MATH 7 CURRICULUM FRAMEWORKS

NUMBER AND OPERATION (encompasses 12-16 MCA test items)			
Standard 1: Read, write, represent and compare positive and negative rational numbers, expressed as integers, fractions and decimals. (encompasses 4-6 MCA test items)			
Curriculum Benchmark	**MCA III Test Item Specifications**	**Where Benchmark is Taught/Assessed in Holt "Course 2" Student Edition**	**Notes**
Know that every rational number can be written as the ratio of two integers or as a terminating or repeating decimal. Recognize that □ is not rational, but that it can be approximated by rational numbers such as 22/7 and 3.14. (7.1.1.1)	• Allowable notation: . . . . , □ (written as a symbol, not as "pi") • Vocabulary allowed in items: terminating, repeating, and vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 118-121, 122-125, 130, 136, 137, 214-217, 230, 266, 268 530-533, 554, 575, 577	
Understand that division of two integers will always result in a rational number. Use this information to interpret the decimal result of a division problem when using a calculator. (7.1.1.2)	• Vocabulary allowed in items: terminating, repeating, and vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 92-93, 94-95, 102, 135, 137	
Locate positive and negative rational numbers on a number line, understand the concept of opposites, and plot pairs of positive and negative rational numbers on a coordinate grid. (7.1.1.3)	• Vocabulary allowed in items: opposite, coordinate, origin, and vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 72-75, 102, 126-129, 130, 134, 136, 137, 562-563	
Compare positive and negative rational numbers expressed in various forms using the symbols $<$, $>$, $=$, $\leq$, and $\geq$. (7.1.1.4)	• Vocabulary allowed in items: vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 26-129, 130, 136, 137	
Recognize and generate equivalent representations of positive and negative rational numbers, including equivalent fractions. (7.1.1.5)	• Vocabulary allowed in items: vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 118-119, 120-121, 122-123, 124-125, 130, 136, 137	

MATH 7 CURRICULUM FRAMEWORKS

NUMBER AND OPERATION (encompasses 12-16 MCA test items) (continued)			
Standard 2: Calculate with positive and negative rational numbers, and rational numbers with whole number exponents, to solve real-world and mathematical problems. (encompasses 8-10 MCA test items)			
Curriculum Benchmark	**MCA III Test Item Specifications**	**Where Benchmark is Taught/Assessed in Holt "Course 2" Student Edition**	**Notes**
Add, subtract, multiply and divide positive and negative rational numbers that are integers, fractions and terminating decimals; use efficient and generalizable procedures, including standard algorithms; raise positive rational numbers to whole-number exponents. (7.1.2.1)	• Items must not have context • Vocabulary allowed in items: vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 10-13, 14-17, 19-22, 30-33, 38-45, 48-55, 72-75, 80-83, 86-89, 92-95, 98-101, 104-106, 107, 108-115, 118-129, 144-151, 154-157, 160-166, 170-173, 176-183, 186, 187, 188-193, 194, 195-197, 214-221, 222-229, 232-235, 236-239, 248-259, 262, 284-291, 296-299, 302-306, 336-338, 340, 341, 342, 344-347, 348-355, 358-365, 380-389, 394-401, 412-415, 418-421, 454-457, 460, 461, 462-463, 468-473, 484-489, 492-495, 524, 525, 526, 527, 530-533, 536-543, 546-553, 558-561, 562-563, 566-569, 596, 597, 598, 599-603, 607, 608, 609, 610, 611, 620-624, 640, 655, 662-663, 664, 665-677, 696-707, 710-725	
Use real-world contexts and the inverse relationship between addition and subtraction to explain why the procedures of arithmetic with negative rational numbers make sense. (7.1.2.2)	• Vocabulary allowed in items: inverse and vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 80-81, 82-83, 84085, 86-87, 88, 102, 135, 137	
Understand that calculators and other computing technologies often truncate or round numbers. (7.1.2.3)	• Assessed within 7.1.2.4	While this particular feature of calculator function is not specifically taught in this level text, the opportunity to address this skill might be taken with: Holt "Course 2" 2010 SE pages: 23, 144, 154.	
Solve problems in various contexts involving calculations with positive and negative rational numbers and positive integer exponents, including computing simple and compound interest. (7.1.2.4)	• Vocabulary allowed in items: simple interest, compound interest, and vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 10-13, 14-17, 19-22, 30-33, 38-45, 48-55, 72-75, 80-83, 86-89, 92-95, 98-101, 104-106, 107, 108-115, 118-129, 144-151, 154-157, 160-166, 170-173, 176-183, 186, 187, 188-193, 194, 195-197, 214-221, 222-229, 232-235, 236-239, 248-259, 262, 284-291, 296-299, 302-306, 336-338, 340, 341, 342, 344-347, 348-355, 358-365, 380-389, 394-401, 412-415, 418-421, 454-457, 460, 461, 462-463, 468-473, 484-489, 492-495, 524, 525, 526, 527, 530-533, 536-543, 546-553, 558-561, 562-563, 566-569, 596, 597, 598, 599- 603, 607, 608, 609, 610, 611, 620-624, 640, 655, 662-663, 664, 665-677, 696-707, 710-725	
Use proportional reasoning to solve problems involving ratios in various contexts. (7.1.2.5)	• Vocabulary allowed in items: proportion and vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 214-221, 222-229, 232-235, 248-259, 336-338, 340, 341, 342, 344-347, 348-355, 358-365	
Demonstrate an understanding of the relationship between the absolute value of a rational number and distance on a number line. Use the symbol for absolute value. (7.1.2.6)	• Vocabulary allowed in items: absolute value and vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 72-73, 74-75, 102, 134, 137	

