

Essential Math Skills for Business

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 (220 topics + 12 additional topics)

- Integers (18 topics)
 - Rounding and Estimating (5 topics)
 - Rounding to tens or hundreds
 - Rounding to thousands, ten thousands, or hundred thousands
 - Estimating a sum of whole numbers: Problem type 2
 - Estimating a difference of whole numbers: Problem type 2
 - Estimating a product or quotient of whole numbers
 - Order of Operations and Parentheses (5 topics)
 - Introduction to parentheses
 - Order of operations with whole numbers
 - Order of operations with whole numbers and grouping symbols
 - Evaluating an algebraic expression: Whole numbers with two operations
 - Understanding the distributive property
 - Integers (5 topics)
 - Plotting integers on a number line
 - Integer addition: Problem type 1
 - Integer addition: Problem type 2
 - Integer subtraction
 - Integer multiplication and division
 - Factors and Multiples (3 topics)
 - Factors
 - Greatest common factor of 2 numbers
 - Least common multiple of 2 numbers
- Rational Numbers (40 topics)
 - Equivalent Fractions (4 topics)
 - Introduction to fractions
 - Understanding equivalent fractions
 - Equivalent fractions
 - Simplifying a fraction
 - Operations with Fractions (11 topics)
 - Addition or subtraction of fractions with the same denominator
 - Addition or subtraction of fractions with different denominators
 - Signed fraction addition or subtraction: Advanced
 - The reciprocal of a number
 - Product of a unit fraction and a whole number
 - Unit fraction multiplication
 - Product of a fraction and a whole number: Problem type 1
 - Fraction multiplication
 - Multi-step word problem involving fractions and multiplication
 - Fraction division
 - Signed fraction multiplication: Advanced
 - Mixed Numbers (5 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
 - Plotting fractions on a number line
 - Plotting rational numbers on a number line
 - Decimal Place Value (2 topics)
 - Decimal place value: Hundreds to ten thousandths
 - Rounding decimals
 - Conversion between Fractions and Decimals (4 topics)
 - Converting a fraction with a denominator of 10, 100, or 1000 to a decimal
 - Converting a decimal to a proper fraction in simplest form: Advanced

- Converting a fraction to a terminating decimal
- Converting a fraction to a repeating decimal
- Operations with Decimals (14 topics)
 - Addition of aligned decimals
 - Subtraction of aligned decimals
 - Word problem with one decimal operation: Problem type 1
 - Word problem with one decimal operation: Problem type 2
 - Signed decimal addition and subtraction with 3 numbers
 - Multiplication of a decimal by a power of ten
 - Multiplying a decimal by a whole number
 - Decimal multiplication: Problem type 1
 - Word problem with powers of ten
 - Word problem with decimal addition and multiplication
 - Division of a decimal by a power of ten
 - Division of a decimal by a whole number
 - Division of a decimal by a 2-digit decimal
 - Word problem with decimal subtraction and division
- Percentages and Proportions (22 topics)
 - Percentages (9 topics)
 - Finding the percentage of a grid that is shaded
 - Converting between percentages and decimals
 - Converting a percentage to a fraction in simplest form
 - Converting a fraction to a percentage: Denominator of 20, 25, or 50
 - Finding a percentage of a whole number without a calculator: Basic
 - Writing a ratio as a percentage without a calculator
 - Finding the sale price without a calculator given the original price and percent discount
 - Finding the original price given the sale price and percent discount
 - Finding the percentage increase or decrease: Advanced
 - Proportions (8 topics)
 - Writing ratios for real-world situations
 - Word problem on unit rates associated with ratios of whole numbers: Decimal answers
 - Solving a word problem involving rates and time conversion
 - Solving a proportion of the form $x/a = b/c$
 - Solving a proportion of the form $a/(x+b) = c/x$
 - Solving a word problem on proportions using a unit rate
 - Word problem on proportions: Problem type 1
 - Word problem on proportions: Problem type 2
 - Measurement (5 topics)
 - Metric distance conversion with whole number values
 - Metric mass or volume conversion with whole number values
 - Metric distance conversion with decimal values
 - Metric conversion with decimal values: Two-step problem
 - Metric area unit conversion with decimal values
- Basic Algebraic Operations (38 topics)
 - Variable Expressions (7 topics)
 - Evaluating a linear expression: Integer multiplication with addition or subtraction
 - Evaluating a quadratic expression: Integers
 - Distributive property: Whole number coefficients
 - Distributive property: Integer coefficients
 - Combining like terms: Integer coefficients
 - Combining like terms: Advanced
 - Writing a one-step variable expression for a real-world situation
 - Exponents (15 topics)
 - Introduction to exponents
 - Power of 10: Positive exponent
 - Power of 10: Negative exponent
 - Evaluating expressions with exponents: Problem type 1
 - Evaluating expressions with exponents: Problem type 2
 - Order of operations with integers and exponents
 - Introduction to the product rule of exponents
 - Quotient of expressions involving exponents
 - Evaluating an expression with a negative exponent: Positive fraction base
 - Evaluating an expression with a negative exponent: Negative integer base
 - Power rules with positive exponents
 - Power of a power rule with negative exponents
 - Ordering numbers with positive exponents
 - Scientific notation with a positive exponent

