

Indiana
Curricular Standards
Mathematics - Grade 7
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Benchmark Number	Benchmark • Teaching Targets	Gourmet Resource	Tested	Taught
	Domain: Number Sense			
	<i>Students understand and use scientific notation* and square roots. They convert between fractions and decimals.</i>			
7.1.1	<ul style="list-style-type: none"> Read, write, compare and solve problems using whole numbers in scientific notation. <i>Example: Write 300,000 in scientific notation.</i>	Appetizers 1 D; Main Dish Objective 1 (Number Concepts) Lesson 4; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.1.2	<ul style="list-style-type: none"> Compare and order rational* and common irrational* numbers and place them on a number line. <i>Example: Place in order: $-2, \frac{5}{8}, -2.45, 0.9, \pi, -1\frac{3}{4}$.</i>	Appetizers 1 A & C; Main Dish Objective 1 (Number Concepts) Lessons 1 & 3; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.1.3	<ul style="list-style-type: none"> Identify rational and common irrational numbers from a list. <i>Example: Name all the irrational numbers in the list: $-2, \frac{5}{8}, -2.45, 0.9, \pi, -1\frac{3}{4}$.</i>	Appetizers 1 A & C; Main Dish Objective 1 (Number Concepts) Lessons 1 & 3; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.1.4	<ul style="list-style-type: none"> Understand and compute whole number powers of whole numbers. <i>Example: $3^5 = 3 \times 3 \times 3 \times 3 \times 3 = ?$</i>	Appetizers 1 D; Main Dish Objective 1 (Number Concepts) Lesson 4; Applications; Final Tests; Reasonableness Problems; Journal Topics		

*scientific notation: a shorthand way of writing numbers using powers of ten (e.g., $300,000 = 3 \times 10^5$)

rational number: any number that can be written as a ratio of two integers (e.g., $\frac{1}{2}, \frac{5}{6}, \frac{23}{9}$)

*integers: $\dots, -3, -2, -1, 0, 1, 2, 3, \dots$

*irrational number: any number that cannot be written as a ratio of two integers (e.g., $\pi, \sqrt{3}, 7\pi$)

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7.1.5	<ul style="list-style-type: none"> Find the prime factorization* of whole numbers and write the results using exponents. <i>Example:</i> $24 = 2 \times 2 \times 2 \times 3 = 2^3 \times 3$. 	Appetizers 1 E; Main Dish Objective 1 (Number Concepts) Lesson 5; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.1.6	<ul style="list-style-type: none"> Understand and apply the concept of square root. <i>Example:</i> Explain how you can find the length of the hypotenuse of a right triangle with legs that measure 5 cm and 12 cm. 	Appetizers 1 G; Main Dish Objective 1 (Number Concepts) Lesson 7; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.1.7	<ul style="list-style-type: none"> Convert terminating decimals* into reduced fractions. <i>Example:</i> Write 0.95 as a fraction. 	Appetizers 1 C; Main Dish Objective 1 (Number Concepts) Lesson 3; Applications; Final Tests; Reasonableness Problems; Journal Topics		
Domain: Computation				
<i>Students solve problems involving integers*, fractions, decimals, ratios, and percentages.</i>				
7.2.1	<ul style="list-style-type: none"> Solve addition, subtraction, multiplication, and division problems that use integers, fractions, decimals, and combinations of the four operations. <i>Example:</i> The temperature one day is 5°. It then falls by 3° each day for 4 days and, after that, rises by 2° each day for 3 days., What is the temperature on the last day? Explain your method. 	Appetizers 6 A; 7 A; 8 A; 9 A; 11 A; Main Dish Objectives 6 (Addition) Lesson 1; 7 (Subtraction) Lesson 1; 8 (Multiplication) Lesson 1; 9 (Division) Lesson 1; 11 (Problem Solving) Lesson 1; Applications; Final Tests; Reasonableness Problems; Journal Topics		

