



ALASKA
Seventh Grade Math Performance Standards
Impact Mathematics: Algebra and More
Course 2 © 2004

STANDARDS	PAGE REFERENCES
7:1 Estimation:	
.1 Decide when an estimate is appropriate and when an exact answer is needed.	SE: 13-18, 18-21, 37-42, 192-195, 588-589, 629-631 <i>Lab Investigation</i> 551-553 <i>On Your Own Exercises</i> 704 #13
.2 Estimate real and scale distances on maps and globes.	SE: <i>On Your Own Exercises</i> 287 #14, 468 #23, 511 #19 <i>Review and Self-Assessment</i> 515 #6
.3 Estimate solutions to problems involving fractions, decimals and percents.	SE: 31 #66, 48 #11, 74 #3, 124 #9, 140 #36b
.4 Estimate the total expenses of a real life experience (e.g., a shopping trip).	SE: 529-531 <i>On Your Own Exercises</i> 535
.5 Use estimation to check the reasonableness of calculator or computer results.	SE: 200-202, 670-671 <i>Lab Investigation</i> 42-45 <i>On Your Own Exercises</i> 582 #37, 700 #3 TG: T201
.6 Estimate solutions to problems to check reasonableness of results.	SE: 385-387, 541-542, 588-589 <i>Lab Investigation</i> 388-391 <i>On Your Own Exercises</i> 392-393
.7 Apply, explain, and assess the appropriateness of a variety of estimation strategies.	SE: 385-387, 541-542, 629-631 <i>Lab Investigation</i> 388-391 <i>On Your Own Exercises</i> 392-393
7:2 Number Sense:	
.1 Use exponents to write the prime factorization of a number.	SE: <i>Remember</i> 163 <i>On Your Own Exercises</i> 51 #29, 163 #59
.2 Convert between fractions, decimals, and percents, and select the most appropriate form.	SE: 562-565, 568-571 <i>On Your Own Exercises</i> 51 #30, 73 #74, 126 #24-#25
.3 Convert between standard notation and scientific notation, and select the more appropriate form.	SE: 192-195, 196-199, 200-202, 286-287 <i>On Your Own Exercises</i> 207-211 <i>Review and Self-Assessment</i> 215 #18-#31 TG: T286-T287
.4 Use rules of divisibility to determine if one number is a factor or a multiple of another.	SE: <i>On Your Own Exercises</i> 107-108 #39-#43 TG: TT T148

STANDARDS	PAGE REFERENCES
.5 Use prime factors to find GCF's and LCM's.	The use of prime factors to find the GCF and LCM can be introduced with the following examples. SE: 66-67 <i>On Your Own Exercises</i> 108 #40-#43 <i>Share & Summarize</i> 67 TG: AM T66 This standard also is covered in <i>Impact Mathematics: Algebra and More Course 1</i> © 2004.
.6 Compare and order whole numbers, fractions, decimals and integers using $>$, $<$, or $=$.	SE: 222-227, 232, 255-258, 259-262 <i>Think & Discuss</i> 525 <i>On Your Own Exercises</i> 236-237 #1-#28
.7 Use models or diagrams to explain place value relations of decimals.	Place value can be discussed with the following examples. SE: 40-41, 199, 211 #61 This standard also is covered in <i>Impact Mathematics: Algebra and More Course 1</i> © 2004.
.8 Explain the representations of scientific notation, exponents, and percents.	SE: 149-152, 152-156, 156-159, 164-165, 166-167, 168-171, 192-195, 196-199, 562-565 <i>On Your Own Exercises</i> 160-163, 172-175
7:3 Concepts of Number Operations:	
.1 Use the commutative, associative, and distributive properties.	SE: 52-53, 59-63, 64-67 <i>Think & Discuss</i> 14 <i>On Your Own Exercises</i> 69-71 #16-#19, #40, 212 #65-#70 <i>Review and Self-Assessment</i> 75 #10-#16 TG: T32, T148
.2 Use inverse operations to solve problems.	SE: 18-21, 627-628 <i>On Your Own Exercises</i> 31 #63-#65, 51 #26-#28
.3 Use the properties of zero and 1.	SE: 150 #6-#7, 155 #5, #15, 163 #58 TG: D T148, T155 #2, T169 #2
.4 Use manipulatives, diagrams, symbols, and words to model addition, subtraction, multiplication and division of rational numbers.	SE: 40-41, 47 #10c, 181 #4, 186 #18c, 215 #13c TG: D T182
.5 Use manipulatives, diagrams, symbols and words to describe addition and subtraction of integers.	SE: 218-219, 222-227, 228-230, 231-233, 234-235 <i>On Your Own Exercises</i> 236-240
.6 Write and solve word problems involving multiple operations.	SE: 5-9, 10-13, 13-18, 18-21, 32-36 <i>On Your Own Exercises</i> 22-30, 470 #40-#45
7:4 Computation:	
.1 Select and use an appropriate method for computing addition, subtraction, multiplication and division of rational numbers (e.g., mental math, paper and pencil, calculator, computer).	SE: 37-42, 200-202, 588-589 <i>Lab Investigation</i> 42-45, 203-205, 388-391, 551-553
.2 Add, subtract, multiply, and divide fractions and decimals with and without a calculator or computer.	SE: 13-18, 147-149 <i>On Your Own Exercises</i> 30 #49-#52, #57-#62, 90 #34-#37, 140 #21-#26, 163 #62-#70, 189 #25-#32, 538 #32-#37