MATH 7 CURRICULUM FRAMEWORKS

NUMBER AND OPERATION (encompasses 12-16 MCA test items) (continued)			
Curriculum Benchmark	**MCA III Test Item Specifications**	**Where Benchmark is Taught/Assessed in Holt "Course 2" Student Edition**	**Notes**
District Benchmark: Write practice numbers in exponential and scientific notation.	(None)	(Not yet identified)	
District Benchmark: Understand basic concept of square roots.	(None)	(Not yet identified)	
District Benchmark: Practice converting among fractions, decimals, and percents.	(None)	(Not yet identified)	
District Benchmarks: Understand basic concept of absolute value.	(None)	(Not yet identified)	

MATH 7 CURRICULUM FRAMEWORKS

ALGEBRA (encompasses 16-20 MCA test items)			
Standard 1: Understand the concept of proportionality in real-world and mathematical situations, and distinguish between proportional and other relationships. (encompasses 1-2 MCA test items)			
Curriculum Benchmark	**MCA III Test Item Specifications**	**Where Benchmark is Taught/Assessed in Holt "Course 2" Student Edition**	**Notes**
Understand that a relationship between two variables, x and y, is proportional if it can be expressed in the form $y/x=k$ or $y=kx$. Distinguish proportional relationships from other relationships, including inversely proportional relationships ($xy=k$ or $y=k/x$). (7.2.1.1)	• Vocabulary allowed in items: proportional, inversely, and vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 313-315	
Understand that the graph of a proportional relationship is a line through the origin whose slope is the unit rate (constant of proportionality). Know how to use graphing technology to examine what happens to a line when the unit rate is changed. (7.2.1.2)	• Vocabulary allowed in items: proportional, origin, slope, and vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 302-304, 305-306, 320, 326, 327	

MATH 7 CURRICULUM FRAMEWORKS

ALGEBRA (encompasses 16-20 MCA test items) (continued)			
Standard 2: Recognize proportional relationships in real-world and mathematical situations; represent these and other relationships with tables, verbal descriptions, symbols and graphs; solve problems involving proportional relationships and explain results in the original context. (encompasses 6-8 MCA test items)			
Curriculum Benchmark	**MCA III Test Item Specifications**	**Where Benchmark is Taught/Assessed in Holt "Course 2" Student Edition**	**Notes**
Represent proportional relationships with tables, verbal descriptions, symbols, equations and graphs; translate from one representation to another. Determine the unit rate (constant of proportionality or slope) given any of these representations. (7.2.2.1)	• Vocabulary allowed in items: proportional, origin, slope, and vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 218-221, 226-229, 296-299, 300-301, 302-306	
Solve multi-step problems involving proportional relationships in numerous contexts. (7.2.2.2)	• Contexts may include (but are not limited to) discounts, tax, and percent of change • Vocabulary allowed in items: proportional and vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 214-217, 218-221, 222-225, 226-229, 232-235, 248-251, 252-255, 256-258, 302-306, 307	
Use knowledge of proportions to assess the reasonableness of solutions. (7.2.2.3)	• Assessed within 7.2.2.1 and 7.2.2.2	Holt "Course 2" 2010 SE pages: 214-217, 218-221, 222-225, 226-229, 232-235, 248-251, 252-255, 256-258, 302-306, 307	
Represent real-world or mathematical situations using equations and inequalities involving variables and positive and negative rational numbers. (7.2.2.4)	• Vocabulary allowed in items: vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 42-45, 48-55, 98-101, 164-167, 194, 195-197, 296-299, 696-707, 710-725	

