ARIZONA
Mathematics Standards by Level Proficiency (Grades 9-12)
Geometry: Concepts and Applications © 2004

STANDARDS		PAGE REFERENCES
STANDARD 1: NUMBER SENSE		
1M-P1.	**Compare and contrast the real number system and its various subsystems with regard to their structural characteristics**	
Core – will be tested on AIMS		
PO 1.	Classify numbers as members of the sets (natural, whole, integers, rationals and irrationals)	SE: 50-51, 54 #4, 641 #10 *Preparing for Standardized Tests* 451 #9 *Problem-Solving Workshop* 453 *Study Guide and Assessment* 82 #1-#2 TWE: IE 51
Core – to be taught in grades 9-10, but will not be tested on AIMS		
PO 2.	Compare subsets of the real number system with regard to their properties (commutative, associative, distributive, identity, inverse and closure properties)	SE: 279, 649-652, 561 Example 3 TWE: ML 649 TT 279
PO 4.	Identify whether a given set of numbers is finite or infinite	SE: 53 #1 *Investigation* 154 This objective is covered in more depth in Glencoe's *Algebra: Concepts and Applications* © 2004.
1M-P2.	**Construct, interpret and demonstrate meaning for real numbers and absolute value in problem-solving situations**	
Core – will be tested on AIMS		
PO 1.	Determine a rational estimate of an irrational number	SE: 51 Example 2, 54 #5, #12, #15-#16, 67 #26, 127 #27, 479, 548 *Problem-Solving Workshop* 453 *Test* 85 #2 *Practice Masters* 54
PO 3.	Solve real-world distance problems using absolute value	SE: 52, 53 Example 4, 55 #27-#28, 114 #26, 262, 266 #12-#23 *Study Guide and Assessment* 82 #11-#13 TWE: IE 53 *Practice Masters* 54
PO 4.	Determine, among the solutions to a real-world problem, which, if any, is reasonable	SE: 207 #26, 258 Example 3, 278 Example 3, Example 4, 298 Example 4, 411 #3, 414 Example 2, 421-422 Example 4 *Math in the Workplace* 115 #1-#3, 379 #1-#2
PO 6.	Choose the appropriate signed real number to represent a real-world value	SE: 54 #10, 55 #30 TWE: ML 50

*Beyond Core: Appropriate to be taught after a grounding in core instruction, but will not be tested on AIMS

STANDARDS		PAGE REFERENCES
PO 7.	Use the appropriate form of a real number to express a real-world situation (e.g., choosing between a radical expression or rational approximation)	SE: 258 Example 3, 261 #39, 264 Example 3, 265 #11 *Preparing for Standardized Tests* 47 #10, 139 #5, 583 #2 TWE: IE 264
PO 8.	Convert standard notation to scientific notation, including negative exponents, and vice versa	SE: 214 #28 *Preparing for Standardized Tests* 46 State Test Example, 47 #5, 347 #3
Core – to be taught in grades 9-10, but will not be tested on AIMS		
PO 2.	Define *absolute value* as the distance from the origin	SE: 52, 53 Example 4, 262 *Study Guide and Assessment* 82 #5
STANDARD 2: DATA ANALYSIS AND PROBABILITY		
2M-P1.	**Construct and draw inferences including measures of central tendency, from charts, tables, graphs, and data plots that summarize data from real-world situations**	
Core – will be tested on AIMS		
PO 1.	Organize collections of data into frequency charts, stem-and-leaf plots, scatter plots	SE: 72 #36 *Preparing for Standardized Tests* 184, 185 #7, #10, 347 #10
PO 2.	Construct histograms, line graphs, circle graphs, and box-and-whisker plots	SE: 473 #31 *Preparing for Standardized Tests* 185 #10, 225 #10 *Problem-Solving Workshop* 89
PO 4.	Evaluate the reasonableness of conclusions drawn from data analysis	SE: 7 Example 5, 9 #36, 101 #29 *Hands-On Geometry* 283 *Preparing for Standardized Tests* 184 SAT Example, 185 #1 TWE: IE 7
PO 5.	Use mean, median, mode, quartiles and range as a means for effective decision making in analyzing the data and the outliers	SE: 665 #32 *Preparing for Standardized Tests* 224, 225 #1, #3, #7, 307 #5, 399 #8
PO 6.	Identify graphic misrepresentations and distortions of sets of data (e.g., omissions of parts of axis range, unequal interval sizes)	This concept is covered in Glencoe's *Algebra: Concepts and Applications* © 2004. Graphs on page 240 and page 292 are examples of ones which could be used as misleading since their y-axes do not begin at zero.
Core – to be taught in grades 9-10, but will not be tested on AIMS		
PO 3.	Draw inferences from collections of data	SE: 7 Example 5, 9 #36, 133 #32 *Preparing for Standardized Tests* 347 #7 TWE: RA 7 *Enrichment Masters* 9
2M-P2.	**Use appropriate technology (e.g., graphing calculators, computer software) to display and analyze data**	
Core – to be taught in grades 9-10, but will not be tested on AIMS		
PO 1.	Use appropriate technology to display data as lists, tables, matrices and plots	SE: *Problem-Solving Workshop* 227, 275 Technology can be used when solving the following problems: SE: *Preparing for Standardized Tests* 184 State Test Example, 185 #10, 347 #10

