



IMPACT
Mathematics

COURSE 2

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STANDARDS	PAGE REFERENCES
NUMBER AND OPERATIONS	
Understand derived quantities	
N.MR.07.02 Solve problems involving derived quantities such as density, velocity, and weighted averages.*	Student Edition: 35-39, 40-42, 43-48, 343-346, 347-350, 351-354, 355-360, 390-393, 394-395, 396-397, 398-401, 402-409 Teacher Guide: DU 36; E 47, 356; I 351; QQ 360; RWL 38; T 346; TD 35
Understand and solve problems involving rates, ratios, and proportions	
N.FL.07.03 Calculate rates of change including speed.	Student Edition: 390-393, 394-396, 396-397, 398-401, 402-408 <i>Review and Self-Assessment 432 #3</i> Teacher Guide: E 432; I 396; ML 392; OSA 542; QC 408; SS 397; T 394; TD 391

STANDARDS	PAGE REFERENCES
<p>N.MR.07.04 Convert ratio quantities between different systems of units, such as feet per second to miles per hour.</p>	<p>Student Edition: 7, 8, 22 #6, 27 #32, 35, 36, 37 #4, 45 #11, 254 #23-#25</p> <p>Teacher Guide: CU 247; E 27, 36, 254; RAL 7; TD 35</p>
<p>N.FL.07.05 <i>Solve proportion problems using such methods as unit rate, scaling, finding equivalent fractions, and solving the proportion equation $a/b = c/d$; know how to see patterns about proportional situations in tables.*</i></p>	<p>Student Edition: 369-372, 373-376, 389, 390-393, 394-396, 396-397, 398-401, 402-408, 495-496, 497-499, 510-513, 514-516, 522-529</p> <p><i>Review and self-Assessment</i> 431, 551-555</p> <p>Teacher Guide: AA 391; E 511; OSA 509; QQ 529; T 515</p>
<p>Recognize irrational numbers</p>	
<p>N.MR.07.06 Understand the concept of square root and cube root, and estimate using calculators.</p>	<p>Student Edition: 331-335, 338 #10-#12, 339, 341 #34, 343-350, 351-354, 359</p> <p><i>Review and Self-Assessment</i> 361-365</p> <p>Teacher Guide: AA 340, 350; DU 335, 347; MB 332; O 331A; OSA 335; QQ 342; RAL 331, 334; T 333; TD 331, 332; WU 338</p>
<p>Compute with rational numbers</p>	
<p>N.FL.07.07 Solve problems involving operations with integers.</p>	<p>Student Edition: 12-17, 93-95, 96-99, 100-103, 104-106, 128-130, 134-139, 140-142, 148-153, 155-156, 157-159, 160-161, 462-463, 464-465, 477-480, 484, 485</p> <p>Teacher Guide: AA 479; AE 135; DU 103; RAL 160; TD 13, 14, 141</p>
<p>N.FL.07.08 <i>Add, subtract, multiply, and divide positive and negative rational numbers fluently.*</i></p>	<p>Student Edition: 126-127, 128-130, 131-133, 134-139, 140-142, 146-147, 150-153, 155-156, 157-159, 160-161, 165-168</p> <p><i>Review and Self-Assessment</i> 169-171</p> <p>Teacher Guide: DU 137, 156; I 134; MB 155; QQ 168; RAL 160; TD 141, 157</p>

STANDARDS	PAGE REFERENCES
<p>N.FL.07.09 Estimate results of computations with rational numbers.</p>	<p>Student Edition: 16 #20, 28, 35-39, 155-156, 160-161, 163 #8-#10, 174-177, 178-181, 185-187, 188-193, 200-201, 202-206, 430 #24-#28, 473 #46-#51</p> <p>Teacher Guide: AA 163; DU 200; OSA 175; QQ 206; RN 160; SS 201; TD 175</p>
ALGEBRA	
Understand and apply directly proportional relationships and relate to linear relationships	
<p>A.PA.07.01 <i>Recognize when information given in a table, graph, or formula suggests a directly proportional or linear relationship.*</i></p>	<p>Student Edition: 366-367, 369-372, 377-379, 380-381, 382-388, 410, 417-419, 423-430</p> <p><i>Review and Self-Assessment</i> 431-433</p> <p>Teacher Guide: I 373, 377, 380; MB 366B; OSA 379; QC 408; QQ 388, 430; RAL 378; SS 401; T 390; TD 378; TT 371</p>
<p>A.RP.07.02 Represent directly proportional and linear relationships using verbal descriptions, tables, graphs, and formulas, and translate among these representations.</p>	<p>Student Edition: 373-376, 377-379, 380-381, 382-388, 389, 390-393, 394-397, 398-401, 402-408</p> <p><i>Review and Self-Assessment</i> 431-433</p> <p>Teacher Guide: DR 373; DU 374; OSA 379; PR 377; QC 408; QQ388; SS 379; T 390; TD 378; WU 376, 378, 398</p>
<p>A.PA.07.03 <i>Given a directly proportional or other linear situation, graph and interpret the slope and intercept(s) in terms of the original situation; evaluate $y = mx + b$ for specific x values, e.g., weight vs. volume of water, base cost plus cost per unit.*</i></p>	<p>Student Edition: 390-393, 394-395, 396-397, 398-401, 402-409, 417-419, 420-422, 423-430</p> <p><i>Review and Self-Assessment</i> 431-433</p> <p>Teacher Guide: AA 403; DU 394; I 396; ML 398; QC 408; QQ 409; RAL 393, 396; T 395; TD 393; TT 397, 401; WU 392</p>
<p>A.PA.07.04 For directly proportional or linear situations, solve applied problems using graphs and equations, e.g., the heights and volume of a container with uniform cross-section; height of water in a tank being filled at a constant rate; degrees Celsius and degrees Fahrenheit; distance and time under constant speed.</p>	<p>Student Edition: 369-372, 373-376, 377-379, 380-381, 382-388, 390-393, 394-395, 396-397, 398-401, 402-409</p> <p><i>Review and Self-Assessment</i> 431-433</p> <p>Teacher Guide: AA 379, 383, 403; QQ 388; SS 376; T 376; TT 371, 401</p>