MATH 7 CURRICULUM FRAMEWORKS

ALGEBRA (encompasses 16-20 MCA test items) (continued)			
Standard 3: Apply understanding of order of operations and algebraic properties to generate equivalent numerical and algebraic expressions containing positive and negative rational numbers and grouping symbols; evaluate such expressions. (encompasses 4-6 MCA test items)			
Curriculum Benchmark	**MCA III Test Item Specifications**	**Where Benchmark is Taught/Assessed in Holt "Course 2" Student Edition**	**Notes**
Use properties of algebra to generate equivalent numerical and algebraic expressions containing rational numbers, grouping symbols and whole number exponents. Properties of algebra include associative, commutative and distributive laws. (7.2.3.1)	• Items must not have context • Vocabulary allowed in items: simplify and vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 19-22, 28, 30-33, 56, 61, 63, 81-83, 86-89, 92-95, 102, 135, 137	
Evaluate algebraic expressions containing rational numbers and whole number exponents at specified values of their variables. (7.2.3.2)	• Expressions contain no more than 3 variables • Vocabulary allowed in items: evaluate, substitute, and vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 10-11, 11-12, 28, 30-33, 56, 61, 63, 80-83, 86-89, 102, 135, 137, 726	
Apply understanding of order of operations and grouping symbols when using calculators and other technologies. (7.2.3.3)	• Assessed within 7.2.3.1 and 7.2.3.2	Holt "Course 2" 2010 SE pages: 19-22, 23, 28, 61, 63	

MATH 7 CURRICULUM FRAMEWORKS

ALGEBRA (encompasses 16-20 MCA test items) (continued)			
Standard 4: Represent real-world and mathematical situations using equations with variables. Solve equations symbolically, using the properties of equality. Also solve equations graphically and numerically. Interpret solutions in the original context. (encompasses 4-6 MCA test items)			
Curriculum Benchmark	**MCA III Test Item Specifications**	**Where Benchmark is Taught/Assessed in Holt "Course 2" Student Edition**	**Notes**
Represent relationships in various contexts with equations involving variables and positive and negative rational numbers. Use the properties of equality to solve for the value of a variable. Interpret the solution in the original context. (7.2.4.1)	• Vocabulary allowed in items: vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 19-22, 24-27, 30-33, 38-40, 42-43, 48-49, 52-53, 86-87, 98-99, 180-181, 186, 187, 190-191, 194, 195, 218-219, 252-253, 352-353, 362-363, 540-541, 546-547, 566-567, 600-601, 620-621, 652-653, 696-697, 700-701, 704-705, 718-719, 722-723	
Solve equations resulting from proportional relationships in various contexts. (7.2.4.2)	• Vocabulary allowed in items: vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 226-229, 230, 256-259, 262, 268, 269, 348-349, 350-351, 352-353, 354-355, 356, 358-359, 360-361, 362-363, 364-365, 366, 371-372, 373	
District Benchmark: Practice using function notation.	(None)	(Not yet identified)	
District Benchmark: Study linear relationships such as y=2x+3. Practice representing these equations using graphs and tables.	(None)	(Not yet identified)	
District Benchmark: Recognize arithmetic and geometric sequences.	(None)	(Not yet identified)	
District Benchmark: Solve one- and two-step equations.	(None)	(Not yet identified)	

MATH 7 CURRICULUM FRAMEWORKS

GEOMETRY AND MEASUREMENT (encompasses 8-10 MCA test items)			
Standard 1: Use reasoning with proportions and ratios to determine measurements, justify formulas and solve real-world and mathematical problems involving circles and related geometric figures. (encompasses 4-5 MCA test items)			
Curriculum Benchmark	**MCA III Test Item Specifications**	**Where Benchmark is Taught/Assessed in Holt "Course 2" Student Edition**	**Notes**
Demonstrate an understanding of the proportional relationship between the diameter and circumference of a circle and that the unit rate (constant of proportionality) is □ . Calculate the circumference and area of circles to solve problems in various contexts. (7.3.1.1)	• Allowable notation: □ (written as a symbol, not as "pi") • Items may assess finding the area and arc length of a sector • Items do not assess finding the perimeter of a sector • Vocabulary allowed in items: radius, diameter, circumference, and vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 531-533, 546-547, 548-549, 554, 574, 575, 576	
Calculate the volume and surface area of cylinders and justify the formulas used. (7.3.1.2)	• Units must be consistent throughout an item; conversions are not allowed • Vocabulary allowed in items: radius, diameter, circumference, cylinder, lateral area, and vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 596-597, 598-599, 604, 607-608, 609-610, 611, 626, 631, 633	