STANDARDS		PAGE REFERENCES
PO 2.	Use appropriate technology to calculate mean, median, mode, minimum and maximum	Technology can be used when solving the following problems: SE: 22 #39, 418 #30, 665 #32 *Preparing for Standardized Tests* 225 #1, #3, #7, 307 #5, 399 #8, 583 #8
PO 3.	Use appropriate technology to predict patterns in sets of data (e.g., "Does a scatter plot appear to be linear?")	SE: *Graphing Calculator Exploration* 32 The following examples ask students to predict patterns in sets of data without using technology: SE: 7 Example 5, 9 #36, 133 #32, 267 #34 *Investigation* 10-11 *Preparing for Standardized Tests* 347 #7
2M-P3. Apply curve fitting to make predictions from data		
Core – will be tested on AIMS		
PO 1.	Draw a line which closely fits a scatter plot	Scatter plots are covered in Glencoe's *Algebra: Concepts and Applications* © 2004. In the following examples, a line could be drawn to fit the data: SE: 72 #36, 267 #34
PO 2.	Make a prediction from a linear pattern in plots of data	SE: 9 #36, 133 #32, 267 #34
Beyond Core*		
PO 1.	Draw a curve which closely fits a scatter plot	Scatter plots are covered in Glencoe's *Algebra: Concepts and Applications* © 2004. In the following example, a curve could be drawn to fit the data: SE: 9 #36
2M-P4. Explain the effects of sampling on statistical claims and recognize misuses of statistics		
Core – will be tested on AIMS		
PO 1.	Differentiate between sampling and census	The concepts of sampling and census can be introduced when the student works on the following problems: SE: 484, 486 #7, #24-#25, 487 #28 *Preparing for Standardized Tests* 138 SAT Example, 139 #4, 185 #9, 545 #5, 629 #2 TWE: A 487
PO 2.	Differentiate between a biased and an unbiased sample	The concept of biased sample can be introduced when the student works on the following problems: SE: *Preparing for Standardized Tests* 139 #10, 185 #1, #7
PO 3.	Recognize the impact of interpreting data from a biased sample	The concept of biased sample can be introduced when the student works on the following problems: SE: *Preparing for Standardized Tests* 139 #10, 185 #1, #7
Beyond Core		
PO 4.	Distinguish the effects of using statistical measures obtained from a sample vs. those obtained from a census	The concepts of sampling and census can be introduced when the student works on the following problems: SE: 484, 486 #7, #24-#25, 487 #28 *Preparing for Standardized Tests* 138 SAT Example, 139 #4, 185 #9, 545 #5, 629 #2 TWE: A 487

