



Math Connects

Concepts, Skills, and Problem Solving

Course 2

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| STANDARDS | PAGE REFERENCES |
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| NUMBER AND OPERATIONS | |
| Understand derived quantities | |
| N.MR.07.02 Solve problems involving derived quantities such as density, velocity, and weighted averages. * | Student Edition: 144 #6, 145 #21, 307 ex 6, 308 #27, 335 #24 <i>Practice Test</i> 337 #5 |
| Understand and solve problems involving rates, ratios, and proportions | |
| N.FL.07.03 Calculate rates of change including speed. | Student Edition: 144, 145, 287-292, 293-297, 298-303, 308 #26-#27, 334, 682, 709 <i>Math Lab</i> 316 <i>Mid-Chapter Quiz</i> 317 <i>Practice Test</i> 337 Teacher Wraparound Edition: A 145, 288, 296; AE 144, 165, 294, 300; P 144; T 287, 293 |

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| <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: 145, 287-292, 293-297, 298-303, 304-309, 334, 335, 682, 709, 747 <i>Mid-Chapter Quiz</i> 317 <i>Practice Test</i> 337</p> <p>Teacher Wraparound Edition: AA 291 #32, 302; AE 299, 300, 305, 306; T 298</p> |
| <p>N.FL.07.05 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. *</p> | <p>Student Edition: 287-292, 293-297, 298-303, 304-309, 310-315, 320-326, 336, 682, 683, 684, 709, 728 #8 <i>Mid-Chapter Quiz</i> 317 <i>Practice Test</i> 337 <i>Spreadsheet Lab</i> 327</p> <p>Teacher Wraparound Edition: AA 47, 313, 314, 315; AE 305, 306, 311, 312</p> |
| Recognize irrational numbers | |
| <p>N.MR.07.06 Understand the concept of square root and cube root, and estimate using calculators.</p> | <p>Student Edition: 30-33, 34-37, 589-593, 619-623, 636-639, 640-645, LA18-LA20, 668, 701, 704 #11, 714 #5 <i>Mid-Chapter Quiz</i> 48 <i>Practice Test</i> 75 <i>Study Guide and Review</i> 71-72, 120</p> <p>Teacher Wraparound Edition: A 37; AA 638; AE 35, 637; FMC 35, 637, 641, LA20; P 36; T 30, 34, 636</p> |
| Compute with rational numbers | |
| <p>N.FL.07.07 Solve problems involving operations with integers.</p> | <p>Student Edition: 49-52, 53-56, 82-83, 86-87, 95-99, 103-105, 107-111, 112-113, 114-118, 124-125, 668, 669, 670, 705 <i>Algebra Lab</i> 101-102 <i>Practice Test</i> 123 <i>Study Guide and Review</i> 120-122</p> <p>Teacher Wraparound Edition: AA 111; AE 54, 96, 97, 104, 108; P 98; T 53, 95</p> |

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| <p>N.FL.07.08 <i>Add, subtract, multiply, and divide positive and negative rational numbers fluently.*</i></p> | <p>Student Edition: 23, 236-241, 242-246, 252-257, 265-270, 272-274, 328-332, 679, 680, 681, 708, 726-727, 736, 737, 738, 740 <i>Math Lab</i> 250-251 <i>Mid-Chapter Quiz</i> 247 <i>Practice Test</i> 275</p> <p>Teacher Wraparound Edition: AA 239, 245; AE 237, 243, 330; T 236, 242</p> |
| <p>N.FL.07.09 Estimate results of computations with rational numbers.</p> | <p>Student Edition: 230-235, 239 #52-#55, 246 #43-#46, 272, 355-360, 385 #20-#26, 636-639, 679, 686, 701, 708 #1-#2, 710 #7, 735 <i>Mid-Chapter Quiz</i> 247 <i>Practice Test</i> 275 #1-#5, 389 #4-#8</p> <p>Teacher Wraparound Edition: A 246; AE 231, 232; FMC 231; T 230; TNT 231, 245</p> |
| <p>ALGEBRA</p> | |
| <p>Understand and apply directly proportional relationships and relate to linear relationships</p> | |
| <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: 63-67, 74, 163-167, 310-315, 317 #18-#19, 318-319, 676, 683, 730-731 <i>Graphing Calculator Lab</i> 68-69, 168 <i>Measurement Lab</i> 162</p> <p>Teacher Wraparound Edition: A 69; AA 313, 317; AE 164, 311; TNT 311</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: 63-67, 74, 163-167, 293-297, 302, 303, 310-315, 317 #18-#19, 320-326, 426-431, 676, 683, 709 <i>Graphing Calculator Lab</i> 68-69, 168 <i>Measurement Lab</i> 162 <i>Spreadsheet Lab</i> 327</p> <p>Teacher Wraparound Edition: A 326; AA 296, 297, 318; AE 164, 165, 293, 294, 321, 427; FMC 427; PA 325</p> |