MATH 7 CURRICULUM FRAMEWORKS

GEOMETRY AND MEASUREMENT (encompasses 8-10 MCA test items) (continued)			
Standard 2: Analyze the effect of change of scale, translations and reflections on the attributes of two-dimensional figures. (encompasses 4-5 MCA test items)			
Curriculum Benchmark	**MCA III Test Item Specifications**	**Where Benchmark is Taught/Assessed in Holt "Course 2" Student Edition**	**Notes**
Describe the properties of similarity, compare geometric figures for similarity and determine scale factors. (7.3.2.1)	• Allowable notation: ~ (similar), ≅ (congruent), $\overline{FG}$ (segment FG), *FG* (length of segment FG) • Vocabulary allowed in items: similar, corresponding, scale factor, and vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 246-247, 248-249, 250-251, 252-253, 254-255, 256-257, 258-259, 260-261, 262, 263, 268, 269	
Apply scale factors, length ratios and area ratios to determine side lengths and areas of similar geometric figures. (7.3.2.2)	• Allowable notation: ~ (similar), ≅ (congruent), $\overline{FG}$ (segment FG), *FG* (length of segment FG) • Vocabulary allowed in items: similar, corresponding, scale factor, and vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 248-251, 256-259, 262, 268, 269, 618-619, 620-624, 626, 632, 633	
Use proportions and ratios to solve problems involving scale drawings and conversions of measurement units. (7.3.2.3)	• Conversions are limited to no more than 2 per item • Vocabulary allowed in items: similar, corresponding, scale drawing, conversion, and vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 232-235, 244, 248-249, 250-251, 252-253, 254-255, 256-257, 258-259, 260-261, 262, 263, 267, 268, 269	
Graph and describe translations and reflections of figures on a coordinate grid, and determine the coordinates of the vertices of the figure after the transformation. (7.3.2.4)	• Allowable notation: J and J' (labels for points before and after transformation) • Allowable translation notation: $(x, y) \rightarrow (x + 3, y - 2)$ • Images may be reflected over vertical lines, horizontal lines and the lines $y=x$ and $y=-x$ • Vocabulary allowed in items: vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 496-498, 499-500, 501, 510, 516, 517	
District Benchmark: Convert units of capacity, length, and mass in the metric and standard systems of measurement.	(None)	(Not yet identified)	
District Benchmark: Express measures of time and distance as fractions, mixed numbers, and decimals.	(None)	(Not yet identified)	
District Benchmark: Use formulas to find perimeter, circumference, area, and volume of 2- and 3-dimensional figures.	(None)	(Not yet identified)	
District Benchmark: Explore the Pythagorean Theorem.	(None)	(Not yet identified)	
District Benchmark: Practice finding the slope between two points on a coordinate plane.	(None)	(Not yet identified)	
District Benchmark: Identify and classify angles and polygons.	(None)	(Not yet identified)	

MATH 7 CURRICULUM FRAMEWORKS

DATA ANALYSIS AND PROBABILITY (encompasses 8-10 MCA test items)			
Standard 1: Use mean, median and range to draw conclusions about data and make predictions. (encompasses 3-5 MCA test items)			
Curriculum Benchmark	**MCA III Test Item Specifications**	**Where Benchmark is Taught/Assessed in Holt "Course 2" Student Edition**	**Notes**
Design simple experiments, and collect data. Determine mean, median and range for quantitative data and from data represented in a display. Use these quantities to draw conclusions about the data, compare different data sets and make predictions. (7.4.1.1)	• Data displays are limited to no more than 10 categories • Data displays from previous grades may be used • Vocabulary allowed in items: stem-and-leaf plot, and vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 385-387, 388-389, 404, 436, 439	
Describe the impact that inserting or deleting a data point has on the mean and the median of a data set. Know how to create data displays using a spreadsheet to examine this impact. (7.4.1.2)	• Data sets are limited to no more than 10 data points • Vocabulary allowed in items: outlier and vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 387-389	