*prime factors: e.g., prime factors of 12 are 2 and 3, the two prime numbers that divide 12

*terminating decimals: decimals that do not continue indefinitely (e.g., 0.362, 34.1857)

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7.2.2	<ul style="list-style-type: none"> Calculate the percentage increase and decrease of a quantity. <i>Example:</i> The population of a country was 36 million in 1990 and it rose to 41.4 million during the 1990s. What was the percentage increase in the population? 	Appetizers 1 C; Main Dish Objective 1 (Number Concepts) Lesson 3; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.2.3	<ul style="list-style-type: none"> Solve problems that involve discounts, markups, and commissions. <i>Example:</i> A merchant buys CDs for \$11 wholesale and marks up the price by 35%. What is the retail price? 	Appetizers 10 B; Main Dish Objective 10 (Estimation) Lesson 2; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.2.4	<ul style="list-style-type: none"> Use estimation to decide whether answers are reasonable in problems involving fractions and decimals. <i>Example:</i> Your friend says that $3\frac{3}{8} \times 2\frac{2}{9} = 10$. Without solving, explain why you think the answer is wrong. 	Appetizers 10 B; 13 A; 15 B; Main Dish Objectives 10 (Estimation) Lesson 2; 13 (Reasonableness) Lesson 1; 15 (Make Conjectures and Verify Conclusions using Reasonableness) Lesson 2; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.2.5	<ul style="list-style-type: none"> Use mental arithmetic to compute with simple fractions, decimals, and powers. <i>Example:</i> Find 3^4 without using pencil and paper. 	Appetizers 1 D & E; 6 A; 7 A; 8 A; Main Dish Objectives 1 (Number Concepts) Lessons 4 & 5; 6 (Addition) Lesson 1; 7 (Subtraction) Lesson 1; 8 (Multiplication) Lesson 1; Applications; Final Tests; Reasonableness Problems; Journal Topics		

*integers: . . . , -3, -2, -1, 0, 1, 2, 3, . . .

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	Domain: Algebra and Functions			
	<i>Students express quantitative relationships using algebraic terminology, expressions, equations, inequalities, and graphs.</i>			
7.3.1	<ul style="list-style-type: none"> Use variables and appropriate operations to write an expression, a formula, an equation, or an inequality that represents a verbal description. <p><i>Example:</i> Write in symbols the inequality: 5 less than twice the number is greater than 42.</p>	Appetizers 2 D & G; 11 A & B; 12 A; 14 A; Main Dish Objectives 2 (Mathematical Relations) Lessons 4 & 7; 11 (Problem Solving) Lessons 1 & 2; 12 (Mathematical Representation) Lesson 1; 14 (Mathematical Language, Representations, and Models) Lesson 1; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.3.2	<ul style="list-style-type: none"> Write and solve two-step linear equations and inequalities in one variable and check the answers. <p><i>Example:</i> Solve the equation $4x - 7 = 12$ and check your answer in the original equation.</p>	Appetizers 2 D; 12 A; 14 A; Main Dish Objectives 2 (Mathematical Relations) Lesson 4; 12 (Mathematical Representation) Lesson 1; 14 (Mathematical Language, Representations, and Models) Lesson 1; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.3.3	<ul style="list-style-type: none"> Use correct algebraic terminology such as variable, equation, term, coefficient*, inequality, expression, and constant. <p><i>Example:</i> Name the variable, terms, and coefficient in this equation: $7x + 4 = 67$.</p>	Appetizers 14 A; Main Dish Objective 14 (Mathematical Language, Representations, and Models) Lesson 1; Applications; Final Tests; Reasonableness Problems; Journal Topics		

*coefficient: e.g., 7 is the coefficient in $7x$

rational number: any number that can be written as a ratio of two integers (e.g., $\frac{1}{2}$, $\frac{5}{6}$, $\frac{23}{9}$)

*integers: . . . , -3, -2, -1, 0, 1, 2, 3, . . .