- Scientific notation with a negative exponent
- Polynomials (6 topics)
 - Simplifying a sum or difference of three univariate polynomials
 - Greatest common factor of two multivariate monomials
 - Product rule with positive exponents: Multivariate
 - Multiplying binomials with leading coefficients of 1
 - Squaring a binomial: Univariate
 - Multiplication involving binomials and trinomials in two variables
- Rational Expressions (3 topics)
 - Multiplying rational expressions involving multivariate monomials
 - Dividing rational expressions involving multivariate monomials
 - Complex fraction involving multivariate monomials
- Square Roots and Fractional Exponents (7 topics)
 - Square root of a perfect square
 - Square root of a rational perfect square
 - Estimating a square root
 - Simplifying the square root of a whole number less than 100
 - Cube root of an integer
 - Converting between radical form and exponent form
 - Rational exponents: Non-unit fraction exponent with a whole number base
- Linear Equations (26 topics)
 - Additive and Multiplicative Properties of Equality (7 topics)
 - Additive property of equality with whole numbers
 - Additive property of equality with decimals
 - Additive property of equality with fractions and mixed numbers
 - Additive property of equality with integers
 - Additive property of equality with a negative coefficient
 - Multiplicative property of equality with whole numbers
 - Multiplicative property of equality with signed fractions
 - Solving Linear Equations (7 topics)
 - Solving a two-step equation with integers
 - Solving a two-step equation with signed fractions
 - Solving an equation to find the value of an expression
 - Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
 - Solving a linear equation with several occurrences of the variable: Variables on both sides and fractional coefficients
 - Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
 - Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
 - Applications of Linear Equations (6 topics)
 - Translating a sentence into a one-step equation
 - Solving a fraction word problem using a linear equation of the form $Ax = B$
 - Solving a word problem with two unknowns using a linear equation
 - Solving a decimal word problem using a linear equation with the variable on both sides
 - Solving a decimal word problem using a linear equation of the form $Ax + B = C$
 - Solving a fraction word problem using a linear equation with the variable on both sides
 - Systems of Linear Equations (6 topics)
 - Solving a system of linear equations using elimination with multiplication and addition
 - Solving a word problem involving a sum and another basic relationship using a system of linear equations
 - Solving a value mixture problem using a system of linear equations
 - Solving a distance, rate, time problem using a system of linear equations
 - Solving a percent mixture problem using a system of linear equations
 - Solving a tax rate or interest rate problem using a system of linear equations
- Functions and Graphs (33 topics)
 - Introduction to Functions (4 topics)
 - Table for a linear function
 - Graphing integer functions
 - Domain and range from ordered pairs
 - Vertical line test
 - Graphs of Linear Functions (9 topics)
 - Reading a point in the coordinate plane
 - Plotting a point in the coordinate plane
 - Graphing a line given its x- and y-intercepts
 - Graphing a line given its equation in slope-intercept form
 - Graphing a line given its equation in standard form
 - Graphing a line through a given point with a given slope

