



# Geometry

Concepts and Applications

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STANDARDS	PAGE REFERENCES
<b>Geometry</b>	
<b>Number and Operations</b>	
<b>1. Understand numbers, ways of representing numbers, relationships among numbers and number systems</b>	
<b>A Read, write and compare numbers</b>	
compare and order rational and irrational numbers, including finding their approximate locations on a number line	<b>Student Edition:</b> 50-55, 56-61, 276-281, 290-295, 296-300 <i>Preparing for Standardized Tests</i> 87 #1, 272 Ex2 <b>Teacher Wraparound Edition:</b> EC 55, 61, 295, 299; ICE 51, 292
<b>B Represent and use rational numbers</b>	
use real numbers and various models, drawing, etc. to solve problems.	<b>Student Edition:</b> 50-55, 56-61, 68-73, 76-81, 104-109, 110-114, 116-121, 174-179, 193-197, 246-250, 256-261, 262-267, 419-424, 548-553, 559-563 <b>Teacher Wraparound Edition:</b> EC 55, 81, 261
<b>C Compose and decompose numbers</b>	
<b>D Classify and describe numeric relationships</b>	
<b>2. Understand meanings of operations and how they relate to one another</b>	
<b>A Represent operations</b>	
<b>B Describe effects of operations</b>	
<b>C Apply properties of operations</b>	

STANDARDS		PAGE REFERENCES
<b>D Apply operations on real and complex numbers</b>		
*apply operations to real numbers, using mental computation or paper-and-pencil calculations for simple cases and technology for more complicated cases	<b>Student Edition:</b> 35-40, 56-61, 62-67, 76-81, 104-109, 116-121, 162-167, 168-173, 174-179, 193-197, 246-250, 256-261, 262-267, 296-300, 333-338 <b>Teacher Wraparound Edition:</b> EC 167	
6	<b>3. Compute fluently and make reasonable estimates</b>	
	<b>A Describe or represent mental strategies</b>	
	<b>B Develop and demonstrate fluency</b>	
	<b>C Compute problems</b>	
	<b>D Estimate and justify solutions</b>	
*judge the reasonableness of numerical computations and their results	This objective can be integrated into the lessons on the following pages. <b>Student Edition:</b> 35-40, 56-61, 76-81, 96-101, 104-109, 116-121, 148-153, 156-161, 193-197, 240-243, 246-250, 256-261, 356-361, 362-367, 388-393, 413-418	
<b>E Use proportional reasoning</b>		
*solve problems involving proportions	<b>Student Edition:</b> 350-355, 356-361, 362-367, 368-373, 374-378, 382-387, 388-393 <i>Investigation</i> 380-381 <i>Math in the Workplace</i> 379 <b>Teacher Wraparound Edition:</b> EC 355, 361, 373, 378, 387; FA 353; ICE 352, 358, 364; RA 352, 360, 365, 372	
<b>Algebraic Relationships</b>		
<b>1. Understand patterns, relations and functions</b>		
<b>A Recognize and extend patterns</b>		
<b>B Create and analyze patterns</b>		
generalize patterns using <u>explicitly</u> or <u>recursively</u> defined functions	The following references can be expanded through classroom discussion and instruction to meet this objective. <b>Student Edition:</b> 4-9 <i>Investigation</i> 10-11 <i>Preparing for Standardized Tests</i> 493 #9	

STANDARDS	PAGE REFERENCES
<b>C Classify objects and representations</b>	
compare and contrast various forms of <u>representations</u> of patterns	<b>Student Edition:</b> 4-9 <i>Investigation</i> 10-11 <b>Teacher Wraparound Edition:</b> RA7
<b>D Identify and compare functions</b>	
apply appropriate <u>properties of exponents</u> to simplify expressions and solve equations	The following references can be expanded through classroom discussion and instruction to meet this objective. <b>Student Edition:</b> 256-261, 262-267, 548-553, 554-558, 559-563 <i>Algebra Review</i> 718 <i>Preparing for Standardized Tests</i> 46 Ex1, 47 #5, 87 #1
<b>E Describe the effects of parameter changes</b>	
<b>2. Represent and analyze mathematical situations and structures using algebraic symbols</b>	
<b>A Represent mathematical situations</b>	
<b>B Describe and use mathematical manipulation</b>	
<b>C Utilize equivalent forms</b>	
<b>D Utilize systems</b>	
<b>3. Use mathematical models to represent and understand quantitative relationships</b>	
<b>A Use mathematical models</b>	
identify quantitative relationships and determine the type(s) of functions that might model the situation to solve the problem	The following references can be expanded through classroom discussion and instruction to meet this objective. <b>Student Edition:</b> 564-569, 572-577 <i>Graphing Calculator Exploration</i> 574 <i>Investigation</i> 570-571 <b>Teacher Wraparound Edition:</b> EC 569, 577