*commutative property: the order when adding or multiplying numbers makes no difference (e.g., $5 + 3 = 3 + 5$), but note that this is not true for subtraction or division.

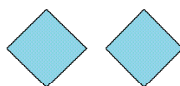
*associative: the grouping when adding or multiplying numbers makes no difference (e.g., in $5 + 3 + 2$, adding 5 and 3 and then adding 2 is the same as 5 added to $3 + 2$), but note that this is not true for subtraction or division

*distributive: e.g., $3(5 + 2) = 3(5) + 3(2)$

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7.3.4	<ul style="list-style-type: none"> Evaluate numerical expressions and simplify algebraic expressions by applying the correct order of operations and the properties of rational numbers* (e.g., identity, inverse, commutative*, associative*, distributive*). Justify each step in the process. <p><i>Example:</i> Simplify $3(4x + 5x - 1) + 2(x + 3)$ by removing the parentheses and rearranging. Explain each step you take.</p>	Appetizers 2 A & D; 12 A; Main Dish Objectives 2 (Mathematical Relations) Lessons 1 & 4; 12 (Mathematical Representation) Lesson 1; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.3.5	<ul style="list-style-type: none"> Solve an equation or formula with two variables for a particular variable. <p><i>Example:</i> Solve the formula $C = 2\pi r$ for r.</p>	Appetizers 3 E; Main Dish Objective 3 (Geometry) Lesson 5; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.3.6	<ul style="list-style-type: none"> Define slope as vertical change per unit of horizontal change and recognize that a straight line has constant slope or rate of change. <p><i>Example:</i> Examine a table of values and make a conjecture about whether the table represents a linear function.</p>			
7.3.7	<ul style="list-style-type: none"> Find the slope of a line from its graph. <p><i>Example:</i> Draw the graph of $y = 2x - 1$. Choose two points on the graph and divide the change in y-value by the change in x-value. Repeat this for other pairs of points on the graph. What do you notice?</p>	Appetizers 2 H; Main Dish Objective 2 (Mathematical Relations) Lesson 8; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.3.8	<ul style="list-style-type: none"> Draw the graph of a line given the slope and one point on the line, or two points on the line. <p><i>Example:</i> Draw the graph of the equation with slope of 3 and passing through the point with coordinates $(0,-2)$.</p>	Appetizers 2 H; Main Dish Objective 2 (Mathematical Relations) Lesson 8; Applications; Final Tests; Reasonableness Problems; Journal Topics		

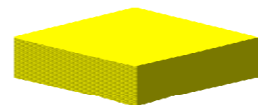
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7.3.9	<ul style="list-style-type: none"> Identify functions as linear or nonlinear and examine their characteristics in tables, graphs, and equations. <p><i>Example:</i> A plant is growing taller according to the formula $H = 2d + 3$, where H is the height after d days. Draw the graph of this function and explain what the point where it meets the vertical axis represents. Is the graph linear or nonlinear?</p>	Appetizers 5 D; Main Dish Objective 5 (Probability/Statistics) Lesson 4; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.3.10	<ul style="list-style-type: none"> Identify and describe situations with constant or varying rates of change and know that a constant rate of change describes a linear function. <p><i>Example:</i> In the last example, how will the graph be different if the plant's speed of growth changes?</p>	Appetizers 12 A; Main Dish Objective 12 (Mathematical Representation) Lesson 1; Applications; Final Tests; Reasonableness Problems; Journal Topics		
Domain: Geometry				
<i>Students deepen their understanding of plane and solid geometric shapes by constructing shapes that meet given conditions and by identifying attributes of shapes.</i>				
7.4.1	<ul style="list-style-type: none"> Understand coordinate graphs and use them to plot simple shapes, find lengths and areas related to the shapes and find images under translations (slides), rotations (turns), and reflections (flips). <p><i>Example:</i> Draw the triangle with vertices (0,0), (3,0), and (0,4). Find the lengths of the sides and the area of the triangle. Translate (slide) the triangle 2 units to the right. What are the coordinates of the new triangle?</p>	Appetizers 3 B & H; 4 E; 12 B; Main Dish Objectives 3 (Geometry) Lessons 2 & 8; 4 (Measurement) Lesson 5; 12 (Mathematical Representation) Lesson 2; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.4.2	<ul style="list-style-type: none"> Understand that transformations such as slides, turns, and flips preserve the length of segments, and that figures resulting from slides, turns, and flips are congruent* to the original figures. <p><i>Example:</i> In the last example, find the lengths of the sides and the area of the new triangle. Discuss your results.</p>	Appetizers 3 B, C, & H; 11 B; Main Dish Objectives 3 (Geometry) Lessons 2, 3, & 8; 11 (Problem Solving) Lesson 2; Applications; Final Tests; Reasonableness Problems; Journal Topics		