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.3 Convert numbers from exponential form to standard notation.	SE: 149-152, 176-178, 179-182 <i>Lab Investigation</i> 203-205 <i>On Your Own Exercises</i> 160-163, 183-185 TG: T176
.4 Convert numbers between standard form and scientific notation using positive exponents.	SE: 192-195, 196-199, 200-202 <i>On Your Own Exercises</i> 207-211, 279 #24-#27 TG: T200-T202
.5 Use proportions to solve practical problems including scale drawings that contain whole numbers, fractions, decimals, and percents.	SE: 520-524, 524-526, 527-529, 540-542, 543-545, 545-548 <i>On Your Own Exercises</i> 532-537
.6 Write and solve practical problems that use fractions or mixed numbers.	SE: 25 #27, 37, 481 #36 <i>Example</i> 16, 38 <i>Share & Summarize</i> 13 #1, #3 TG: TT T121
.7 Convert fractions to equivalent mixed numbers and decimals.	SE: <i>On Your Own Exercises</i> 51 #30, 126 #24-#25 This standard also is covered in <i>Impact Mathematics: Algebra and More Course 1</i> © 2004.
.8 Apply the rules for order of operations to rational numbers.	SE: 5-9, 10-13, 13-18, 18-21, 32-36 <i>On Your Own Exercises</i> 22-30
.9 Use mental math to solve problems involving basic operations, powers of 10, and simple percents.	SE: 192-195 <i>On Your Own Exercises</i> 207 TG: T192-T195, T201
7:5 Geometry:	
.1 Identify, classify, and compare polygons and polyhedra.	SE: 109, 112-116, 121 This standard also is covered in <i>Impact Mathematics: Algebra and More Course 1</i> © 2004.
.2 Identify and use the vocabulary related to regular and irregular polygons, circles, polyhedra, and their components.	SE: 109, 112-116, 121, 461-463, 471-473, 473-474, 475 <i>Lab Investigation</i> 476-477
.3 Name and classify angles formed by parallel, perpendicular and intersecting lines.	SE: 457, 461-462 This standard also is covered in <i>Impact Mathematics: Algebra and More Course 1</i> © 2004.
.4 Classify, construct and identify properties of angles.	SE: 452 Problem Set B, 461, 475, 479 #14-#17 <i>Remember</i> 461 TG: AL T452 SA T452
.5 Describe the relationship of angles in different types of triangles.	SE: 387, 475 <i>On Your Own Exercises</i> 479 #15-#17 <i>Lab Investigation</i> 476-477
.6 Find the sum of the angles in any polygon.	SE: 387, 475 This standard also is covered in <i>Impact Mathematics: Algebra and More Course 1</i> © 2004.
.7 Calculate the measure of an angle in a regular polygon.	SE: 387, 475 This standard also is covered in <i>Impact Mathematics: Algebra and More Course 1</i> © 2004.

