

IDAHO CONTENT STANDARDS GRADE 7 MATHEMATICS

Cognitive level codes:

- B: Memorize
- C: Perform procedures
- D: Demonstrate understanding
- E: Conjecture, generalize, prove
- F: Solve non-routine problems, make connections

Calculator codes:

- CN: “calculator neutral.” Having or not having a calculator on this item will not affect students’ ability to demonstrate proficiency on this objective.
- YES: calculator MUST be available in order for the student to demonstrate proficiency on this objective.
- NO: student MUST NOT have a calculator while completing this item in order to assess this objective.
- CR: “calculator recommended.” For all items not assessing computation or estimation, calculator availability is recommended.

Shaded objectives should be assessed in the classroom, but not included on the ISAT assessment.

Standard 1: Number and Operation

Goals:	Objective 1	Objective 2	Objective 3	Objective 4	Objective 5	Objective 6	Objective 7	Objective 8
Goal 1.1: Understand and use numbers.	<p>7.M.1.1.1 Compare magnitudes and relative magnitudes of rational numbers, including integers, fractions, and decimals. (327.01.a , 327.01.c)</p> <p>CL: C, D Calc: CN Content Limit: Fraction denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, 16, 20, 25, and 100. Integers only as negative rational numbers. Decimals must be terminating. Numbers may be ordered least to greatest or greatest to least.</p>	<p>7.M.1.1.2 Solve problems requiring the conversion between simple decimals, fractions, ratios, and percents. (327.01.b)</p> <p>CL: C Calc: NO Content Limit: Fraction denominators limited to 2, 3, 4, 5, 8, 10, 20, 25, and 100.</p>	<p>7.M.1.1.3 Locate the position of rational numbers on a number line. (327.01.e)</p> <p>CL: C Calc: NO Content Limit: Fraction denominators limited to 2, 3, 4, 5, 6, 8, and 10. Decimals to thousandths place.</p>	<p>7.M.1.1.4 Rewrite multiple factors using exponents. (327.02.c)</p> <p>CL: C Calc: CN Content Limit: Factors must be whole numbers greater than 1.</p>	<p>7.M.1.1.5 Apply the number theory concepts of primes, composites, and prime factorization and find the Least Common Multiple (LCM) and the Greatest Common Factor (GCF). (327.01.d)</p> <p>CL: C Calc: CR Content Limit: Items involve no more than two numbers less than 100. Numbers are not relatively prime.</p>	<p>7.M.1.1.6 Recognize pertinent information for problem solving. (328.01.b)</p> <p>CL: C Calc: CN Content Limit: Items include more information than required to solve. Information may be given in text or table form. Data provided consistent with context of the item (e.g., a table listing start/stop times for movies).</p>	<p>7.M.1.1.7 Describe the use of integers in real-world situations.</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>	<p>7.M.1.1.8 Use appropriate vocabulary.</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>

<p>Goal 1.2: Perform computations accurately.</p>	<p>7.M.1.2.1 Recall the common equivalent fractions, decimals, and percents of halves, fourths, and tenths.</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>	<p>7.M.1.2.2 Add, subtract, multiply, and divide whole numbers, fractions and decimals; and add, multiply, and divide integers. (327.02.a, 327.02.d)</p> <p>CL: C Calc: NO Content Limit: Fraction denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, 16, 20, 25, and 100. Negative rational numbers are limited to integers. Up to three numbers and two operations. No grouping symbols. Expression must be clearly stated.</p>	<p>7.M.1.2.3 Evaluate whole numbers in exponential form.</p> <p>CL: C Calc: NO Content Limit: Exponents are limited to whole numbers 2 through 6 inclusive. Results must be less than 100.</p>	<p>7.M.1.2.4 Evaluate numerical expressions using the order of operations with whole numbers and decimals. (327.02.b)</p> <p>CL: C Calc: NO Content Limit: Operations may include addition, subtraction, multiplication, and division. Grouping symbols may be used and nested two levels at most. Decimals are limited to thousandths place.</p>	<p>7.M.1.2.5 Select and use an appropriate method of computation from mental math, paper and pencil, calculator, or a combination of the three. (327.02.e)</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>	<p>7.M.1.2.6 Use a variety of strategies including common mathematical formulas to compute problems drawn from real-life situations. (328.01.a)</p> <p>CL: C Calc: NO Content Limit: Formulas will be given in item and limited to area of a parallelogram, triangle, or circle, circumference of a circle, distance formula, simple interest formula, and volume of a rectangular prism.</p>	<p>7.M.1.2.7 Use appropriate vocabulary and notations. (327.02.f)</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>	
<p>Goal 1.3: Estimate and judge reasonableness of results.</p>	<p>7.M.1.3.1 Estimate to predict computation results. (327.03.a)</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>	<p>7.M.1.3.2 Explain when estimation is appropriate and describe the usefulness of an estimate as opposed to an exact answer. (327.03.b)</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>	<p>7.M.1.3.3 Identify whether a given estimate is an overestimate or underestimate. (327.03.c)</p> <p>CL: E Calc: NO Content Limit: Estimates will involve multiplication only.</p>	<p>7.M.1.3.4 Use a four-function calculator to solve complex grade-level problems.</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>	<p>7.M.1.3.5 Formulate conjectures and discuss why they must be or seem to be true. (328.02.c)</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>	<p>7.M.1.3.6 Use appropriate vocabulary and notations. (327.03.d)</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>		

