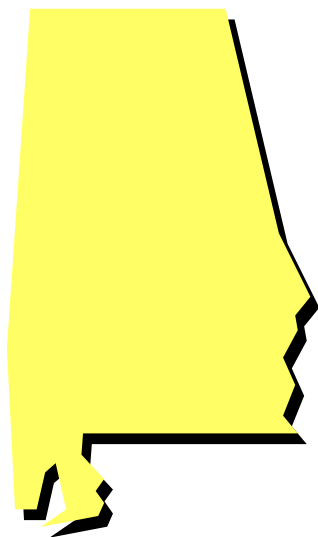
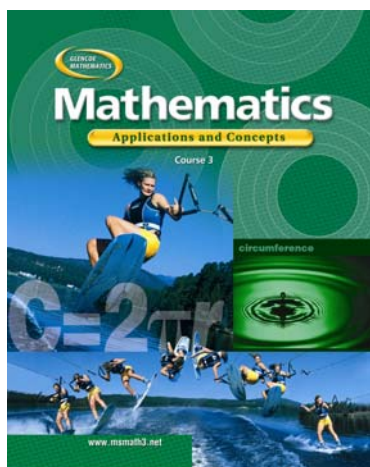


Glencoe/McGraw-Hill

Mathematics: Applications and Concepts ©2004

Course 3

ISBN# 0-07-829635-8



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**Alabama Course of Study:
Mathematics 8**

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**ALABAMA
COURSE OF STUDY: MATHEMATICS 8**

OBJECTIVES	PAGE REFERENCES
Number and Operations	
Students will:	
1. Use various strategies and operations to solve problems involving real numbers.	
<ul style="list-style-type: none"> • Using alternative representations of rational numbers 	SE: 62–63, 64, 76–77, 78, 88–89, 104–105 TWE: 62–63, 64, 76–77, 78, 88–89, 104–105
<ul style="list-style-type: none"> • Applying GCF, LCM, and prime and composite numbers, including justification for the reasonableness of results, when working with rational numbers 	SE: 88, 609, 610, 612 TWE: 88, 609, 610, 612
<ul style="list-style-type: none"> • Applying proportional reasoning 	SE: 121, 143, 160, 170–171, 172, 192–193, 216–217, 356–357 TWE: 121, 143, 160, 170–171, 172, 192–193, 216–217, 356–357
<ul style="list-style-type: none"> • Using vocabulary associated with sets, including <i>union</i> and <i>intersection</i> 	SE: 123–124 TWE: 123–124
<ul style="list-style-type: none"> • Determining whether a number is rational or irrational 	SE: 62–65, 125–128, 147 TWE: 62–65, 125–128, 147
<ul style="list-style-type: none"> • Demonstrating computational fluency with operations on rational numbers 	SE: 71–75, 76–80, 82, 87–88, 91 TWE: 71–75, 76–80, 82, 87–88, 91
2. Simplify expressions containing natural number exponents by applying one or more of the laws of exponents.	
<ul style="list-style-type: none"> • Writing numbers using scientific notation 	SE: 104–107, 110 TWE: 104–107, 110

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OBJECTIVES	PAGE REFERENCES
3. Use order of operations to evaluate and simplify algebraic expressions.	
<ul style="list-style-type: none"> • Applying the substitution principle 	SE: 12-14, 19, 29, 36, 99, 545-546 TWE: 12-14, 19, 29, 36, 99, 545-546
<ul style="list-style-type: none"> • Applying the properties of operations on rational numbers to evaluate and simplify algebraic expressions 	SE: 45-46, 47, 50-51, 52, 53, 54-56, 92-93, 94, 95 TWE: 45-46, 47, 50-51, 52, 53, 54-56, 92-93, 94, 95
Algebra	
4. Graph linear relations by plotting points or by using the slope and y-intercept.	
<ul style="list-style-type: none"> • Determining slopes and y-intercepts of lines 	SE: 166-167, 168-169, 526-527, 528, 529, 530, 533-534, 535-536 TWE: 166-167, 168-169, 526-527, 528, 529, 530, 533-534, 535-536
<ul style="list-style-type: none"> • Calculating the slope of a linear relation given as a table or graph 	SE: 166-169, 199, 526-529, 533, 534 TWE: 166-169, 199, 526-529, 533, 534
<ul style="list-style-type: none"> • Exhibiting conceptual understanding of various uses of variables 	SE: 11, 39, 40, 45, 50, 51, 471, 478-479, 488, 497, 517, 518 TWE: 11, 39, 40, 45, 50, 51, 471, 478-479, 488, 497, 517, 518
5. Solve problems involving linear functions.	
<ul style="list-style-type: none"> • Identifying functions from information in tables, sets of ordered pairs, equations, graphs, and mappings 	SE: 517-520, 521, 522-523, 525, 560-563 TWE: 517-520, 521, 522-523, 525, 560-563
<ul style="list-style-type: none"> • Determining the rule that defines a function 	SE: 517, 520, 525 TWE: 517, 520, 525