*congruent: same shape and size

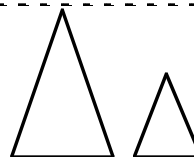


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7.4.3	<ul style="list-style-type: none"> Know and understand the Pythagorean Theorem and use it to find the length of the missing side of a right triangle and the lengths of other line segments. Use direct measurement to test conjectures about triangles. <p><i>Example:</i> Use the length and width of your classroom to calculate the distance across the room diagonally. Check by measuring.</p>	Appetizers 3 E; Main Dish Objective 3 (Geometry) Lesson 5; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.4.4	<ul style="list-style-type: none"> Construct two-dimensional patterns (nets) for three-dimensional objects, such as right prisms*, pyramids, cylinders, and cones. <p><i>Example:</i> Draw a rectangle and two circles that will fit together to make a cylinder.</p>	Appetizers 3 G; 11 B; Main Dish Objectives 3 (Geometry) Lesson 7; 11 (Problem Solving) Lesson 2; Applications; Final Tests; Reasonableness Problems; Journal Topics		
Domain: Measurement				
<i>Students compare units of measure and use similarity* to solve problems. They compute the perimeter, area, and volume of common geometric objects and use the results to find measures of less regular objects.</i>				
7.5.1	<ul style="list-style-type: none"> Compare lengths, areas, volumes, weights, capacities, times, and temperatures within measurement systems. <p><i>Example:</i> The area of the school field is 3 acres. How many square yards is that? Explain your method.</p>	Appetizers 4 A, B, & C; Main Dish Objective 4 (Measurement) Lessons 1, 2, & 3; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.5.2	<ul style="list-style-type: none"> Use experimentation and modeling to visualize similarity problems. Solve problems using similarity. <p><i>Example:</i> At a certain time, the shadow of your school building is 36 feet long. At the same time, the shadow of a yardstick held vertically is 4 feet long. How high is the school building?</p>	Appetizers 3 C; 11 C; Main Dish Objectives 3 (Geometry) Lesson 3; 11 (Problem Solving) Lesson 3; Applications; Final Tests; Reasonableness Problems; Journal Topics		

*right prism: a three-dimensional shape with two congruent ends that are polygons and all other sides are rectangles