Standard 2: Concepts and Principles of Measurement

Goals:	Objective 1	Objective 2	Objective 3	Objective 4	Objective 5	Objective 6	Objective 7
<p>Goal 2.1: Understand and use U.S. customary and metric measurements.</p>	<p>7.M.2.1.1 Select and use appropriate units and tools to make formal measurements in both systems. (329.01.a)</p> <p>CL: C Calc: YES Content Limit: Select appropriate units and tools only. Units for length are inches, feet, yards, miles, millimeters, centimeters, and meters. Units for time are seconds, minutes, hours, days, and years. Units for weight are ounces, pounds, tons, grams, and kilograms. Units for volume (capacity) are cups, quarts, gallons, milliliters, and liters. 'Use ... tools to make formal measurements' to be assessed in the classroom, not on the ISAT.</p>	<p>7.M.2.1.2 Apply estimation of measurement to real-world and content problems using standard measuring devices. (329.01.b)</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>	<p>7.M.2.1.3 Explain the differences between perimeter, area, and volume (capacity) and their measures within both systems. (329.01.c)</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>	<p>7.M.2.1.4 Given the formulas, find the perimeter, circumference, or area of triangles, circles, and quadrilaterals. (331.01.e)</p> <p>CL: C Calc: YES Content Limit: Quadrilaterals may include parallelograms and trapezoids. Diameter or radius may be given in circle problems. Radii may not be 2. A reference sheet will be available with formulas that include: perimeter and area of a rectangle; area of a triangle, trapezoid, and parallelogram; and circumference and area of a circle.</p>	<p>7.M.2.1.5 Convert units of measurement within each system. (329.01.e)</p> <p>CL: C Calc: YES Content Limit: All conversions must be within the same system of measurement: inches and feet, inches and yards, feet and yards, ounces and pounds, pounds and tons, fluid ounces and cups, cups and pints, pints and quarts, quarts and gallons, milli- and unit, centi- and unit, and kilo- and unit. Time units may include years, months, weeks, days, hours, minutes, and seconds.</p>	<p>7.M.2.1.6 Solve problems involving perimeter and area of rectangles and triangles. (329.01.d)</p> <p>CL: C Calc: YES Content Limit: Items may include shapes that are formed by a combination of two shapes.</p>	<p>7.M.2.1.7 Use appropriate vocabulary and notations. (329.01.f)</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>
<p>Goal 2.2: Apply the concepts of rates, ratios, and proportions.</p>	<p>7.M.2.2.1 Explain rates and their relationship to ratios, and use proportions to solve problems represented with a diagram. (329.02.a, 329.03.a)</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>	<p>7.M.2.2.2 Reduce rates to unit rates.</p> <p>CL: C Calc: YES Content Limit: Situations must be real-world applications such as gas mileage, speed, growth, etc. Rates given should be equivalent unit rates equal to a whole number or terminating decimal.</p>					

Goal 2.3: Apply dimensional analysis.	<p>7.M.2.3.1 Identify properly constructed dimensional analysis conversions. (329.04.a)</p> <p>CL: C, D Calc: CN Content Limit: Customary units may include inches, feet, yards, miles, ounces, pounds, cups, pints, quarts, and gallons. Metric units may include millimeters, centimeters, meters, grams, kilograms, milliliters, and liters. Time units may include years, months, weeks, days, hours, minutes, and seconds. No more than one conversion ratio and one multiplier should be used for any item (e.g., 2 hours to minutes is acceptable: $2 \times \frac{60}{1}$).</p>						
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Standard 3: Concepts and Language of Algebra and Functions