STANDARDS		PAGE REFERENCES
PO 5.	Recognize the misinterpretations of data from different representations of those same data	The concept of misinterpretations of data can be introduced when the student works on the following problems: SE: *Preparing for Standardized Tests* 139 #10, 185 #1, #7
PO 6.	Determine the validity of sampling methods in studies	The concept of sampling can be introduced when the student works on the following problems: SE: *Preparing for Standardized Tests* 139 #10, 185 #1, #7
2M-P5.	**Design and conduct a statistical experiment to study a problem and interpret and communicate the outcomes**	
Beyond Core		
PO 1.	Design a statistical experiment based on a given hypothesis	SE: 484 The teacher could have the students design other statistical experiments when covering page 484.
PO 2.	Create an appropriate data-gathering instrument (e.g., biased vs. unbiased questions, multiple choice vs. open-ended)	Teachers can incorporate data-gathering along with the preceding objective of designing statistical experiments. Data-gathering also can be introduced with the following problems: SE: *Preparing for Standardized Tests* 139 #10, 185 #1, #7
PO 3.	Organize collected data into an appropriate graphical representation	SE: *Preparing for Standardized Tests* 184 State Test Example, 185 #10, 347 #10
PO 4.	Draw and support inferences that are based on data analysis	SE: 7 Example 5, 9 #36, 133 #32, 267 #34 *Investigation* 10-11 *Preparing for Standardized Tests* 347 #7
2M-P6.	**Use experimental or theoretical probability, as appropriate, to represent and solve problems involving uncertainty**	
Beyond Core		
PO 1.	Recognize whether experimental or theoretical methods were used to calculate a particular probability	SE: 484, 486 #7, #24-#25, 487 #28 TWE: A 487 IE 484
PO 2.	Use experimental observations to estimate probabilities of entire populations	SE: 484 This concept can be taught when students do experiments.
PO 3.	Distinguish between independent and dependent events	This objective is covered in Glencoe's *Algebra: Concepts and Applications* © 2004. SE: 224, 227 #3, 228 #17-18, 229 #21, 315 #43-45, 327 #45-47, 406 #5, 467 #35 TWE: TT 225
PO 4.	Solve probability problems involving *and* and *or* statements, with and without replacement	SE: *Preparing for Standardized Tests* 138 SAT Example, 139 #4, 347 #2, 629 #2 This objective is covered in greater depth in Glencoe's *Algebra: Concepts and Applications* © 2004.

STANDARDS		PAGE REFERENCES
2M-P7.	**Use simulations to estimate probabilities**	
Beyond Core		
PO 1.	Design appropriate simulations to estimate probabilities of real-world situations (e.g., disk toss, cube toss, technological simulations)	SE: 484 This objective is covered in greater depth in Glencoe's *Algebra: Concepts and Applications* © 2004.
PO 2.	Use simulations to estimate probabilities of real-world situations	SE: 484 This objective is covered in greater depth in Glencoe's *Algebra: Concepts and Applications* © 2004.
2M-P8.	**Solve real-world problems by using combinations and permutations**	
Core – will be tested on AIMS		
PO 1.	Use a tree diagram or a chart of possible outcomes to count probable outcomes of an event	SE: *The Princeton Review* 138 A tree diagram of a chart could be used when solving the following problem: SE: *Preparing for Standardized Tests* 138 State Test Example
Beyond Core		
PO 2.	Determine when to use combinations in counting objects	SE: *Preparing for Standardized Tests* 138 State Test Example This objective is covered in greater depth in Glencoe's *Algebra: Concepts and Applications* © 2004.
PO 3.	Determine when to use permutations in counting objects	SE: *Preparing for Standardized Tests* 13 State Test Example This objective is covered in greater depth in Glencoe's *Algebra: Concepts and Applications* © 2004.
PO 4.	Use combinations and permutations to solve real-world problems not requiring the use of formulas	This objective is covered in Glencoe's *Algebra: Concepts and Applications* © 2004. SE: 146-147, 148 #3, 149 #11, 150 #20, 151 #23 *Investigation* 152-153 TWE: ICE 221
2M-P9.	**Describe, in general terms, the normal curve and use its properties to answer questions about sets of data that are assumed to be normally distributed**	
Beyond Core		
PO 1.	Determine if data gathered from a real-world situation fits a normal curve	See Glencoe's *Algebra 2* © 2004 pages 671-673.
PO 2.	Describe the central tendency characteristics of the normal curve	See Glencoe's *Algebra 2* © 2004 pages 671-673.
PO 3.	Make simple predictions from data represented on a given normal curve	SE: 7 Example 5, 9 #36, 133 #32, 267 #34 *Preparing for Standardized Tests* 347 #7