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| <p>A.PA.07.03 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.*</p> | <p>Student Edition: 163-167, 287-292, 293-297, 334, 682, 709, 724 #8-#9 <i>Graphing Calculator Lab</i> 68-69, 168, 624-625 <i>Measurement Lab</i> 162 <i>Practice Test</i> 173</p> <p>Teacher Wraparound Edition: AA 296, 297; AE 164, 165, 294</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: 116, 144, 163-167, 168, 287-292, 314, 318-319, 613-618, 619-623, 748-749 <i>Graphing Calculator Lab</i> 68-69, 168, 624-625 <i>Measurement Lab</i> 162 <i>Mid-Chapter Quiz</i> 317</p> <p>Teacher Wraparound Edition: AA 291; AE 116, 144, 165, 288, 300; TNT 166</p> |
| <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: 63-67, 74, 83 #41-#43, 142-146, 156-161, 671, 704, 724 #8-#9, 728 #8, 730-731, 732 <i>Graphing Calculator Lab</i> 68-69</p> <p>Teacher Wraparound Edition: AA 65, 66, 67, 146; AE 64, 143, 157; T 63</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: 287-292, 293-297, 298-303, 334, 337, 682, 709 #5-#6, 724 #8-#9, 732 #2 <i>Measurement Lab</i> 162 <i>Mid-Chapter Quiz</i> 317</p> <p>Teacher Wraparound Edition: AA 295, 296, 297, 302; AE 294; T 293; TNT 297</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: 163-167, 293-297, 298-303, 671, 676, 682, 709 #5, 728 #8, 730-731 <i>Graphing Calculator Lab</i> 68-69, 168</p> <p>Teacher Wraparound Edition: AA 167; AE 164, 165; T 168; TNT 168</p> |

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| <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: 163-167, 172, 728 #8, 730-731 <i>Measurement Lab</i> 162 <i>Practice Test</i> 173</p> <p>Teacher Wraparound Edition: AA 172; AE 164; FMC 163</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>Student Edition: 144, 145 #21, 160 #39-#40 <i>Math Lab</i> 316</p> <p>Teacher Wraparound Edition: A 316; F 316; T 316; TNT 144</p> |
| <p>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.</p> | <p>Student Edition: <i>Math Lab</i> 316</p> <p>Teacher Wraparound Edition: A 316; F 316; T 316</p> |
| Apply basic properties of real numbers in algebraic contexts | |
| <p>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> | <p>Student Edition: 38-41, 42-43, 44-47, 49-52, 53-56, 72-74, 156-161, 258-263, LA6-LA9, 669, 670, 704, 748 <i>Mid-Chapter Quiz</i> 48 <i>Practice Test</i> 75</p> <p>Teacher Wraparound Edition: AA 38, 55, 262; AE 39, 53, 259, 260; FMC 54; T 38, 258; TNT 262</p> |
| Combine algebraic expressions and solve equations | |
| <p>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> | <p>Student Edition: 44-47, 49-52, 53-56, 61 #39-#40, 67 #32-#35, 73, 128-133, 669, 670, 742 <i>Mid-Chapter Quiz</i> 48 <i>Study Guide and Review</i> 73</p> <p>Teacher Wraparound Edition: AA 73; AE 50; DI 50</p> |