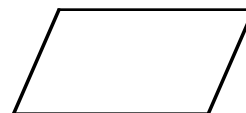


*similarity: figures that have the same shape but may not have the same size

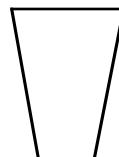


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7.5.3	<ul style="list-style-type: none"> Read and create drawings made to scale, construct scale models, and solve problems related to scale. <p><i>Example:</i> On a plan of your school, your classroom is 5 cm long and 3 cm wide. The actual classroom is 10 m long. How wide is it? Explain your answer.</p>	Appetizers 10 B; Main Dish Objective 10 (Estimation) Lesson 2; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.5.4	<ul style="list-style-type: none"> Use formulas for finding the perimeter and area of basic two-dimensional shapes and the surface area and volume of basic three-dimensional shapes, including rectangles, parallelograms*, trapezoids*, triangles, circles, right prisms*, and cylinders. <p><i>Example:</i> Find the surface area of a cylindrical can 15 cm high and with a diameter of 8 cm.</p>	Appetizers 4 D; Main Dish Objective 4 (Measurement) Lesson 4; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.5.5	<ul style="list-style-type: none"> Estimate and compute the area of more complex or irregular two-dimensional shapes by dividing them into more basic shapes. <p><i>Example:</i> A room to be carpeted is a rectangle 5 m by 4 m. A semicircular fireplace of diameter 1.5 m takes up some of the floor space. Find the area to be carpeted.</p>	Appetizers 4 E; 11 B; 14 A; Main Dish Objectives 4 (Measurement) Lesson 5; 11 (Problem Solving) Lesson 2; 14 (Mathematical Language, Representation, and Models); Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.5.6	<ul style="list-style-type: none"> Use objects and geometry modeling tools to compute the surface area of the faces and the volume of a three-dimensional object built from rectangular solids. <p><i>Example:</i> Build a model of an apartment building with blocks. Find its volume and total surface area.</p>	Appetizers 4 E; 11 B; Main Dish Objectives 4 (Measurement) Lesson 5; 11 (Problem Solving) Lesson 2; Applications; Final Tests; Reasonableness Problems; Journal Topics		

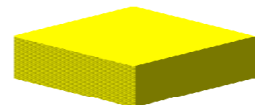
*parallelogram: a four-sided figure with both pairs of opposite sides parallel



*trapezoid: a four-sided figure with one pair of opposite sides parallel



*right prism: a three-dimensional shape with two congruent ends that are polygons and all other sides are rectangles



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	Domain: Data Analysis and Probability			
	<i>Students collect, organize, and represent data sets and identify relationships among variables within a data set. They determine probabilities and use them to make predictions about events.</i>			
7.6.1	<ul style="list-style-type: none"> Analyze, interpret, and display data in appropriate bar, line, and circle graphs and stem-and-leaf plots*, and justify the choice of display. <p><i>Example:</i> You survey the students in your school to find which of three designs for a magazine cover they prefer. To display the results, which would be more appropriate: a bar chart or a circle graph? Explain your answer.</p>	Appetizers 5 D; 12 B; Main Dish Objectives 5 (Probability/Statistics) Lesson 4; 12 (Mathematical Representation) Lesson 2; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.6.2	<ul style="list-style-type: none"> Make predictions from statistical data. <p><i>Example:</i> Record the temperature and weather conditions (sunny, cloudy, or rainy) at 1 p.m. each day for two weeks. In the third week, use your results to predict the temperature from the weather conditions.</p>	Appetizers 5 C; 11 D; Main Dish Objectives 5 (Probability/Statistics) Lesson 3; 11 (Problem Solving) Lesson 4; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.6.3	<ul style="list-style-type: none"> Describe how additional data, particularly outliers, added to a data set may affect the mean*, median*, and mode*. <p><i>Example:</i> You measure the heights of the students in your grade on a day when the basketball team is playing an away game. Later you measure the players on the team and include them in your data. What kind of effect will including the team have on the mean, median, and mode? Explain your answer.</p>	Appetizers 5 E; Main Dish Objective 5 (Probability/Statistics) Lesson 5; Applications; Final Tests; Reasonableness Problems; Journal Topics		

*stem-and-leaf plot: e.g., this one show 62, 63, 67, 71, 75, 75, 76, etc.