Goals:	Objective 1	Objective 2	Objective 3
Goal 3.1: Use algebraic symbolism as a tool to represent mathematical relationships.	<p>7.M.3.1.1 Use variables in simple expressions and equations. (330.01.a)</p> <p>CL: D Calc: CN Content Limit: Evaluate an expression by substituting a number for every variable in the expression. Items are limited to at most two variables at a time. Items may also check solutions to equations by substituting values for the variable(s) in an equation.</p>	<p>7.M.3.1.2 Translate simple word statements into algebraic expressions and equations. (330.01.b)</p> <p>CL: D Calc: CN Content Limit: Expressions and equations may contain at most two operations and may require at most one grouping symbol. May contain one or two variables.</p>	<p>7.M.3.1.3 Use symbols “<,” “>,” “=,” “≠,” “≤,” and “≥” to express relationships. (330.01.c)</p> <p>CL: D Calc: CR Content Limit: Item may include integers between –50 and 50, up to two operations, at most one grouping symbol, and exponents limited to 2 and 3. May include one variable.</p>

<p>Goal 3.2: Evaluate algebraic expressions.</p>	<p>7.M.3.2.1 Evaluate simple numeric and algebraic expressions using commutative, associative, identity, zero, inverse, distributive, and substitution properties. (330.02.a)</p> <p>CL: C Calc: NO Content Limit: Expressions may include integers between -50 and 50, up to two operations, at most one grouping symbol, and exponents limited to 2 and 3. May include one variable.</p>	<p>7.M.3.2.2 Use the order of operations in evaluating simple algebraic expressions. (330.02.b)</p> <p>CL: C Calc: NO Content Limit: Expressions may include integers between -50 and 50, up to four operations, at most two grouping symbols, and exponents limited to 2 and 3. The fraction bar may be used as a grouping symbol. May include one or two variables.</p>	
<p>Goal 3.3: Solve algebraic equations and inequalities.</p>	<p>7.M.3.3.1 Solve one-step equations. (330.03.a)</p> <p>CL: C Calc: CR Content Limit: Equations may include integers between -50 and 50. Variable may appear on left or right side of equal sign.</p>		
<p>Goal 3.4: Understand the concept of functions.</p>	<p>7.M.3.4.1 Extend patterns involving rational numbers and describe the rule that generates the pattern. (333.01.a)</p> <p>CL: E Calc: CR Content Limit: Patterns involve adding or subtracting whole numbers, decimals, or fractions. Fraction denominators limited to 2, 3, 4, 5, 6, 8, and 10. Decimals to thousandths place. Items may ask the student to extend the pattern, state the rule for the pattern, or both.</p>	<p>7.M.3.4.2 Explain how a change in one quantity impacts a change in another quantity. (333.01.b)</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>	<p>7.M.3.4.3 Use appropriate vocabulary and notations. (333.01.c)</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>
<p>Goal 3.5: Represent equations, inequalities and functions in a variety of formats.</p>	<p>7.M.3.5.1 Represent a simple set of data in a table, as a graph, and as a mathematical relationship. (333.02.a)</p> <p>CL: C Calc: CR Content Limit: Relationship must be linear. Relationship is presented as a table, graph, or equation. Equation describing relationship must include one operation. The answer options will include a table, a graph, or an equation.</p>		
<p>Goal 3.6: Apply functions to a variety of problems.</p>	<p>7.M.3.6.1 Use patterns and linear functions to represent and solve simple problems. (333.03.a)</p> <p>CL: D Calc: CR Content Limit: Patterns may include rational numbers. Linear functions are limited to whole number variable values.</p>		

Standard 4: Concepts and Principles of Geometry

Goals:	Objective 1	Objective 2	Objective 3	Objective 4	Objective 5	Objective 6	Objective 7
<p>Goal 4.1: Apply concepts of size, shape, and spatial relationships.</p>	<p>7.M.4.1.1 Classify relationships among types of one- and two-, dimensional geometric figures, using their defining properties. (331.01.a)</p> <p>CL: D Calc: CN Content Limit: Figures may include triangles and quadrilaterals. Triangles may be classified by angles (acute, equiangular, obtuse, or right) or by sides (equilateral, isosceles, or scalene) or both (e.g., an obtuse isosceles triangle). Quadrilaterals may be classified according to number and position of parallel sides as well as angle measure (square, trapezoid, parallelogram, rectangle, or rhombus).</p>	<p>7.M.4.1.2 Draw and measure various angles and shapes using appropriate tools. (331.01.b)</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>	<p>7.M.4.1.3 Apply fundamental concepts, properties, and relationships among points, lines, rays, planes, and angles. (331.01.c)</p> <p>CL: C Calc: CN Content Limit: Items may include parallel, intersecting, and perpendicular lines. Angles may include acute, right, obtuse, straight, and congruent. Symbols may include: capital letter for points, two-headed arrow above two capital letters for lines, line segment above two capital letters for line segments, one-headed arrow above two capital letters for rays, angle symbol with one capital letter or angle symbol with three capital letters for angles, and symbols for parallel, perpendicular, and right angle.</p>	<p>7.M.4.1.4 Explain and model the effects of reflections, translations, and rotations on various shapes. (331.01.g)</p> <p>CL: D, E Calc: CN Content Limit: Items are limited to identifying the effects of a single transformation. Rotations are in increments of 45°. Rotations indicate clockwise or counterclockwise. 'Explain' to be assessed in the classroom, not on the ISAT.</p>	<p>7.M.4.1.5 Identify congruence, similarities, and line symmetry of shapes. (331.01.d)</p> <p>CL: E Calc: CN Content Limit: Shapes limited to two-dimensional figures.</p>	<p>7.M.4.1.6 Describe the concept of surface area and volume (capacity). (331.01.f)</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>	<p>7.M.4.1.7 Use appropriate vocabulary and symbols. (331.01.h)</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>
<p>Goal 4.2: Apply the geometry of right triangles.</p>	<p>No objectives at this grade level.</p>						

