



Math Connects

Concepts, Skills, and Problem Solving

Course 3

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STANDARDS	PAGE REFERENCES
Number and Operations	
1. Understand numbers, ways of representing numbers, relationships among numbers and number systems	
A Read, write and compare numbers	
*compare and order all rational numbers including percents, and find their approximate location on a number line	<p>Student Edition: 91-95, 101 #55-#57, 107 #55, 147 #50-#53, 267 #33, 256-261</p> <p><i>Mid-Chapter Quiz</i> 113 #4-#8</p> <p><i>Reading to Solve Problems</i> 262</p> <p><i>Study Guide and Review</i> 135 2-2</p> <p>Teacher's Wraparound Edition: DI 93; FM 92</p>
B Represent and use rational numbers	
*use fractions, decimals and percents to solve problems	<p>Student Edition: 89 #55, 95 #43, 98, 99 #10-#11, #24-#27, 104, 106, 115 Test Example 4, 259-260, 263-266, 270-271</p> <p><i>Problem-Solving Investigation</i> 272</p> <p>Teacher's Wraparound Edition: AE 258, 265</p>

STANDARDS	PAGE REFERENCES
C Compose and decompose numbers	
*recognize equivalent representations for the same number and generate them by <u>decomposing and composing numbers</u> , including scientific notation	Student Edition: 85, 86 Example 4-Example 5, 87 #1-#6, #8-#27, #30-#37, 130-132, 252, 256-257, 268 <i>Study Guide and Review</i> 138 2-10 <i>Study Tip</i> 253 Teacher’s Wraparound Edition: AE 257; TT 133
D Classify and describe numeric relationships	
2. Understand meanings of operations and how they relate to one another	
A Represent operations	
B Describe effects of operations	
C Apply properties of operations	
apply <u>properties of operations</u> to all rational numbers including order of operations and inverse operations	Student Edition: 29, 31-32, 39 #51-#53, 43, 53, 65-66, 70-71 <i>Study Tip</i> 30 Teacher’s Wraparound Edition: AE 43; FM 30, 66; PA 32, 71
D Apply operations on real and complex numbers	
3. Compute fluently and make reasonable estimates	
A Describe or represent mental strategies	
B Develop and demonstrate fluency	
C Compute problems	
D Estimate and justify solutions	
E Use proportional reasoning	

STANDARDS	PAGE REFERENCES
Algebraic Relationships	
1. Understand patterns, relations and functions	
A Recognize and extend patterns	
B Create and analyze patterns	
generalize patterns represented <u>graphically</u> or <u>numerically</u> with words or <u>symbolic rules</u> , using <u>explicit notation</u>	Student Edition: 25-28, 33 #39-#40, 138 #17-#18, 319 #23, 464-467 <i>Mini-Lab</i> 24, 29, 316 <i>Problem-Solving Investigation</i> 124-125 Teacher's Wraparound Edition: 469a; AE 124, 465; SQ 316
C Classify objects and representations	
compare and contrast various forms of <u>representations</u> of patterns	Student Edition: 25-28, 33 #39-#40, 138 #17-#18, 319 #23, 464-467 <i>Mini-Lab</i> 24, 29, 316 <i>Problem-Solving Investigation</i> 124-125 Teacher's Wraparound Edition: 469a; AE 124, 465; SQ 316
D Identify and compare functions	
identify <u>functions</u> as <u>linear</u> or <u>nonlinear</u> from tables, graphs or equations	Student Edition: 475-480, 528-533, 534-537, 540-543 <i>Graphing Calculator Lab</i> 500-501, 544 <i>Study Guide and Review</i> 519 9-3 Teacher's Wraparound Edition: 528 a; AE 476, 477, 535, 541; FM 476, 541
E Describe the effects of parameter changes	
2. Represent and analyze mathematical situations and structures using algebraic symbols	
A Represent mathematical situations	
use <u>symbolic algebra</u> to represent and solve problems that involve linear relationships	Student Edition: 475-479, 481-486, 487-491, 495-499, 502-507 Teacher's Wraparound Edition: AE 476, 495, 504, 512; FM 496

STANDARDS	PAGE REFERENCES
B Describe and use mathematical manipulation	
use properties to generate equivalent forms for simple algebraic expressions that include all rationals	Student Edition: 31, 32 #10, 43, 53 Example 7, 61 #27, 65-66, 69 #28, 70, 102-103, 119-120, 210 Teacher’s Wraparound Edition: DI 53; PA 45, 71
C Utilize equivalent forms	
D Utilize systems	
3. Use mathematical models to represent and understand quantitative relationships	
A Use mathematical methods	
<u>model</u> and solve problems, using multiple representations such as graphs, tables, and linear equations	Student Edition: 206, 422, 429, 442, 470 Example 3, 475-479 <i>Algebra Lab</i> 432-433 <i>Problem-Solving Investigation</i> 216-217 Teacher’s Wraparound Edition: 65a, 469a; AE 477
4. Analyze change in various contexts	
A Analyze change	
analyze the nature of changes (including slope and intercepts) in quantities in linear relationships	Student Edition: 469-472, 475-479, 489-491, 495-497 <i>Geometry Lab</i> 493 <i>Graphing Calculator Lab</i> 500-501 Teacher’s Wraparound Edition: 495a; 495b, A 499; AE 496
c Geometric and Spatial Relationships	
1. Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships	
A Describe and use geometric relationships	
*describe, classify and generalize relationships between and among types of a) 2-dimensional objects and b) 3- dimensional objects using their defining <u>properties</u> including Pythagorean Theorem	Student Edition: 129 #46, 316-319, 352, 363, 373, 399-403 <i>Geometry Lab</i> 312-313, 324-325 <i>Problem-Solving Investigation</i> 314 Teacher’s Wraparound Edition: 314a, 316a, 320a; PA 212