Stem	Leaf
6	2 3 7
7	1 5 5 6 8 9
8	0 1 1 2 3 5 5 7 8 8
9	1 2 2 3 3 4

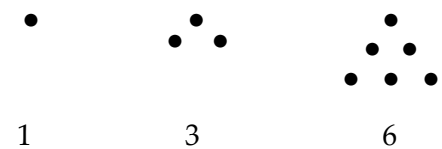
*mean: the average obtained by adding the values and dividing by the number of values

*median: the value that divides a set of data written in order of size into two equal parts

*mode: the most common value

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7.6.4	<ul style="list-style-type: none"> Analyze data displays, including ways that they can be misleading. Analyze ways in which the wording of questions can influence survey results. <p><i>Example:</i> On a bar graph of a company's sales, it appears that sales have more than doubled since last year. Then you notice that the vertical axis starts at \$5 million and can see that sales have in fact increased from \$5.5 million to \$6.2 million.</p>	Appetizers 5 D; 11 D; Main Dish Objectives 5 (Probability/Statistics) Lesson 4; 11 (Problem Solving) Lesson 4; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.6.5	<ul style="list-style-type: none"> Know that if P is the probability of an event occurring, the $1 - P$ is the probability of that event not occurring. <p><i>Example:</i> The weather forecast says that the probability of rain today is 0.3. What is the probability that it won't rain?</p>	Appetizers 5 B & C; 11 D; Main Dish Objectives 5 (Probability/Statistics) Lessons 3 & 4; 11 (Problem Solving) Lesson 4; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.6.6	<ul style="list-style-type: none"> Understand that the probability of either one or the other of two disjoint events* occurring is the sum of the two individual probabilities. <p><i>Example:</i> Find the probability of rolling 9 with two number cubes. Also find the probability of rolling 10. What is the probability of rolling 9 or 10?</p>	Appetizers 5 C; 11 D; Main Dish Objectives 5 (Probability/Statistics) Lesson 3; 11 (Problem Solving) Lesson 4; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.6.7	<ul style="list-style-type: none"> Find the number of possible arrangements of several objects using a tree diagram. <p><i>Example:</i> A state's license plates contain 6 digits and one letter. How many different license plates can be made if the letter must always be in the third position and the first digit cannot be zero?</p>	Appetizers 5 A; 11 D; Main Dish Objectives 5 (Probability/Statistics) Lesson 1; 11 (Problem Solving) Lesson 4; Applications; Final Tests; Reasonableness Problems; Journal Topics		

*disjoint events: events that cannot happen at the same time

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	Domain: Problem Solving			
	<i>Students make decisions about how to approach problems and communicate their ideas.</i>			
7.7.1	<ul style="list-style-type: none"> Analyze problems by identifying relationships, telling relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns. <p><i>Example: Solve the problem: "The first three triangular numbers are shown in the diagram below. Find an expression to calculate the nth triangular number."</i></p>  <p style="text-align: center;">1 3 6</p> <p><i>Decide to look for patterns.</i></p>	Appetizers 11 B; 14 A; 15 A; Main Dish Objectives 11 (Problem Solving) Lesson 2; 14 (Mathematical Language, Representations, and Models) Lesson 1; 15 (Make Conjectures and Verify Conclusions using Reasonableness) Lesson 1; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.7.2	<ul style="list-style-type: none"> Make and justify mathematical conjectures based on a general description of a mathematical question or problem. <p><i>Example: In the first example, notice that three dots make an equilateral triangle for the number 3 and six dots make the next equilateral triangle.</i></p>	Appetizers 15 A & B; Main Dish Objective 15 (Make Conjectures and Verify Conclusions using Reasonableness) Lessons 1 & 2; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.7.3	<ul style="list-style-type: none"> Decide when and how to divide a problem into simpler parts. <p><i>Example: In the first example, decide to make a diagram for the fourth and fifth triangular numbers.</i></p>	Appetizers 11 A; Main Dish Objective 11 (Problem Solving) Lesson 1; Applications; Final Tests; Reasonableness Problems; Journal Topics		
	<i>Students use strategies, skills, and concepts in finding and communicating solutions to problems.</i>			
7.7.4	<ul style="list-style-type: none"> Apply strategies and results from simpler problems to solve more complex problems. <p><i>Example: In the first example, list the differences between any two triangular numbers.</i></p>	Appetizers 15 B; Main Dish Objective 15 (Make Conjectures and Verify Conclusions using Reasonableness) Lesson 2; Applications; Final Tests; Reasonableness Problems; Journal Topics		

