Florida Adult Basic Education

# Mathematics - Level 3

**Number Sense and Operations** MA.L3.NSO

**1a Understand the place value of multi-digit numbers.** MA.L3.NSO.1A

1 Express how the value of a digit in a multi-digit whole number changes if the digit moves one place to the left or right. MA.L3.NSO.1A.1

2 Read and write multi-digit whole numbers from 0 to 1,000,000 using standard form, expanded form, and word form. MA.L3.NSO.1A.2

3 Plot, order, and compare multi-digit whole numbers up to 1,000,000. MA.L3.NSO.1A.3

4 Round whole numbers from 0 to 10,000 to the nearest 10,100 or 1,000. MA.L3.NSO.1A.4

5 Plot, order, and compare decimals up to the hundredths. MA.L3.NSO.1A.5

**1b Understand the place value of multi-digit numbers with decimals to the thousandths place.** MA.L3.NSO.1B

1 Express how the value of a digit in a multi-digit number with decimals to the thousandths changes if the digit moves one or more places to the left or right. MA.L3.NSO.1B.1

2 Read and write multi-digit numbers with decimals to the thousandths using standard form, word form, and expanded form. MA.L3.NSO.1B.2

3 Compose and decompose multi-digit numbers with decimals to the thousandths in multiple ways using the values of the digits in each place. Demonstrate the compositions or decompositions using objects, drawings, and expressions or equations. MA.L3.NSO.1B.3

**1c Rewrite numbers in equivalent forms.** MA.L3.NSO.1C

1 Know and apply the Laws of Exponents to evaluate numerical expressions and generate equivalent numerical expressions, limited to whole-number exponents. MA.L3.NSO.1C.1

**2a Build understanding of operations with multi-digit numbers including decimals.** MA.L3.NSO.2A

1 Recall multiplication facts with factors up to 12 and related division facts with automaticity. MA.L3.NSO.2A.1

2 Multiply two whole numbers, up to three digits by up to two digits, with procedural reliability. MA.L3.NSO.2A.2

Skip to main content

3 Multiply two whole numbers, each up to two digits, including using a standard algorithm with procedural fluency. MA.L3.NSO.2A.3

4 Divide a whole number up to four digits by a one-digit whole number with procedural reliability. Represent remainders as fractional parts of the divisor. MA.L3.NSO.2A.4

5 Explore the multiplication and division of multi-digit whole numbers using estimation, rounding, and place value. MA.L3.NSO.2A.5

6 Identify the number that is one-tenth more, one-tenth less, one-hundredth more, and one-hundredth less than a given number. MA.L3.NSO.2A.6

7 Explore the addition and subtraction of multi-digit numbers with decimals to the hundredths. MA.L3.NSO.2A.7

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**2b Add, subtract, multiply and divide multi-digit numbers.** MA.L3.NSO.2B

1 Multiply multi-digit whole numbers, including using a standard algorithm with procedural fluency. MA.L3.NSO.2B.1

2 Divide multi-digit whole numbers, up to five digits by two digits, including using a standard algorithm with procedural fluency. Represent remainders as fractions MA.L3.NSO.2B.2

3 Add and subtract multi-digit numbers with decimals to the thousandths, including using a standard algorithm with procedural fluency MA.L3.NSO.2B.3

4 Explore the multiplication and division of multi-digit numbers with decimals to the hundredths using estimation, rounding, and place value. MA.L3.NSO.2B.4

5 Multiply and divide a multi-digit number with decimals to the tenths by one tenth and one-hundredth with procedural reliability MA.L3.NSO.2B.5

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**3 Apply properties of operations to rewrite numbers in equivalent forms.** MA.L3.NSO.3

1 Given a mathematical or real-world context, find the greatest common factor and least common multiple of two whole numbers. MA.L3.NSO.3.1

2 Rewrite the sum of two composite whole numbers having a common factor as a common factor multiplied by the sum of two whole numbers. MA.L3.NSO.3.2

3 Express composite whole numbers as a product of prime factors with natural number exponents. MA.L3.NSO.3.3

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## Fractions MA.L3.FR

**1a Develop an understanding of the relationship between different fractions and the relationship between fractions and decimals.** MA.L3.FR.1A

1 Model and express a fraction, including mixed numbers and fractions greater than one, with the denominator 10 as an equivalent fraction with the denominator 100. MA.L3.FR.1A.1

2 Use decimal notation to represent fractions with denominators of 10 or 100, including mixed numbers and fractions greater than 1, and use fractional notation with denominators of 10 or 100 to represent decimals. MA.L3.FR.1A.2

