, these topics are NOT included in the course, but can be added using the content editor in the Teacher Module.

**QuickTables** ALEKS QuickTables is a research-based, math fact mastery program for multiplication, division, addition, and subtraction for grades 3 and up. The online program offers ongoing assessment, learning, review, and visual tracking of student progress.