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7.7.5	<ul style="list-style-type: none"> • Make and test conjectures by using inductive reasoning. <p><i>Example:</i> In the first example, predict the difference between the fifth and sixth numbers and use this to predict the sixth triangular number. Make a diagram to test your conjecture.</p>	Appetizers 15 A; Main Dish Objective 15 (Make Conjectures and Verify Conclusions using Reasonableness) Lesson 1; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.7.6	<ul style="list-style-type: none"> • Express solutions clearly and logically by using the appropriate mathematical terms and notation. Support solutions with evidence in both verbal and symbolic work. <p><i>Example:</i> In the first example, use words, numbers, and tables to summarize your work with triangular numbers.</p>	Appetizers 14 A; Main Dish Objective 14 (Mathematical Language, Representations, and Models) Lesson 1; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.7.7	<ul style="list-style-type: none"> • Recognize the relative advantages of exact and approximate solutions to problems and given answers to a specified degree of accuracy. <p><i>Example:</i> Calculate the amount of aluminum needed to make a can with diameter 10 cm that is 15 cm high and 1 mm thick. Take π as 3.14 and give your answer to appropriate accuracy.</p>	Appetizers 15 B; Main Dish Objective 15 (Make Conjectures and Verify Conclusions using Reasonableness) Lesson 2; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.7.8	<ul style="list-style-type: none"> • Select and apply appropriate methods for estimating results of rational-number computations. <p><i>Example:</i> Measure the dimensions of a swimming pool to find its volume. Estimate an answer by working with an average depth.</p>	Appetizers 10 B; Main Dish Objective 10 (Estimation) Lesson 2; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.7.9	<ul style="list-style-type: none"> • Use graphing to estimate solutions and check the estimates with analytic approaches. <p><i>Example:</i> Use a graphing calculator to find the crossing point of the straight lines $y = 2x + 3$ and $x + y = 10$. Confirm your answer by checking it in the equations.</p>			

Benchmark Number	Benchmark • Teaching Targets	Gourmet Resource	Tested	Taught
7.7.10	<ul style="list-style-type: none"> • <i>Make precise calculations and check the validity of the results in the context of the problem.</i> <i>Example: In the first example, check that your later results fit with your earlier ones. If they do not, repeat the calculations to make sure.</i> 	Appetizers 15 B; Main Dish Objective 15 (Make Conjectures and Verify Conclusions using Reasonableness) Lesson 2; Applications; Final Tests; Reasonableness Problems; Journal Topics		
<i>Students determine when a solution is complete and reasonable and move beyond a particular problem by generalizing to other situations.</i>				
7.7.11	<ul style="list-style-type: none"> • <i>Decide whether a solution is reasonable in the context of the original situation.</i> <i>Example: In the first example, calculate the 10th triangular number and draw the triangle of dots that goes with it.</i> 	Appetizers 13 A; Main Dish Objective 13 (Reasonableness) Lesson 1; Applications; Final Tests; Reasonableness Problems; Journal Topics		
7.7.12	<ul style="list-style-type: none"> • <i>Note the method of finding the solution and show a conceptual understanding of the method by solving similar problems.</i> <i>Example: Use your method from the first example to investigate pentagonal numbers.</i> 	Appetizers 13 A; 14 A; 15 B; Main Dish Objectives 13 (Reasonableness) Lesson 1; 14 (Mathematical Language, Representations, and Models) Lesson 1; 15 (Make Conjectures and Verify Conclusions using Reasonableness) Lesson 2; Applications; Final Tests; Reasonableness Problems; Journal Topics		