STANDARDS	PAGE REFERENCES
2M-P10. Explain the concept of a random variable	
Beyond Core	
PO 1. Distinguish situations where a random variable is needed or used	This objective is covered in Glencoe's *Algebra: Concepts and Applications* © 2004. SE: 222 #15-20, 228 #16, 229 #25 Note: The term *random variable* is not used explicitly. See Glencoe's *Algebra 1* © 2003 page 777 for details.
2M-P11. Apply measures of central tendency, variability and correlation	
Core – will be tested on AIMS	
PO 1. Apply the concepts of mean, median, mode and range to draw conclusions about data	SE: 665 #32 *Preparing for Standardized Tests* 224, 225 #1, #3, #7, 307 #5, 399 #8
PO 3. Determine, from a given plot of data, whether it has positive or negative correlation	SE: 169, 179 #39 This objective is covered in greater depth in Glencoe's *Algebra: Concepts and Applications* © 2004.
Beyond Core	
PO 2. Draw conclusions about the "spread" of data given the variance and standard deviation (e.g., compare sets of data with the same central tendency, but with different variance)	See Glencoe's *Algebra: Concepts and Applications* © 2004. SE: 106-107, 108 #15, 109 #34 *Investigation* 210-211
STANDARD 3: PATTERNS, ALGEBRA AND FUNCTIONS	
3M-P1. Model real-world phenomena (e.g., compound interest or the flight of a ball) using functions and relations (e.g., linear, quadratic, sine and cosine, and exponential)	
Core – will be tested on AIMS	
PO 2. Describe a real-world situation that is depicted by a given graph	SE: 72 #36, 81 #34, 109 #24, 133 #32, 687, 695 #14 *Preparing for Standardized Tests* 87 #6 *Problem-Solving Workshop* 49, 675 *Study Guide and Assessment* 84 #37
Beyond Core*	
PO 1. Identify the independent and dependent variables from a real-world situation	See Glencoe's *Algebra: Concepts and Applications* © 2004. SE: 264-267, 304 #2, 305 #1 *Investigation* 308-309
Core – to be taught in grades 9-10, but will not be tested on AIMS	
PO 3. Sketch a graph that models a given real-world situation	SE: 72 #36, 264 Example 3, 677-678 Example 3, 693 Example 2, 703 Example 2, 705 #11 *Problem-Solving Workshop* 675 *Study Guide and Assessment* 84 #37

STANDARDS		PAGE REFERENCES
3M-P2.	**Represent and analyze relationships using written and verbal explanations, tables, equations, graphs and matrices and describe the connections among those representations**	
Core – will be tested on AIMS		
PO 3.	Determine whether a relation is a function, given the graphical representation	SE: *Preparing for Standardized Tests* 492 State Test Example This objective is covered in more depth in Glencoe's *Algebra: Concepts and Applications* © 2004.
Core – to be taught in grades 9-10, but will not be tested on AIMS		
PO 1.	Express the relationship between two variables using a table, equation, graph and matrix	SE: *Preparing for Standardized Tests* 492 State Test Example, 493 #1, #10 This objective is covered in more depth in Glencoe's *Algebra: Concepts and Applications* © 2004.
3M-P3.	**Analyze the effects of parameter changes on functions (e.g., linear, quadratic and trigonometric) using calculators and/or computers**	
Beyond Core		
PO 1.	Use technology to determine changes in the shape and behavior of polynomial functions (of degree 2 or less) when constants and coefficients are varied	This objective can be introduced with the following problem: SE: *Preparing for Standardized Tests* 714 State Test Example
3M-P4.	**Interpret algebraic equations and inequalities geometrically and describe geometric relationships algebraically**	
Core – will be tested on AIMS		
PO 1.	Graph a linear equation in two variables	SE: 174, 175 Example 5, 177 #8-#9, 178 #19-#24, #35 *Study Guide and Assessment* 182 #39-#40 TWE: ML 174 *Practice Masters* 178
PO 2.	Graph a linear inequality in two variables	This objective is covered in Glencoe's *Algebra: Concepts and Applications* © 2004. SE: 535-537, 538 #8-11, 539 #28-30
PO 3.	Determine slope and intercepts of a linear equation	SE: 168-173, 174-177, 192 #32-#34, 197 #25, 233 #27, 239 #26 *Study Guide and Assessment* 182 #34-#41 TWE: IE 169, 175 *Practice Masters* 172 *Study Guide Masters* 177
PO 4.	Write an equation of the line that passes through two given points	SE: *Preparing for Standardized Tests* 492 State Test Example *Study Guide Masters* 177 An equation of a line that passes through two points can be written from the following problems: SE: 171 #4-#6, 172 #10-#18, #25, 192 #32-#34, 239 #26