STANDARDS	PAGE REFERENCES
4. Analyze change in various contexts	
A Analyze change	
analyze linear and quadratic functions by investigating rates of change and intercepts	<p>The following references can be expanded through classroom discussion and instruction to meet this objective.</p> <p><b>Student Edition:</b> 168-173, 174-179 <i>Preparing for Standardized Tests</i> 87 #10, 347 #1, 715 #10</p>
Geometric and Spatial Relationships	
1. Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric	
A Describe and use geometric relationships	
use inductive and deductive reasoning to establish the validity of geometric <u>conjectures</u> , prove theorems and critique arguments made by others	<p><b>Student Edition:</b> 632-637, 638-643, 644-648, 649-653, 654-659, 660-665 <i>Hands-On Geometry</i> 660 <i>Investigation</i> 666</p> <p><b>Teacher Wraparound Edition:</b> EC 637, 643, 648, 653, 665; FA 642; RA 640, 656, 662</p>
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	
make conjectures and solve problems involving 2-dimensional objects represented with Cartesian coordinates	<p><b>Student Edition:</b> 76-81, 168-173, 174-179, 262-267, 660-665 <i>Graphing Calculator Exploration</i> 170</p> <p><b>Teacher Wraparound Edition:</b> EC 665; RA 662</p>

STANDARDS	PAGE REFERENCES
<b>3. Apply transformations and use symmetry to analyze mathematical situations</b>	
<b>A Use transformations on objects</b>	
use and apply constructions and the coordinate plane to represent translations, reflections, rotations and dilations of objects	<b>Student Edition:</b> 198-202, 687-690, 692-696, 697-702, 703-707 <i>Graphing Calculator Exploration</i> 700 <i>Hands-On Geometry</i> 692 <i>Investigation</i> 708-709 <i>Math in the Workplace</i> 691 <b>Teacher Wraparound Edition:</b> EC 690, 696, 702, 707; FA 706; RA 688, 694, 704
<b>B Use transformations on functions</b>	
<b>C Use symmetry</b>	
identify types of symmetries of 2- and 3-dimensional figures	<b>Student Edition:</b> 434-439, 440-444 <b>Teacher Wraparound Edition:</b> EC 439; RA 436
<b>4. Use visualization, spatial reasoning and geometric modeling to solve problems</b>	
<b>A Recognize and draw three-dimensional representations</b>	
draw and use vertex-edge graphs or networks to find optimal solutions and draw representations of 3- dimensional geometric objects from different perspectives	<b>Student Edition:</b> 333 Ex1, 498 #1, 500 #32 <i>Investigation</i> 74-75, 502-503 <i>Math in the Workplace</i> 23
<b>B Draw and use visual models</b>	
*draw or use visual models to represent and solve problems	<b>Student Edition:</b> 56-61, 68-73, 104-109, 110-114, 116-121, 156-161, 188-192, 193-197, 198-202, 210-214, 215-219, 234-239, 240-243, 282-287, 290-295, 316-321, 327-332, 256-261, 268-373
<b>Measurement</b>	
<b>1. Understand measurable attributes of objects and the units, systems and processes of measurement</b>	
<b>A Determine unit of measurement</b>	
<b>B Identify equivalent measures</b>	
<b>C Tell and use units of time</b>	
<b>D Count and compute money</b>	

STANDARDS	PAGE REFERENCES
<b>2. Apply appropriate techniques, tools and formulas to determine measurements</b>	
<b>A Use standard or non-standard measurement</b>	
<b>B Use angle measurement</b>	
solve problems of angle measure, including those involving triangles or other polygons and of parallel lines cut by a transversal	<b>Student Edition:</b> 96-101, 104-109, 110-114, 116-121, 122-127, 128-133, 148-153, 156-161, 162-167, 193-197, 240-243, 282-287, 310-315, 316-321, 327-332, 408-412 <i>Hands-On Geometry</i> 408
<b>C Apply geometric measurements</b>	
determine the surface area, and volume of geometric figures, including cones, spheres, and cylinders	<b>Student Edition:</b> 504-509, 510-515, 516-521, 522-527, 528-533, 534-539 <i>Graphing Calculator Exploration</i> 506 <i>Hands-On Geometry</i> 510, 522 <b>Teacher Wraparound Edition:</b> EC 509, 515, 521, 527, 533, 539; FTC 535; MTL 517; RA 507, 536
<b>D Analyze precision</b>	
<b>E Use relationships within a measurement system</b>	
*use unit <u>analysis</u> to solve problems	This objective can be integrated into the lessons on the following pages. <b>Student Edition:</b> 534-539 <b>Teacher Wraparound Edition:</b> EC 533
<b>Data and Probability</b>	
<b>1. Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them</b>	
<b>A Formulate questions</b>	
formulate and collect data about a characteristic	<b>Student Edition:</b> <i>Graphing Calculator Exploration</i> 170, 193, 246-247, 316-317 <i>Hands-On Geometry</i> 149, 169, 283, 415 <i>Investigation</i> 288-289, 380-381

STANDARDS	PAGE REFERENCES
<b>B Classify and organize data</b>	
<b>C Represent and interpret data</b>	
select and use appropriate graphical representation of data and given <u>one-variable quantitative data</u> , display the distribution and describe its shape	<b>Student Edition:</b> <i>Preparing for Standardized Tests</i> 185 #10, 225 #10, 347 #10
<b>2. Select and use appropriate statistical methods to analyze data</b>	
<b>A Describe and analyze data</b>	
<b>B Compare data representations</b>	
<b>C Represent data algebraically</b>	
<b>3. Develop and evaluate inferences and predictions that are based on data</b>	
<b>A Develop and evaluate inferences</b>	
<b>B Analyze basic statistical techniques</b>	
<b>4. Understand and apply basic concepts of probability</b>	
<b>A Apply basic concepts of probability</b>	
<b>B Use and describe compound events</b>	