STANDARDS	PAGE REFERENCES
<p>A.PA.07.05 Recognize and use directly proportional relationships of the form $y = mx$, and distinguish from linear relationships of the form $y = mx + b$, b non-zero; understand that in a directly proportional relationship between two quantities one quantity is a constant multiple of the other quantity.*</p>	<p>Student Edition: 373-376, 377-379, 380-381, 387, 390-393, 398-401, 505-507</p> <p><i>Review and Self-Assessment</i> 431-433</p> <p>Teacher Guide: DR 373; DU 378; I 377; KV 367; MB 506; MP 380; OSA 379; QC 408; QQ 388; RAL 378; T 390; TD 378; WU 379, 398</p>
Understand and represent linear functions	
<p>A.PA.07.06 Calculate the slope from the graph of a linear function as the ratio of “rise/run” for a pair of points on the graph, and express the answer as a fraction and a decimal; understand that linear functions have slope that is a constant rate of change.</p>	<p>Student Edition: 390-393, 394-395, 402-409, 445 #19-#21</p> <p><i>Review and Self-Assessment</i> 431-433</p> <p>Teacher Guide: AA 403; I 396; DU 394; RAL 393, 396; SS 393; T 395; TD 393; WU 392, 394</p>
<p>A.PA.07.07 Represent linear functions in the form $y = x + b$, $y = mx$, and $y = mx + b$, and graph, interpreting slope and y-intercept.</p>	<p>Student Edition: 398-401, 402-409, 417-419, 420-422, 423-430</p> <p><i>Review and Self-Assessment</i> 431-433</p> <p>Teacher Guide: AA 425; DU 399, 418; E 400; I 417; ML 398; QC 408, 430; QQ 409, 430; RAL 418; TT 401; WU 398</p>
<p>A.FO.07.08 Find and interpret the x and/or y intercepts of a linear equation or function. Know that the solution to a linear equation of the form $ax+b=0$ corresponds to the point at which the graph of $y=ax+b$ crosses the x axis.*</p>	<p>Student Edition: 398-401, 402-409, 414-416, 417-419, 420-422, 423-430</p> <p><i>Review and Self-Assessment</i> 431-433</p> <p>Teacher Guide: AA 409, 432; DU 418, 421; I 417; QQ 409, 430; SS 401; T 416; TT 401; WU 415</p>
Understand and solve problems about inversely proportional relationships	
<p>A.PA.07.09 Recognize inversely proportional relationships in contextual situations; know that quantities are inversely proportional if their product is constant, e.g., the length and width of a rectangle with fixed area, and that an inversely proportional relationship is of the form $y = k/x$ where k is some non-zero number.</p>	<p>The concept of inverse proportion is introduced in the following references.</p> <p>Student Edition: 377, 493, 505</p> <p>Also see <i>Impact Mathematics Course 3</i> © 2009 and <i>Math Connects: Concepts, Skills, and Problem Solving Course 2</i> © 2009.</p>