STANDARDS		PAGE REFERENCES
PO 5.	Determine from two linear equations whether the lines are parallel, are perpendicular or coincide	SE: 176, 177 #2, 179 #40 *Study Guide and Assessment* 182 #37-#38, #41 *Test* 183 #23 TWE: IE 176 *Study Guide Masters* 177
3M-P5.	**Apply trigonometry to real-life problem situations (e.g., investigate how to find the distance across a river using similar triangles and trigonometric ratios; compare the sine and cosine curves to the curves of sound waves)**	
Core – to be taught in grades 9-10, but will not be tested on AIMS		
PO 1.	Use the definitions of trigonometric functions to find the sine, cosine and tangent of the acute angles of a right triangle	SE: 564, 572, 574 *Graphing Calculator Exploration* 574 *Study Guide and Assessment* 580 Lesson 13-5 TWE: EC 569, 577 ML 572 *Study Guide Masters* 567, 575
Beyond Core		
PO 2.	Solve simple right-triangle trigonometric equations involving sine, cosine and tangent	SE: 565 Example 1, Example 2, 568 #8-#17, 572 Example 1, 573 Example 3, 576 #22-#30 *Study Guide Masters* 575
PO 3.	Use an appropriate right-triangle trigonometric model to solve a real-life problem	SE: 566 Example 3, 567 Example 4, 568 #7, #19, 569 #20-#21, 573 Example 2 *Study Guide and Assessment* 580 #34-#35 TWE: IE 566 ML 564
3M-P6.	**Perform mathematical operations on expressions and matrices, and solve equations and inequalities**	
Core – will be tested on AIMS		
PO 1.	Simplify numerical expressions using the order of operations, including exponents	SE: 94 #32 *Algebra Review* 718 *Preparing for Standardized Tests* 86 State Test Example, 272, 273 #1, #10, 583 #5 *The Princeton Review* 86 TWE: TT 549
PO 2.	Evaluate algebraic expressions using substitution	SE: 464 Example 2, 485 Example 4, 537 Example 4, 561 Example 3, 589 Example 5, 594 Example 2, 602 Example 3, 607 Example 1, 650-652 *Study Guide and Assessment* 488 Lesson 11-1
PO 3.	Simplify algebraic expressions using distributive property	SE: 517, 649 *Practice Masters* 652
PO 4.	Simplify square roots and cube roots with monomial radicands that are perfect squares or perfect cubes	SE: 257-261, 263-266, 458 #38, 548-553 *Preparing for Standardized Tests* 139 #5, 225 #2 TWE: IE 257, 264 *Practice Masters* 260, 266

STANDARDS	PAGE REFERENCES
PO 6. Evaluate numerical and algebraic absolute value expressions	SE: 52-53, 262 *Preparing for Standardized Tests* 139 #6 *Study Guide and Assessment* 82 Lesson 2-1 TWE: IE 53
PO 7. Multiply and divide monomial expressions with integer exponents	SE: *Preparing for Standardized Tests* 714 SAT Example This objective is covered in greater depth in Glencoe's *Algebra: Concepts and Applications* © 2004.
PO 9. Solve linear equations and inequalities in one variable	SE: 281 #39, 351-354, 373 #30, 467 #41, 653 #13-#15 *Algebra Review* 719 *Preparing for Standardized Tests* 185 #5, 273 #8, 451 #5 *Study Guide Masters* 353
PO 10. Solve formulas for specified variables	SE: 35-40, 114 #27, 263-264, 419-424, 425-430, 478-482, 483-487, 505-509 *Problem-Solving Workshop* 453 *Practice Masters* 39 *Study Guide Masters* 265
PO 11. Solve quadratic equations (integral roots only)	SE: *Preparing for Standardized Tests* 545 #10 This objective is covered in greater depth in Glencoe's *Algebra: Concepts and Applications* © 2004.
PO 13. Solve proportions which generate linear equations	SE: 352 Example 3, Example 4, 353 #27-#35, 357 Example 2, 360 #15-#20, 365 Example 3, 371 Example 3, 383 Example 2, 386 #15-#20 TWE: EC 373
PO 15. Solve systems of linear equations in two variables (integral coefficients and solutions)	SE: 611 #27, 676-680, 681-686, 702 #19 TWE: FC 677 IE 677, 682-683 *Practice Masters* 679, 685 *Study Guide Masters* 678, 684
Core – to be taught in grades 9-10, but will not be tested on AIMS	
PO 5. Calculate powers and roots of real numbers, both rational and irrational, using technology	SE: 257 Example 1, Example 2, 548, 551 Example 9 *Getting Ready* 259 Technology could be used with the following references: SE: 263-265, 458, 470, 552-553, 614 Example 3
PO 14. Solve absolute value equations containing a single absolute value expression	SE: 52-53, 262 *Preparing for Standardized Tests* 139 #6 *Study Guide and Assessment* 82 Lesson 2-1 TWE: IE 53