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| <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> | <p>Student Edition: 49-52, 63-67, 74, 128-133, 136-141, 151-155, 156-161, 170-171, LA6-LA9, 670, 674, 675, 748 <i>Algebra Lab</i> 134-135 <i>Practice Test</i> 173</p> <p>Teacher Wraparound Edition: A 135; AE 129, 130, 137, 138, 152, 153, 157; T 134, 136; TNT 151</p> |
| GEOMETRY | |
| Draw and construct geometric objects | |
| <p>G.SR.07.01 Use a ruler and other tools to draw squares, rectangles, triangles, and parallelograms with specified dimensions.</p> | <p>Student Edition: 524-529, 530-531, 533-538, 553-557, 578-582, 694, 743, 744 <i>Graphing Calculator Lab</i> 624-625 <i>Measurement Lab</i> 577 <i>Practice Test</i> 567</p> <p>Teacher Wraparound Edition: A 529; AA 527, 528, 537, 581; AE 526, 530, 554; T 578</p> |
| <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>Student Edition: 524-529, 530, 694</p> <p>A compass may be added in class to perform constructions.</p> <p>Teacher Wraparound Edition: AA 527, 528; AE 526, 530</p> |
| Understand the concept of similar polygons, and solve related problems | |
| <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: 534, 539, 540-545, 546-551, 552, 554, 557 #28, 563, 565, 567, LA14-LA17, 695, 724 #10 <i>Mid-Chapter Quiz</i> 539 <i>Practice Test</i> 567 <i>Study Guide and Review</i> 563, 565</p> <p>Teacher Wraparound Edition: A 545; AE 541, 542; FMC 541; TNT 542</p> |

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| <p>G.TR.07.04 Solve problems about similar figures and scale drawings.</p> | <p>Student Edition: 320-326, 336, 540-545, 551 #36, 557 #28, 565, LA14-LA17, 684, 695, 724 #10, 732 #4 <i>Measurement Lab</i> 654-655 <i>Practice Test</i> 337 <i>Spreadsheet Lab</i> 327</p> <p>Teacher Wraparound Edition: A 326; AA 325; AE 321, 322, 541, 542; FMC 322; T 320; TNT 322</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: 540-545, 557 #28, 565, LA14-LA17</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>Student Edition: 525-527, 530, 534, 539, 540-545, 546-551, 552, 554, 557 #28, 563, 565, 567, 695, 724 #10 <i>Mid-Chapter Quiz</i> 539 <i>Practice Test</i> 567 <i>Study Guide and Review</i> 563, 565</p> <p>Teacher Wraparound Edition: A 327; AA 325; AE 321, 322, 541</p> |
| <p>DATA AND PROBABILITY</p> | |
| <p>Represent and interpret data</p> | |
| <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: 14-15, 396-401, 402-408, 410-414, 415-421, 424-425, 426-431, 434-437, 455, LA21-LA25, 687, 688, 729 #19 <i>Mid-Chapter Quiz</i> 423 <i>Practice Test</i> 455 <i>Spreadsheet Lab</i> 422, 432-433</p> <p>Teacher Wraparound Edition: AA 396, 408, 413, 418; AE 397, 411, 416, 417</p> |

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| <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>Student Edition: 396-401, 424-425, 426-431, 453, 687, 688, 711 <i>Mid-Chapter Quiz</i> 423 <i>Practice Test</i> 455</p> <p>Teacher Wraparound Edition: AA 396, 400, 401, 429; AE 397, 424, 427, 428; FMC 427; TNT 399</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: 396-401, 410-414, 415-421, 426-431, 438-443, 452, 454, 688, 689, 711 <i>Mid-Chapter Quiz</i> 423 <i>Practice Test</i> 455 <i>Spreadsheet Lab</i> 432-433</p> <p>Teacher Wraparound Edition: AA 400, 413, 420, 421; AE 411, 417, 428; T 415</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: 117 #39, 395-400, 402-408, 410-414, 421 #33-#34, 431 #26-#27, LA21-LA25, 687, 725 #18-#21 <i>Graphing Calculator Lab</i> 409 <i>Mid-Chapter Quiz</i> 423 <i>Study Guide and Review</i> 451</p> <p>Teacher Wraparound Edition: AA 401, 406, 414; AE 398, 403, 404, 405, 410; FMC 404; T 396; TNT 409, 411, 421</p> |

* revised expectations in italics