Goal 4.3: Apply graphing in two dimensions.	7.M.4.3.1 Identify and plot points on a coordinate plane. CL: C Calc: CN Content Limit: Points may be in any of four quadrants or on an axis. Use integer coordinates.						
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Standard 5: Data Analysis, Probability, and Statistics

Goals:	Objective 1	Objective 2	Objective 3	Objective 4
Goal 5.1: Understand data analysis.	7.M.5.1.1 Read and interpret tables, charts, and graphs, including frequency tables, scatter plots, broken line graphs, line plots, bar graphs, histograms, circle graphs, and stem-and-leaf plots. (332.01.a) CL: C Calc: CR Content Limit: For scatter plots and line graphs, scales are in increments of 1, 2, 5, and 10 and are consistent on x - and y -axis. No more than one table, chart, or graph per item.	7.M.5.1.2 Explain conclusions drawn from tables, charts, and graphs. (332.01.b) CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.	7.M.5.1.3 Use appropriate vocabulary and notations. (332.01.c) CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.	
Goal 5.2: Collect, organize, and display data.	7.M.5.2.1 Collect, organize, and display data with appropriate notation in tables, charts and graphs, including scatter plots, broken line graphs, line plots, bar graphs, and stem-and-leaf plots. (332.02.a) CL: C Calc: CR Content Limit: Given data, choose a display. Displays limited to scatter plots, broken line graphs, line plots, bar graphs, and stem-and-leaf plots. 'Collect' will be assessed in the classroom, not on the ISAT.			

<p>Goal 5.3: Apply simple statistical measurements.</p>	<p>7.M.5.3.1 Determine the measures of central tendency – mean, median and mode – with sets of data. (332.03.a)</p> <p>CL: C Calc: YES Content Limit: At most ten numbers in data set. Numbers are less than 300. Data set must contain at most a single mode. Data set may have an even number of data points, but should be in numeric order.</p>	<p>7.M.5.3.2 Discuss distribution of data, including range, frequency, gaps, and clusters. (332.03.b)</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>		
<p>Goal 5.4: Understand basic concepts of probability.</p>	<p>7.M.5.4.1 Predict, perform, and record results of simple probability experiments. (332.04.a)</p> <p>CL: C, D Calc: CN Content Limit: Items using multiple trials must be done with replacement. Items may ask for the probability of a combination of outcomes (e.g., the probability of drawing a red marble or a green marble). Items may require the representation of all possible outcomes.</p>	<p>7.M.5.4.2 Recognize equally likely outcomes. (332.04.c)</p> <p>CL: C, D Calc: CN Content Limit: Item describes a familiar situation such as spinning a spinner, rolling one or two dice (does not include sum of two dice), or drawing multi-color objects from a container. Equally likely outcomes must pertain to the same event.</p>	<p>7.M.5.4.3 Explain that probability ranges from impossible to certain (0% to 100%).</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>	<p>7.M.5.4.4 Use the language of probability. (332.04.b)</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>
<p>Goal 5.5: Make predictions or decisions based on data.</p>	<p>7.M.5.5.1 Make predictions based on simple theoretical probabilities. (332.05.a)</p> <p>CL: C, E Calc: CN Content Limit: Item describes a familiar situation such as spinning a spinner, rolling one or two dice (does not include sum of two dice), or drawing different colored objects from a container.</p>	<p>7.M.5.5.2 Use appropriate vocabulary and notations. (332.05.b)</p> <p>CL: Calc: Content Limit: Assessed in the classroom, not on the ISAT.</p>		