3 Identify and generate equivalent fractions, including fractions greater than one. Describe how the numerator and denominator are affected when the equivalent fraction is created. MA.L3.FR.1A.3

Skip to main content

4 Plot, order, and compare fractions, including mixed numbers and fractions greater than one, with different numerators and different denominators. MA.L3.FR.1A.4

**1b Interpret a fraction as an answer to a division problem.** MA.L3.FR.1B

1 Given a mathematical or real-world problem, represent the division of two whole numbers as a fraction. MA.L3.FR.1B.1

**2a Build a foundation of addition, subtraction and multiplication operations with fractions.** MA.L3.FR.2A

1 Decompose a fraction, including mixed numbers and fractions greater than one, into a sum of fractions with the same denominator in multiple ways. Demonstrate each decomposition with objects, drawings, and equations. MA.L3.FR.2A.1

2 Add and subtract fractions with like denominators, including mixed numbers and fractions greater than one, with procedural reliability. MA.L3.FR.2A.2

3 Explore the addition of a fraction with denominator of 10 to a fraction with denominator of 100 using equivalent fractions. MA.L3.FR.2A.3

4 Extend previous understanding of multiplication to explore the multiplication of a fraction by a whole number or a whole number by a fraction. MA.L3.FR.2A.4

**2b Perform operations with fractions.** MA.L3.FR.2B

1 Extend previous understanding of multiplication to multiply a fraction by a fraction, including mixed numbers and fractions greater than 1, with procedural reliability. MA.L3.FR.2B.1

2 When multiplying a given number by a fraction less than 1 or a fraction greater than 1, predict and explain the relative size of the product to the given number without calculating. MA.L3.FR.2B.2

3 Extend previous understanding of division to explore the division of a unit fraction by a whole number and a whole number by a unit fraction. MA.L3.FR.2B.3

## Algebraic Reasoning MA.L3.AR

**1 Represent and solve problems involving the four operations with whole numbers and fractions.** MA.L3.AR.1

1 Solve real-world problems involving addition and subtraction of fractions with like denominators, including mixed numbers and fractions greater than one. MA.L3.AR.1.1

2 Solve real-world problems involving multiplication of a fraction by a whole number or a whole number by a fraction. MA.L3.AR.1.2

3 Solve multi-step real-world problems involving any combination of the four operations with whole numbers, including problems in which remainders must be interpreted within the context. MA.L3.AR.1.3

4 Solve real-world problems involving the addition, subtraction, or multiplication of fractions, including mixed numbers and fractions greater than 1. MA.L3.AR.1.4

Skip to main content

Solve real-world problems involving division of a unit fraction by a whole number and a whole number by a unit fraction. MA.L3.AR.1.5

**2 Demonstrate an understanding of equality, operations with whole numbers, the order of operations and equivalent numerical expressions.** MA.L3.AR.2

1. Determine and explain whether an equation involving any of the four operations with whole numbers is true or false. MA.L3.AR.2.1
2. Given a mathematical or real-world context, write an equation involving multiplication or division to determine the unknown whole number with the unknown in any position. MA.L3.AR.2.2
3. Translate written real-world and mathematical descriptions into numerical expressions and numerical expressions into written mathematical descriptions. MA.L3.AR.2.3
4. Evaluate multi-step numerical expressions using order of operations. MA.L3.AR.2.4
5. Determine and explain whether an equation involving any of the four operations is true or false. MA.L3.AR.2.5
6. Given a mathematical or real-world context, write an equation involving any of the four operations to determine the unknown whole number with the unknown in any position. MA.L3.AR.2.6

**3a Recognize numerical patterns, including patterns that follow a given rule.**

1. Determine factor pairs for a whole number from 0 to 144. Determine whether a whole number from 0 to 144 is prime, composite, or neither. MA.L3.AR.3A.1
2. Generate, describe, and extend a numerical pattern that follows a given rule. MA.L3.AR.3A.2

**3b Analyze patterns and relationships between inputs and outputs.** MA.L3.AR.3B

1. Given a numerical pattern, identify and write a rule that can describe the pattern as an expression. MA.L3.AR.3B.1
2. Given a rule for a numerical pattern, use a two-column table to record the inputs and outputs. MA.L3.AR.3B.2

## Measurement MA.L3.M

**1 Measure the length of objects and solve multi-step problems involving measurement and conversions between units.** MA.L3.M.1