- Graphing a vertical or horizontal line
- Writing an equation and drawing its graph to model a real-world situation: Advanced
- Graphically solving a system of linear equations
- Properties of Lines (15 topics)
 - Finding a solution to a linear equation in two variables
 - Determining whether given points lie on one, both, or neither of 2 lines given equations
 - Finding the y-intercept of a line given its equation
 - Finding x- and y-intercepts of a line given the equation: Advanced
 - Finding the slope of a line given its equation
 - Determining the slope of a line given its graph
 - Writing the equation of a line given the y-intercept and another point
 - Writing the equation of a line given the slope and a point on the line
 - Writing the equation of a line through two given points
 - Writing the equations of vertical and horizontal lines through a given point
 - Application problem with a linear function: Finding a coordinate given the slope and a point
 - Application problem with a linear function: Finding a coordinate given two points
 - Finding slopes of lines parallel and perpendicular to a line given in the form $Ax + By = C$
 - Writing equations of lines parallel and perpendicular to a given line through a point
 - Interpreting the graphs of two functions
- Parabolas (5 topics)
 - Finding the x-intercept(s) and the vertex of a parabola
 - Graphing a parabola of the form $y = ax^2$
 - Graphing a parabola of the form $y = (x-h)^2 + k$
 - Graphing a parabola of the form $y = ax^2 + bx + c$
 - Graphing a cubic function of the form $y = ax^3$
- Financial Mathematics (18 topics)
 - Ratio Analysis (1 topics)
 - Financial ratio analysis
 - Markups and Markdowns (8 topics)
 - Single trade discounts and net price
 - Markup based on cost or selling price
 - Markup based on cost: Finding the selling price
 - Markup based on cost: Finding the cost
 - Markup based on selling price: Finding the selling price
 - Markup based on selling price: Finding the cost
 - Markdown
 - Gross pay with commission and salary
 - Simple Interest (2 topics)
 - Simple interest and maturity value
 - Solving for principal, rate, or time in simple interest problems
 - Compound Interest and Present Value (4 topics)
 - Computing compound interest with the simple interest formula
 - Compound interest for daily compounding
 - Compound interest for annual, semiannual, and quarterly compounding
 - Present value tables
 - Annuities and Sinking Funds (3 topics)
 - Ordinary annuity
 - Present value of an ordinary annuity
 - Sinking funds
- Basic Statistics (25 topics)
 - Visual Representation of Data (9 topics)
 - Interpreting a line graph
 - Interpreting a pie chart
 - Computations from pie charts
 - Interpreting a double bar graph
 - Histograms for grouped data
 - Frequency polygons for grouped data
 - Interpreting relative frequency histograms
 - Cumulative distributions and ogives
 - Comparing means without calculation
 - Descriptive Measures (7 topics)
 - Mean, median, and mode: Computations
 - Rejecting unreasonable claims based on average statistics

- Weighted mean: Tabular data
- Approximating the mean of a data set given a histogram
- Percentiles
- Mean, median, and mode: Comparisons
- Making reasonable inferences based on proportion statistics
- Introduction to Probability (9 topics)
 - Venn diagrams: Two events
 - Shading a Venn diagram with 3 sets to represent a group
 - Outcomes and event probability
 - Probabilities involving two rolls of a die: Decimal answers
 - Word problem involving the probability of a union or an intersection
 - Probability of the union and intersection of independent events
 - Probability of the union of mutually exclusive events and independent events
 - Probabilities involving two mutually exclusive events
 - Probability of independent events: Decimal answers
- Other Topics Available(*) (12 additional topics)
 - Basic Algebraic Operations (3 topics)
 - Converting between logarithmic and exponential equations
 - Evaluating a logarithmic expression
 - Basic properties of logarithms
 - Basic Statistics (9 topics)
 - Comparing standard deviations without calculation
 - Population standard deviation
 - Sample standard deviation
 - Approximating the standard deviation of a data set given a histogram
 - Calculating relative frequencies in a contingency table
 - Conditional probability: Basic
 - Probability of dependent events
 - Intersection and conditional probability
 - Tree diagrams for conditional probabilities

***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.