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.8 Use manipulatives to construct geometric figures in two and three dimensions.	SE: 91-93, 94-96, 97, 112-116, 130-134, 134-135 <i>Lab Investigation</i> 119-121 <i>On Your Own Exercises</i> 122-124
.9 Identify and describe congruent and similar figures.	SE: 450-453, 454-455, 461-463, 471-473, 473-474 <i>On Your Own Exercises</i> 464-469 <i>Lab Investigation</i> 476-477
.10 Graph a figure and its image formed by a translation, reflection, or rotation, on a coordinate plane.	This standard is covered in <i>Impact Mathematics: Algebra and More Course 3</i> © 2005.
.11 Identify and construct translations, rotations, reflections and dilations of plane figures.	The following examples are precursors to the construction of dilations. SE: 465 #6 <i>Share & Summarize</i> 484 #1 This standard is covered in <i>Impact Mathematics: Algebra and More Course 3</i> © 2005.
.12 Use characteristics of polygons to explain tessellations.	The following examples are precursors to the study of tessellations. SE: 484, 492 This standard is covered in <i>Impact Mathematics: Algebra and More Course 3</i> © 2005.
.13 Use manipulatives to create a figure that tessellates and explain why it tessellates.	The following examples are precursors to the study of tessellations. SE: 483-484 <i>On Your Own Exercises</i> 492 <i>Think & Discuss</i> 482 This standard is covered in <i>Impact Mathematics: Algebra and More Course 3</i> © 2005.
7:6 Measurement:	
.1 Measure length, weight/mass, area, and volume using the appropriate tool in metric and in standard units.	SE: 98-99, 109-112, 112-116, 116-119, 498, 499-500, 501-504 <i>Lab Investigation</i> 119-121 <i>On Your Own Exercises</i> 122-126, 136-139
.2 Use, compare, and convert between units in the metric system for length, area, and volume.	SE: 37-42, 134-135, 451-453, 454-455, 497-498, 499-500, 501-504 <i>Lab Investigation</i> 119-121 <i>On Your Own Exercises</i> 124 #10-#16, 139 #19-#20, 314
.3 Use, compare, and convert between units in the standard system for length, time, weight, area and volume.	SE: 451-453, 454-455, 497-498, 499-500, 501-504 <i>Explore</i> 471 TG: T452
.4 Explain the range of error that can be expected when measuring.	SE: 48 #12d TG: TT T475 This standard is implied in <i>Impact Mathematics: Algebra and More Course 1</i> © 2004 when estimating different measures.
.5 Find perimeter, circumference, and area of circles and polygons, and verify the solution using a different method.	SE: 482-484, 485-488, 489-491 This standard also is covered in <i>Impact Mathematics: Algebra and More Course 1</i> © 2004.

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.6 Use ratios to solve problems about perimeters and areas of similar figures.	SE: 456-460, 461-463, 472-473, 473-474, 482-484, 485-488, 489-491 <i>On Your Own Exercises</i> 466-469, 478-481
.7 Write and solve rate problems and use appropriate units for the solutions.	SE: 176-178, 179-182, 301-305, 305-308 <i>On Your Own Exercises</i> 183-187
7:7 Statistics:	
.1 Compute the mean, median, mode, and range for a given set of data and justify one as the best representation of the data.	SE: 694-696, 710-714 <i>Remember</i> 703, 711 <i>On Your Own Exercises</i> 31 #67, 703 #11-#12 <i>Review and Self-Assessment</i> 727 #5-#6
.2 Explain which measure of central tendency best represents a given data set.	SE: 694-696, 710-714 <i>Remember</i> 703, 711 <i>On Your Own Exercises</i> 31 #67, 703 #11-#12 <i>Review and Self-Assessment</i> 727 #5-#6
.3 Sample and record data systematically.	SE: 676-678, 678-680, 692-694, 694-696, 697-699, 709 <i>On Your Own Exercises</i> 700-707, 714-718
.4 Present data as a scatter plot, stem and leaf, circle graph, line plot, and bar graph; make an argument for which graph best represents the data.	SE: 684 #4, 710-714, 714-717 <i>On Your Own Exercises</i> 674 #14, 687 #6, 718-722 <i>Review and Self-Assessment</i> 727 #5-#6
.5 Use technology and a spreadsheet or data table to create a graph.	SE: <i>Lab Investigation</i> 42-45, 388-391
.6 Interpret a broken axis bar graph and use it to show how data can be misrepresented.	SE: 603-605 <i>On Your Own Exercises</i> 623 #23 The bar graph concept covered on 714-717
.7 Identify and communicate trends based on statistics from data.	SE: 676-678, 678-680, 692-694, 697-699 <i>On Your Own Exercises</i> 700-707
.8 Analyze data for validity and misrepresentation.	SE: 692-694, 697-699 <i>On Your Own Exercises</i> 700-707, 718-722
7:8 Probability:	
.1 Express the probability of a single event as a fraction, decimal, or percent.	SE: 666-668, 668-671, 683-685 <i>On Your Own Exercises</i> 672-674
.2 Predict the outcome of an independent event, design an experiment to test the probability, compute the actual outcome and compare the results to the prediction.	SE: 666-668, 668-671, 676-678, 680-682, 683-685 <i>Lab Investigation</i> 312-313 <i>On Your Own Exercises</i> 672-674, 686-690 <i>Review and Self-Assessment</i> 728 #8-#10
.3 Explain why experimental (actual) results may be different from theoretical (expected) probabilities in 50 coin flips.	SE: 676-678, 678-680, 692-694, 697-699 <i>On Your Own Exercises</i> 700-707
.4 Explain how to determine probability if the odds are known.	SE: 668-671, 676-678, 678-680 <i>On Your Own Exercises</i> 673-674
.5 Predict the probability of a future event, using a table of evidence from the past, and defend your conclusion.	SE: 676-678, 678-680, 680-682, 683-685, 692-694, 697-699 <i>On Your Own Exercises</i> 686-690