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OBJECTIVES	PAGE REFERENCES
<ul style="list-style-type: none"> Classifying variables in a function as independent or dependent 	SE: 518 TWE: 518
<ul style="list-style-type: none"> Classifying relations as linear or nonlinear by examining tables, graphs, or simple equations 	SE: 520, 522–523, 560–561, 562, 563 TWE: 520, 522–523, 560–561, 562, 563
6. Solve multistep linear equations, including equations requiring the use of the distributive property.	SE: 45–46, 50–51, 92–9, 117, 474–476, 478–479, 482–483, 484–485 TWE: 45–46, 50–51, 92–9, 117, 474–476, 478–479, 482–483, 484–485
Geometry	
7. Solve problems using the Pythagorean Theorem.	
<ul style="list-style-type: none"> Applying the Triangle Inequality Theorem 	The opportunity to address this objective is available. See the following: SE: 132–133, 262–263 TWE: 132–133, 262–263
<ul style="list-style-type: none"> Verifying the Pythagorean Theorem 	SE: 132 TWE: 132
<ul style="list-style-type: none"> Applying the Pythagorean Theorem to determine if a triangle is a right triangle 	SE: 134–136 TWE: 134–136
<ul style="list-style-type: none"> Applying the Pythagorean Theorem to find the missing length of a side of a right triangle 	SE: 133–136, 137–140, 142–145, 147–148, 268–270, 307 TWE: 133–136, 137–140, 142–145, 147–148, 268–270, 307
<ul style="list-style-type: none"> Calculating distances on the coordinate plane using the Pythagorean Theorem 	SE: 142–145, 148 TWE: 142–145, 148

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OBJECTIVES	PAGE REFERENCES
8. Compare quadrilaterals, triangles, and solids, using their properties and characteristics.	
<ul style="list-style-type: none"> • Developing mathematical arguments about the relationships among types of quadrilaterals and triangles 	SE: 262, 263, 273, 331–332 TWE: 262, 263, 273, 331–332
<ul style="list-style-type: none"> • Identifying angle bisectors, perpendicular bisectors, congruent angles, and congruent figures 	SE: 178–179, 256, 258–260, 261, 266, 271, 279–282, 283 TWE: 178–179, 256, 258–260, 261, 266, 271, 279–282, 283
<ul style="list-style-type: none"> • Constructing congruent and similar polygons, congruent angles, congruent segments, and parallel and perpendicular lines 	SE: 178, 261, 266, 271, 283 TWE: 178, 261, 266, 271, 283
Measurement	
9. Determine the measures of special angle pairs, including adjacent, vertical, supplementary, and complementary angles, and angles formed by parallel lines cut by a transversal.	SE: 48, 256–260, 261 TWE: 48, 256–260, 261
10. Find the perimeter and area of regular and irregular plane figures.	SE: 314–315, 316, 317, 319, 320, 321, 322, 326, 327, 328, 329, 613 TWE: 314–315, 316, 317, 319, 320, 321, 322, 326, 327, 328, 329, 613
11. Determine the surface area and volume of rectangular prisms, cylinders, and pyramids.	
<ul style="list-style-type: none"> • Estimating surface area and volume of solid figures 	SE: 335–337, 342–343, 347–349, 352–353 TWE: 335–337, 342–343, 347–349, 352–353
<ul style="list-style-type: none"> • Determining the appropriate units of measure to describe surface area and volume 	SE: 335, 336, 343, 347, 348, 349, 352, 353 TWE: 335, 336, 343, 347, 348, 349, 352, 353

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OBJECTIVES	PAGE REFERENCES
<ul style="list-style-type: none"> Developing formulas for determining surface area and volume of rectangular prisms, cylinders, and pyramids 	SE: 335, 336, 337, 342, 347, 348, 349, 352, 353 TWE: 335, 336, 337, 342, 347, 348, 349, 352, 353
12. Determine the lengths of missing sides and measures of angles in similar and congruent figures.	
<ul style="list-style-type: none"> Applying proportional reasoning 	SE: 171-173, 178–182, 184-187, 188-191, 195, 199-200 TWE: 171-173, 178–182, 184-187, 188-191, 195, 199-200
<ul style="list-style-type: none"> Using dilations on the coordinate plane to determine measures of similar figures 	SE: 194-197, 200 TWE: 194-197, 200
<ul style="list-style-type: none"> Finding the ratios of the perimeters and areas of similar triangles, trapezoids, and parallelograms 	SE: 180, 182, 318, 356-357 TWE: 180, 182, 318, 356-357
Data Analysis and Probability	
13. Interpret data from populations, using given and collected data.	
<ul style="list-style-type: none"> Representing the data with the most appropriate graph, including box-and-whisker plot, circle graph, and scatterplot 	SE: 426, 427, 428, 429, 430, 431, 432, 446, 447, 448, 449, 539, 540, 541, 603 TWE: 426, 427, 428, 429, 430, 431, 432, 446, 447, 448, 449, 539, 540, 541, 603
<ul style="list-style-type: none"> Making predictions by estimating the line of best fit from a scatterplot 	SE: 540, 542 TWE: 540, 542
<ul style="list-style-type: none"> Comparing data sets involving two populations 	SE: 421, 423, 445, 447, 449, 453 TWE: 421, 423, 445, 447, 449, 453
<ul style="list-style-type: none"> Determining the measure of center that is the most appropriate for a given situation 	SE: 436-438, 439 TWE: 436-438, 439

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OBJECTIVES	PAGE REFERENCES
14. Determine the theoretical probability of an event.	
<ul style="list-style-type: none">• Calculating the probability of complementary events and mutually exclusive events	SE: 374–375, 376, 396–397, 398, 399 TWE: 374–375, 376, 396–397, 398, 399
<ul style="list-style-type: none">• Comparing experimental and theoretical probability	SE: 400–403 TWE: 400–403
<ul style="list-style-type: none">• Computing the probability of two independent events and two dependent events	SE: 396-399 TWE: 396-399
<ul style="list-style-type: none">• Determining the probability of an event through simulation	SE: 404–405 TWE: 404–405

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