1. Select and use appropriate tools to measure attributes of objects. MA.L3.M.1.1
2. Convert within a single system of measurement using the units: yards, feet, inches; kilometers, meters, centimeters, millimeters; pounds, ounces; kilograms, grams; gallons, quarts, pints, cups; liter, milliliter; and hours, minutes, seconds. MA.L3.M.1.2
3. Solve multi-step real-world problems that involve converting measurement units to equivalent measurements within a single system of measurement. MA.L3.M.1.3

**2 Solve problems involving time and money.** MA.L3.M.2

Solve two-step real-world problems involving distances and intervals of time using any combination of the four operations. MA.L3.M.2.1

Skip to main content

2 Solve one- and two-step addition and subtraction real-world problems involving money using decimal notation. MA.L3.M.2.2

3 Solve multi-step real-world problems involving money using decimal notation. MA.L3.M.2.3

## Geometric Reasoning MA.L3.GR

### 1a Draw, classify and measure angles. MA.L3.GR.1A

1 Identify and classify angles as acute, right, obtuse, straight, or reflex. MA.L3.GR.1A.1

2 Estimate angle measures. Using a protractor, measure angles in whole-number degrees and draw angles of specified measure in whole-number degrees. Demonstrate that angle measure is additive. MA.L3.GR.1A.2

3 Solve real-world and mathematical problems involving unknown whole number angle measures. Write an equation to represent the unknown. MA.L3.GR.1A.3

### 1b Classify two-dimensional figures and three-dimensional figures based on defining attributes. MA.L3.GR.1B

1 Classify triangles or quadrilaterals into different categories based on shared defining attributes. Explain why a triangle or quadrilateral would or would not belong to a category. MA.L3.GR.1B.1

2 Identify and classify three-dimensional figures into categories based on their defining attributes. Figures are limited to right pyramids, right prisms, right circular cylinders, right circular cones, and spheres. MA.L3.GR.1B.2

### 2 Solve problems involving the perimeter and area of rectangles. MA.L3.GR.2

1 Solve perimeter and area mathematical and real-world problems, including problems with unknown sides, for rectangles with whole-number side lengths. MA.L3.GR.2.1

2 Solve problems involving rectangles with the same perimeter and different areas or with the same area and different perimeters. MA.L3.GR.2.2

3 Find the perimeter and area of a rectangle with fractional or decimal side lengths using visual models and formulas. MA.L3.GR.2.3

### 3 Solve problems involving the volume of right rectangular prisms. MA.L3.GR.3

1 Explore volume as an attribute of three-dimensional figures by packing them with unit cubes without gaps. Find the volume of a right rectangular prism with whole-number side lengths by counting unit cubes. MA.L3.GR.3.1

2 Find the volume of a right rectangular prism with whole-number side lengths using a visual model and a formula. MA.L3.GR.3.2

3 Solve real-world problems involving the volume of right rectangular prisms, including problems with an unknown edge length, with whole-number edge lengths using a visual model or a formula. Write an equation with a variable for the unknown to represent the problem. MA.L3.GR.3.3

Skip to main content

### 4 Plot points and represent problems on the coordinate plane. MA.L3.GR.4

1. Identify the origin and axes in the coordinate system. Plot and label ordered pairs in the first quadrant of the coordinate plane. MA.L3.GR.4.1
2. Represent mathematical and real-world problems by plotting points in the first quadrant of the coordinate plane and interpret coordinate values of points in the context of the situation. MA.L3.GR.4.2
3. Solve mathematical and real-world problems by plotting points on a coordinate plane, including finding the perimeter or area of a rectangle. MA.L3.GR.4.3

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**Data and Probability** MA.L3.DP

1. **Collect and represent data and find the mean, mode, median or range of a data set.** MA.L3.DP.1
    1. Develop an understanding of statistics and determine measures of center and measures of variability. MA.L3.DP.1.1
    2. Recognize and formulate a statistical question that would generate numerical data. MA.L3.DP.1.2
    3. Discuss a set of data collected to answer a statistical questions as a distribution which can be described by its center, spread, and overall shape MA.L3.DP.1 3
    4. Collect and represent numerical data, including fractional and decimal values, using tables, stem-and-leaf plots, line plots, or line graphs MA.L3.DP.1.4
    5. Create box plots and histograms to represent sets of numerical data within real world contexts. MA.L3.DP.1.5
    6. Given a real-world scenario, solve problems involving numerical data and determine and describe how changes in data values impact measures of center and variation. MA.L3.DP.1.6