STANDARDS		PAGE REFERENCES
Beyond Core		
PO 8.	Add, subtract and perform scalar multiplication with matrices	This concept is introduced in Glencoe's *Algebra: Concepts and Applications* © 2004 and covered in-depth in Glencoe's *Algebra 1* © 2003 and *Algebra 2* © 2003.
PO 12.	Solve radical equations involving one radical (restrict to square roots)	SE: 263-265, 458 #38, 549 Example 4, 696 #21 *Preparing for Standardized Tests* 225 #2 *Study Guide and Assessment* 270 Lesson 6-7 *Study Guide Masters* 265
3M-P7.	**Translate among tabular, symbolic and graphical representations of functions**	
Core – will be tested on AIMS		
PO 1.	Create a linear equation from a table of values	*Enrichment Masters* 680 This objective is covered in greater depth in Glencoe's *Algebra: Concepts and Applications* © 2004.
PO 2.	Create a graph from a table of values	SE: 676 Example 1, 677 Example 2 This objective is covered in greater depth in Glencoe's *Algebra: Concepts and Applications* © 2004.
PO 3.	Determine the solution to a system of equations in two variables, from a given graph	SE: 676-680, 686 #32 *Extra Practice* 756 Lesson 16-1 #1-#9 TWE: 5MC 681 A 680 IE 677 *Practice Masters* 679 *Study Guide Masters* 678
Core – to be taught in grades 9-10, but will not be tested on AIMS		
PO 4.	Determine the solution to a system of inequalities in two variables, from a given graph (e.g., "Which of the shaded regions represents the solution to the system?")	*Enrichment Masters* 680 This objective is covered in greater depth in Glencoe's *Algebra: Concepts and Applications* © 2004.
3M-P8.	**Use the power of mathematical abstraction and algebraic symbolism to represent various situations**	
Core – will be tested on AIMS		
PO 1.	Translate verbal expressions and sentences to mathematical expressions and sentences	SE: 9 #39, 40 #37, 53 Example 4, 64 Example 3, 179 #42, 315 #44, 683 Example 3 *Preparing for Standardized Tests* 46 State Test Example, 87 #5, 138 SAT Example
PO 2.	Generate an algebraic sentence to model real-life situations, given a data set (limited to linear relationships)	SE: 37-38 Example 4, 40 #37, 315 #44, 358 Example 3, 393 #29 *Preparing for Standardized Tests* 46 State Test Example, 86 ACT Example, 451 #2, #10, 493 #5
3M-P9.	**Determine maximum and minimum points of a graph and interpret results in problem situations**	
Core – will be tested on AIMS		
PO 2.	Determine domain and range of a relation, given the graph or a set of points	Domain and range can be taught with Lesson 2-4. SE: 68-73

STANDARDS		PAGE REFERENCES
3M-P10. Investigate the limiting process by examining infinite sequences and series and areas under curves		
Beyond Core		
PO 1.	Compare the estimates of the area under a curve over a bounded interval, using progressively smaller rectangles (not using calculus)	See Glencoe's *Geometry* © 2003 pages 617-620.
PO 2.	Estimate the limit of a given infinite sequence (e.g., given the sequence 1/*n*, as *n* gets larger) (not using calculus)	See Glencoe's *Algebra 2* © 2004 pages 599-601.
STANDARD 4: GEOMETRY		
4M-P1. Interpret and draw three-dimensional objects		
Core – will be tested on AIMS		
PO 1.	Sketch prisms, pyramids, cones, cylinders and spheres	SE: 498 #1, 500 #32, 508 #2, 509 #16, 513 #1, 514 #21, 520 #2, 531 #2, 537 #2
PO 2.	Classify prisms, pyramids, cones, cylinders and spheres by base shape and lateral surface shape	SE: 497, 499, 516, 528 *Investigation* 502-503 *Quiz 1* 515 #1-#4 TWE: IE 498 *Enrichment Masters* 501, 521 *Practice Masters* 500 *Study Guide Masters* 499
PO 3.	Recognize the three-dimensional figure represented by a two-dimensional drawing (e.g., "What figures are represented by given nets, sketches, photographs?")	SE: 506, 509 #20, 516, 525 #7, 539 #21 *Graphing Calculator Exploration* 504 *Hands-On Geometry* 522 TWE: ML 517 TT 506, 518
4M-P2. Represent problem situations with geometric models and apply properties of figures		
Core – will be tested on AIMS		
PO 1.	Calculate surface areas and volumes of three-dimensional geometric figures, given the required formulas	SE: 504-509, 510-515, 516-521, 522-527, 529-533 TWE: IE 506-507, 511-512, 517-519, 523-524, 529-530
PO 2.	Solve applied problems using angle and side length relationships	SE: 167 #23, 213 #7, 218 #10, 279 Example 5, 287 #24, 294 #24 *Math In the Workplace* 115 #1-#3, 301 #1-#2 TWE: EC 126 *Enrichment Masters* 127
PO 3.	Solve applied problems using the Pythagorean theorem (e.g., determine whether a wall is square)	SE: 258 Example 3, 260 #38, 594 Example 2 *Investigation* 432-433 *Preparing for Standardized Tests* 628 State Test Example *Study Guide and Assessment* 270 #36 TWE: EC 61 RA 259 *Study Guide Masters* 259