STANDARDS	PAGE REFERENCES
A.RP.07.10 Know that the graph of $y = k/x$ is not a line, know its shape, and know that it crosses neither the x nor the y-axis.	See <i>Impact Mathematics Course 3</i> © 2009 and <i>Math Connects: Concepts, Skills, and Problem Solving Course 2</i> © 2009.
Apply basic properties of real numbers in algebraic contexts	
A.PA.07.11 Understand and use basic properties of real numbers: additive and multiplicative identities, additive and multiplicative inverses, commutativity, associativity, and the distributive property of multiplication over addition.	<p>Student Edition: 49-50, 51-52, 53-55, 56-59, 60-62, 63-68, 91 #42-#45, 333, 435, 462-463, 464-465, 475-476, 477-479, 481-483 <i>Review and Self-Assessment</i> 69-71</p> <p>Teacher Guide: E 66; I 49; QC 68; QQ 68; SS 59; T 464, 476; TD 333; TT 50</p>
Combine algebraic expressions and solve equations	
A.FO.07.12 Add, subtract, and multiply simple algebraic expressions of the first degree, e.g., $(92x + 8y) - 5x + y$, or $x(x+2)$ and justify using properties of real numbers.*	<p>Student Edition: 12-17, 17-20, 25 #12-15, 28 #34, 51-52, 53-55, 56-59, 60-62, 63-68 <i>Review and Self-Assessment</i> 69-71</p> <p>Teacher Guide: AA 18, 62; B 19; I 12, 60; MB 58; QQ 68; T 15; TD 13</p>
A.FO.07.13 From applied situations, generate and solve linear equations of the form $ax + b = c$ and $ax + b = cx + d$, and interpret solutions.	<p>Student Edition: 437-439, 440-443, 444-445, 447-448, 449-452, 453-454, 455-459, 462-463, 464-465, 469-473, 474-476, 481-483, 484-488 <i>Review and Self-Assessment</i> 489-491</p> <p>Teacher Guide: MB 462; QQ 445, 459, 473, 488; SS 454</p>
GEOMETRY	
Draw and construct geometric objects	
G.SR.07.01 Use a ruler and other tools to draw squares, rectangles, triangles, and parallelograms with specified dimensions.	<p>Student Edition: 211, 517-518, 519-521 <i>Share and Summarize</i> 230</p> <p>Teacher Guide: AA 517, 521; MP 519; RAL 216, 232; SS 230, 520</p>

STANDARDS	PAGE REFERENCES
<p>G.SR.07.02 Use compass and straightedge to perform basic geometric constructions: the perpendicular bisector of a segment, an equilateral triangle, and the bisector of an angle; understand informal justifications.</p>	<p>See <i>Math Connects: Concepts, Skills, and Problem Solving Course 2</i> © 2009.</p>
<p>Understand the concept of similar polygons, and solve related problems</p>	
<p>G.TR.07.03 Understand that in similar polygons, corresponding angles are congruent and the ratios of corresponding sides are equal; understand the concepts of similar figures and scale factor.</p>	<p>Student Edition: 505-507, 508, 517-518, 519-521, 522-529 <i>Review and Self-Assessment</i> 551-555</p> <p>Teacher Guide: AA 517, 521, 526, 528; DU 508; E 517, 525; QQ 529; SS 518; T 508</p>
<p>G.TR.07.04 Solve problems about similar figures and scale drawings.</p>	<p>Student Edition: 511, 513 #7, 514-516, 519-521, 522-529 <i>Review and Self-Assessment</i> 551-555</p> <p>Teacher Guide: AA 521, 526, 528; DU 515; E 511, 524; OSA 514; QQ 529; SS 516; T 511, 515; TD 514</p>
<p>G.TR.07.05 Show that two triangles are similar using the criteria: corresponding angles are congruent (AAA similarity); the ratios of two pairs of corresponding sides are equal and the included angles are congruent (SAS similarity); ratios of all pairs of corresponding sides are equal (SSS similarity); use these criteria to solve problems and to justify arguments.</p>	<p>Student Edition: 517-518</p> <p>Teacher Guide: AA 517; SS 518</p>
<p>G.TR.07.06 Understand and use the fact that when two triangles are similar with scale factor of r, their areas are related by a factor of r^2.</p>	<p>See <i>Impact Mathematics Course 3</i> © 2009 and <i>Math Connects: Concepts, Skills, and Problem Solving Course 2</i> © 2009.</p>

STANDARDS	PAGE REFERENCES
DATA AND PROBABILITY	
Represent and interpret data	
<p>D.RE.07.01 Represent and interpret data using circle graphs, stem and leaf plots, histograms, and box-and-whisker plots, and select appropriate representation to address specific questions.</p>	<p>Student Edition: 294, 295-298, 299-301, 302-305, 306-308, 309-313 <i>Review and Self-Assessment</i> 316, 317</p> <p>Teacher Guide: AA 309, 316; DU 304; E 303; I 299; OSA 296; QQ 313; SS 301, 305; T 299; TD 294, 297</p>
<p>D.AN.07.02 Create and interpret scatter plots and find line of best fit; use an estimated line of best fit to answer questions about the data.</p>	<p>See <i>Impact Mathematics Course 1</i> © 2009 and <i>Math Connects: Concepts, Skills, and Problem Solving Course 2</i> © 2009.</p>
Compute statistics about data sets	
<p>D.AN.07.03 Calculate and interpret relative frequencies and cumulative frequencies for given data sets.</p>	<p>Student Edition: <i>Develop and Understand</i> 163</p> <p>Teacher Guide: DU 163</p>
<p>D.AN.07.04 Find and interpret the median, quartiles, and interquartile range of a given set of data.</p>	<p>Student Edition: 162-164, 166, 281, 304 #3, 311 #5, 312 #8 <i>Review and Self-Assessment</i> 170 #16-#20, 316 #15</p> <p>Teacher Guide: DU 163, 304; I 302; OSA 164, 299; RAL 162; SS 164; T 162; WU 304, 305</p>

* revised expectations in italics