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7:9 Patterns:	
.1 Identify, describe, and extend arithmetic, geometric, or other patterns.	SE: 644-647, 648-649, 650-651 <i>On Your Own Exercises</i> 652-658 <i>Review and Self-Assessment</i> 662-663 #5-#6
.2 Use an arithmetic or geometric rational number pattern to find an unknown value.	SE: 78-80, 80-82, 82-83, 644-647, 648-649, 650-651 <i>On Your Own Exercises</i> 652-658 <i>Review and Self-Assessment</i> 662-663 #5-#6
.3 Use symbols to describe number patterns.	SE: 78-80, 80-82, 82-83, 245-247, 368-370 <i>On Your Own Exercises</i> 84-90
.4 Determine the n th term in a sequential pattern.	SE: 78-80, 80-82, 82-83, 245-247, 345-347, 348-350, 362-364 <i>On Your Own Exercises</i> 354-359
.5 Explain the patterns found in tables, graphs, rules and formulas.	SE: 345-347, 348-350, 351-353 <i>On Your Own Exercises</i> 354-360 <i>Review and Self-Assessment</i> 379 #2-#5
.6 Use a pattern from a table or graph to predict an outcome.	SE: 362-364, 365-368, 368-370 <i>On Your Own Exercises</i> 371-376
.7 Explain how to use patterns as a strategy for problem solving.	SE: 345-347, 348-350, 353 <i>On Your Own Exercises</i> 357-360 #10, 15, 17, 372 #11
7:10 Algebra:	
.1 Translate word problems into symbolic expressions, equations, or inequalities.	SE: 10-13, 34-36, 384-387, 395-397, 398-401, 402-403, 410-411
.2 Substitute values for a variable and evaluate the expression, equation, or inequality.	SE: 5-9, 10-13, 13-18, 34-36, 37-42 <i>On Your Own Exercises</i> 22-30, 46-50
.3 Combine like terms to simplify expressions.	SE: 13-18 <i>On Your Own Exercises</i> 25
.4 Graph inequalities on a number line.	SE: 232-233 <i>On Your Own Exercises</i> 238 #34, 240 #55 TG: T232
.5 Describe linear data with tables, graphs, and lines of best fit.	SE: 362-364, 365-368, 385-387, 395-397, 398-401, 410-411, 437-439 <i>Lab Investigation</i> 388-391 <i>On Your Own Exercises</i> 392-393
.6 Substitute values into a linear equation to make a table of ordered pairs; graph the points on a coordinate plane.	SE: 351-353, 362-364, 368-370, 437-439 <i>On Your Own Exercises</i> 356-357 #5-#10, 371-372 <i>Review and Self-Assessment</i> 380-381
.7 Use order of operations including grouping symbols and exponents to solve problems.	SE: 4-9, 13-18, 18-21, 32-36, 37-42, 52-55, 56-58, 59-63, 64-67 <i>On Your Own Exercises</i> 68-73
.8 Solve one-step equations using inverse operations and check the solutions.	SE: 18-21, 385-387, 395-397, 398-401, 410-411 <i>Lab Investigation</i> 388-391 <i>On Your Own Exercises</i> 31 #63-#65, 51 #26-#28, 392-393
.9 Use ratios and proportions to solve problems.	SE: 454-455, 456-460, 461-463, 540-542, 543-545, 545-548, 566-568, 585-587 <i>On Your Own Exercises</i> 554-559

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.10 Use equations to solve problems.	SE: 232, 395-397, 398-401, 402-403, 411-412, 413-414 <i>On Your Own Exercises</i> 404-407, 415-417
.11 Write and solve real life problems that require the use of a variable.	SE: 4-5, 5-9, 10-13, 13-18, 32-33, 34-36, 56-58, 435-437 <i>On Your Own Exercises</i> 22-30, 46-50
7:11 Problem Solving:	
.1 Select, modify, and apply a variety of problem-solving strategies.	SE: 54-55, 79-80, 80-82, 82-83, 130-131 <i>Lab Investigation</i> 119-121, 203-205, 220-222
7:12 Communication:	
.1 Explain the methods and results of various mathematical efforts, orally and in writing.	SE: 409-411, 585-587 <i>Lab Investigation</i> 119-121, 388-391 <i>Share & Summarize</i> 412, 414
7:13 Reasoning:	
.1 Justify solutions or use counter examples to disprove statements.	SE: 453, 454-455, 475 <i>Think & Discuss</i> 61, 305 <i>In Your Own Words</i> 89, 125 <i>Share & Summarize</i> 99, 178, 233, 235
7:14 Connections:	
.1 Apply mathematical skills and processes to other disciplines.	SE: 134-135, 694-696 <i>Lab Investigation</i> 119-121, 203-205 <i>On Your Own Exercises</i> 590-595, 652-659 <i>Share & Summarize</i> 607

Code Used for TG Pages

TT Tips for Teachers