STANDARDS		PAGE REFERENCES
PO 4.	Solve applied problems using congruence and similarity relationships of triangles (e.g., estimate the height of a building, using shadows)	SE: 207 #26-#27, 365 Example 3, 366 #5, 367 #16, 373 #22-#24, 392 #12 *Study Guide and Assessment* 396 #32-#33 TWE: IE 365 ML 362
PO 6.	Determine the distance and midpoint between points within a coordinate system representative of a practical application	SE: 81 #34, 264 Example 3, 265 #11, 266 #27-#28, 619 Example 2, 621 #13 TWE: IE 264 ML 76, 618
PO 7.	Find the area of a geometric figure composed of a combination of two or more geometric figures, given an appropriate real-world situation and the formulas	SE: 414 Example 2, 416 #8, 417 #23-#24, 424 #23-#24, 430 #16, 444 #22 *Math In the Workplace* 41 #1-#2 *Study Guide and Assessment* 448 #35 *Enrichment Masters* 418
PO 8.	Solve problems involving complementary, supplementary and congruent angles	SE: 117-121, 122-127, 133 #29, 150 Example 4, 157-159 TWE: EC 126 IE 117-119, 124 *Study Guide Masters* 119, 125
Core – to be taught in grades 9-10, but will not be tested on AIMS		
PO 5.	Make a model of a three-dimensional figure from a two-dimensional drawing and make a two-dimensional representation of a three-dimensional object (models and representations include scale drawings, perspective drawings, blueprints or computer simulations)	SE: 498 #1, 500 #32, 508 #2, 509 #16, 513 #1, 514 #21, 520 #2, 531 #2, 537 #2 *Hands-On Geometry* 510, 522 *Investigation* 502-503
4M-P3.	**Deduce properties of figures using transformations in coordinate systems, identifying congruency and similarity**	
Core – will be tested on AIMS		
PO 1.	Determine whether a planar figure is symmetric with respect to a line	SE: 142-147, 148-153 TWE: A 147 EC 153 FA 145 IE 143, 149-151 RA 144 *Enrichment Masters* 147 *Practice Masters* 146
PO 3.	Determine the effects of a transformation on linear and area measurements of the original planar figure	SE: 199, 200, 407 #37, 687, 695, 703-707 TWE: EC 707 RA 694 *Study Guide Masters* 705
PO 4.	Sketch the planar figure that is the result of a given transformation	SE: 320 #27, 693 Example 1, Example 2, 699 Example 2, 704 Example 2, 706 #15-#21 *Graphing Calculator Exploration* 700 *Hands-On Geometry* 692 *Math In the Workplace* 445 #1-#2 *Problem-Solving Workshop* 309 TWE: IE 693