MATH 7 CURRICULUM FRAMEWORKS

DATA ANALYSIS AND PROBABILITY (encompasses 8-10 MCA test items)			
Standard 2: Display and interpret data in a variety of ways, including circle graphs and histograms. (encompasses 1-2 MCA test items)			
Curriculum Benchmark	**MCA III Test Item Specifications**	**Where Benchmark is Taught/Assessed in Holt "Course 2" Student Edition**	**Notes**
Use reasoning with proportions to display and interpret data in circle graphs (pie charts) and histograms. Choose the appropriate data display and know how to create the display using a spreadsheet or other graphing technology. (7.4.2.1)	• Circle graphs have no more than 6 sectors • Histograms have no more than 5 intervals • Vocabulary allowed in items: circle graph, histogram, frequency table, and vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 394-395, 396-397, 404, 437, 439	

MATH 7 CURRICULUM FRAMEWORKS

DATA ANALYSIS AND PROBABILITY (encompasses 8-10 MCA test items)			
Standard 3: Calculate probabilities and reason about probabilities using proportions to solve real-world and mathematical problems. (encompasses 3-5 MCA test items)			
Curriculum Benchmark	**MCA III Test Item Specifications**	**Where Benchmark is Taught/Assessed in Holt "Course 2" Student Edition**	**Notes**
Use random numbers generated by a calculator or a spreadsheet or taken from a table to simulate situations involving randomness, make a histogram to display the results and compare the results to known probabilities. (7.4.3.1)	(Not assessed on the MCA-III)	Holt "Course 2" 2010 SE pages: 391, 392, 393, 437, 439	
Calculate probability as a fraction of sample space or as a fraction of area. Express probabilities as percents, decimals and fractions. (7.4.3.2)	• Vocabulary allowed in items: vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 644-645, 646-647, 664, 683, 685	
Use proportional reasoning to draw conclusions about and predict relative frequencies of outcomes based on probabilities. (7.4.3.3)	• Vocabulary allowed in items: vocabulary given at previous grades	Holt "Course 2" 2010 SE pages: 648-649, 650-651, 664, 683, 685	
District Benchmark: Represent possible outcomes for a probability problem with tables, tree diagrams, and systematic lists.	(None)	(Not yet identified)	
District Benchmark: Display data using a scatterplot. Analyze the relationship of the data.	(None)	(Not yet identified)	

MATH 7 CURRICULUM FRAMEWORKS

READING IN THE CONTENT AREA FOR GRADES 6-8 (Taken from "Standards for Literacy in Science/Technical Subjects")				
Benchmark	**Unit**	**Quarter**	**Activities**	**How Assessed**
Cite specific textual evidence to support analysis of technical texts (6.13.1.1).	Rates	2	Analyze the usefulness or effectiveness of a word problem involving rates.	Through application of standard in the problems assigned (Formative)
Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions (6.13.2.2).	Collecting, Displaying and Analyzing Data	1	Read the text on stem and leaf plots and summarize the information.	Through application of standard in the problems assigned (Formative)
Follow precisely a multistep procedure when carrying out experiments, designing solutions, taking measurements, or performing technical tasks (6.13.3.3).	Solving Equations	4	Our students have to follow multi-step procedures to solve equations.	Students journal about their understanding of equations.
Determine the meaning of symbols, equations, graphical representations, tabular representations, key terms, and other domain-specific word and phrases as they are used in a specific technical context 4relevant to grades 6-8 texts and topics (6.13.4.4).	Graphs and Functions	4	Explore linear and non-linear functions described in our text.	Summative assessment per standards
Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic (6.13.5.5).	Algebraic Reasoning	1	We introduce students to the book by having activities such as Scavenger Hunt.	Through application of standard in the problems assigned (Formative)
Analyze the author's purpose in describing phenomena, providing an explanation, describing a procedure, or discussing/reporting an experiment in a text (6.13.6.6).	Data Analysis	1	Analyzing graphs and statistics for author's purpose.	Through application of standard in the problems assigned (Formative)
Compare and integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, table, map) (6.13.7.7).	Functions	4	We use graphs to visualize the relationships among variables.	Through application of standard in the problems assigned (Formative)
Distinguish among claims, evidence, reasoning, facts and reasoned judgment based on research findings, and speculation in a text (6.13.8.8).	Data Analysis	1	Using statistical measures to test the hypotheses using Scatterplots, mean, median, and mode.	Through application of standard in the problems assigned (Formative)
Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with what has been gained from reading a text on the same topic (6.13.9.9).	Probability	1	We use simulations and experiments to learn about experimental vs. theoretical probably.	Through application of standard in the problems assigned (Formative)
By the end of grade 8, read and comprehend technical texts in the grades 6-8 text complexity band independently and proficiently (6.13.10.10).	Percents	3	Analyze word problems involving fractions, decimals, and percents.	Through application of standard in the problems assigned (Formative)