STANDARDS		PAGE REFERENCES
B Apply geometric relationships		
C Compose and decompose shapes		
2. Specify locations and describe spatial relationships using coordinate geometry and other representational systems		
A Use coordinate systems		
use coordinate geometry to analyze <u>properties of right triangles</u> and quadrilaterals (including the use of the Pythagorean Theorem)	Student Edition: 162-166, 167-171 <i>Geometry Lab</i> 161, 172 Teacher's Wraparound Edition: 162a, 167a, 314a; AE 163, 164, 168; FM 163; PA 163, 168	
3. Apply transformations and use symmetry to analyze mathematical situations		
A Use transformations on objects		
reposition shapes under <u>formal</u> transformations such as reflection, rotation and translation	Student Edition: 332-336, 337-341 <i>Study Guide and Review</i> 345 6-6, 346 6-7 Teacher's Wraparound Edition: 337a; A 341; AE 333, 338; PA 333	
B Use transformations on functions		
describe the relationship between the scale factor and the area of the image using a <u>dilation</u> (stretching/ shrinking)	Student Edition: 225-230, 232-235, 236-241 <i>Spreadsheet Lab</i> 231 <i>Study Guide and Review</i> 246 Teacher's Wraparound Edition: 225a; AE 226, 227; PA 227	
C Use symmetry		
*identify the number of rotational symmetries of regular polygons	Student Edition: 327-331, 336 #21-#23 <i>Study Guide and Review</i> 345 6-5 Teacher's Wraparound Edition: 327a; AE 328, 329; FM 328	

STANDARDS	PAGE REFERENCES
4. Use visualization, spatial reasoning and geometric modeling to solve problems	
A Recognize and draw three-dimensional representations	
create <u>isometric drawings</u> from a given <u>mat plan</u>	<p>The following page references and examples of three-dimensional objects can serve as an introduction to creating isometric drawings.</p> <p>Student Edition: 368-372, 373-378, 380-384, 386-394, 393-396</p> <p>Teacher’s Wraparound Edition: FM 369</p>
B Draw and use visual models	
draw or use <u>visual models</u> to represent and solve problems	<p>Student Edition: 370 Example 6, 372 #27-#28, 393 <i>Measurement Lab</i> 385, 392 <i>Mini-Lab</i> 316, 380, 386 <i>Spreadsheet Lab</i> 397-398</p> <p>Teacher’s Wraparound Edition: 368a, 380a; AE 370</p>
Measurement	
1. Understand measurable attributes of objects and the units, systems and processes of measurement	
A Determine unit of measurement	
B Identify equivalent measures	
C Tell and use units of time	
D Count and compute money	
2. Apply appropriate techniques, tools and formulas to determine measurements	
A Use standard or non-standard measurement	
B Use angle measurement	
*solve problems of angle measure, including those involving triangles and parallel lines cut by a transversal	<p>Student Edition: 306-311, 316-319 <i>Geometry Lab</i> 312-313 <i>Problem-Solving Investigation</i> 314</p> <p>Teacher’s Wraparound Edition: 314a; AE 307, 308, 317; PA 307, 317</p>

STANDARDS		PAGE REFERENCES
C Apply geometric measurements		
D Analyze precision		
*analyze <u>precision</u> and accuracy in measurement situations and determine number of significant digits		Student Edition: 163 Example 2, 167 Example 1, 171 #24, 175 Example 6, 206 Example 3, 211 Example 1, 236-237 <i>Concepts and Skills Bank</i> 736 <i>Mid-Chapter Quiz</i> 215 #19 Teacher's Wraparound Edition: AE 238; FM 237
E Use relationships within a measurement system		
Data and Probability		
1. Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them		
A Formulate questions		
B Classify and organize data		
C Represent and interpret data		
select, create and use appropriate graphical representation of data (including <u>scatter plots</u>) and <u>box plots</u> (box and whiskers)		Student Edition: 510-515, 605-610, 612-615, 617-621 <i>Graphing Calculator Lab</i> 516-517, 611 <i>Problem-Solving Investigation</i> 508 Teacher's Wraparound Edition: 617a; AE 511, 512, 607, 618; FM 511, 614
2. Select and use appropriate statistical methods to analyze data		
A Describe and analyze data		
find, use and interpret <u>measures of center, outliers</u> and spread, including range and <u>interquartile range</u>		Student Edition: 591-596, 599-604 <i>Concepts and Skills Bank</i> 751 <i>Spreadsheet Lab</i> 597 Teacher's Wraparound Edition: 591a; AE 592, 593, 600, 601; PA 593

STANDARDS	PAGE REFERENCES
B Compare data representations	
compare different representations of the same data and evaluate how well each representation shows important aspects of the data	Student Edition: 609- #19-#20, 617-621 <i>Concepts and Skills Bank</i> 749 <i>Study Guide and Review</i> 626 11-8 Teacher’s Wraparound Edition: 617a; AE 618; FM 618
C Represent data algebraically	
3. Develop and evaluate inferences and predictions that are based on data	
A Develop and evaluate inferences	
make <u>conjectures</u> about possible relationships between 2 characteristics of a sample on the basis of scatter plots of the data and approximate lines of fit	Student Edition: 510-515 <i>Problem-Solving Investigation</i> 508 Teacher’s Wraparound Edition: AE 511, 512; T 510
B Analyze basic statistical techniques	
4. Understand and apply basic concepts of probability	
A Apply basic concepts of probability	
B Use and describe compound events	