STANDARDS		PAGE REFERENCES
Core – to be taught in grades 9-10, but will not be tested on AIMS		
PO 2.	Give the new coordinates of a transformed geometric planar figure	SE: 687-688, 689 #5-#9, 695 TWE: EC 690, 696 IE 688 *Practice Masters* 689, 695 *Study Guide Masters* 700
4M-P4.	**Deduce properties of, and relationships between, figures from given assumptions**	
Core – will be tested on AIMS		
PO 1.	Find similarities and differences among geometric shapes and designs using a given attribute (e.g., height, area, perimeter, diagonals, angle measurements)	SE: 38 #1, 111 Example 6, 122-125, 192 #25, 199, 212 Example 2, 217 Example 2, Example 3 *Hands-On Geometry* 203 TWE: ML 123
PO 2.	Identify arcs, chords, tangents and secants of a circle	SE: 454, 455 Example 2, 457 #9, #17, 462-467, 468-473, 477 #21, 482 #27 TWE: EC 466 *Practice Masters* 457, 466
PO 3.	State valid conclusions using given definitions, postulates and theorems	SE: 21 #8, 38 #2, 53 #3, 63 Example 2, 79 #2-#3, 92 #3, 108 #3, 365 #3 TWE: EC 109 RA 125
PO 4.	Represent *pi* as the ratio of circumference to diameter	SE: 479, 480 Example 3, #1 *Problem-Solving Workshop* 453 TWE: FA 481 RA 480 TT 479
4M-P5.	**Translate between synthetic and coordinate representations (e.g., a straight line is represented by the algebraic equation *Ax + By = C*)**	
Core – will be tested on AIMS		
PO 1.	Determine the relative placement of two lines on a coordinate plane by examining the algebraic equations representing them	SE: 262, 677 Example 2, 678 #3c, 680 #26 TWE: IE 677
Core – to be taught in grades 9-10, but will not be tested on AIMS		
PO 2.	Verify characteristics of a given geometric figure using coordinate formulas such as distance, mid-point, and slope to confirm parallelism, perpendicularity, and congruency	SE: 677 Example 2, 678 #3 *Extending the Investigation* 155 *Graphing Calculator Exploration* 79 *Hands-On Geometry* 262 TWE: IE 677 *Practice Masters* 679
4M-P6.	**Recognize and analyze Euclidean transformations (e.g., reflections, rotations, dilations and translations)**	
Core – will be tested on AIMS		
PO 1.	Classify transformations based on whether they produce congruent or similar non-congruent figures	SE: 207 #25 *Investigation* 208-209 *Study Guide and Assessment* 221 Lesson 5-3 TWE: ML 687 RA 694

STANDARDS		PAGE REFERENCES
PO 2.	Determine whether a given pair of figures on a coordinate plane represents a translation, reflection, rotation and/or dilation	SE: 687-689, 692-695, 697-699, 703-706 TWE: IE 688, 693 *Practice Masters* 689, 695 *Study Guide Masters* 688, 694
Core – to be taught in grades 9-10, but will not be tested on AIMS		
PO 3.	Apply transformational principles to practical situations (e.g., enlarge a photograph)	SE: 690 #15-#16, 694 #6, 695 #15, 698 Example 1, 702 #16, 703, 705 #11, 706-707 #23-#25 *Investigation* 708-709 *Math In the Workplace* 691
STANDARD 5: MEASUREMENT AND DISCRETE MATHEMATICS		
5M-P1.	**Represent problem situations using discrete structures such as finite graphs, matrices, sequences and recurrence relations**	
Beyond Core*		
PO 1.	Use matrices and finite graphs to display data	SE: 9 #36, 72 #36, 133 #32, 267 #34 *Preparing for Standardized Tests* 185 #1, #10, 225 #10 *Problem-Solving Workshop* 89
PO 2.	Find a specified n^{th} term of a simple arithmetic or geometric sequence, where the common difference or common ratio is an integer and $n > 100$	SE: 408, 411 #1 *Hands-On Geometry* 408 This objective can also be taught with Lesson 1-1. SE: 4-9
PO 3.	Use simple or basic recursion formulas to solve real-life problems (e.g., compound interest)	This objective is covered in Glencoe's *Algebra: Concepts and Applications* © 2004. SE: *Investigation* 110-111
5M-P2.	**Represent and analyze finite graphs using matrices**	
Beyond Core		
PO 1.	Interpret data using matrices and finite graphs (e.g., networks, street diagrams, tournament schedules, production schedules)	SE: 81 #34, 109 #24, 133 #26 *Investigation* 11 *Preparing for Standardized Tests* 399 #1
PO 2.	Determine when a finite graph gives an accurate picture of a data set	SE: 133 #26 See Glencoe's *Algebra 1* © 2003 page 759.
PO 3.	Translate a finite graph into a matrix and vice versa	See Glencoe's *Algebra 1* © 2003 page 759.
5M-P3.	**Develop and analyze algorithms**	
Core – will be tested on AIMS		
PO 2.	Determine the purpose of a given algorithm (simple, basic **math** algorithm)	SE: 357, 427 TWE: ML 96, 148, 168, 564 RA 259
PO 3.	Determine whether given algorithms are equivalent (simple, basic **math** algorithms)	SE: 36-37, 66 #2, 79 #3, 151 #2, 265 #3, 419, 478-479, 498 #3, 653 #9
Core – to be taught in grades 9-10, but will not be tested on AIMS		
PO 1.	Write an algorithm that explains a particular mathematical process (e.g., tell a younger child how to find the average of two numbers)	SE: 26 #2, 108 #1, 196 #2, 259 #2, 286 #3, 359 #2, 416 #1, 428 #3, 603 #2 TWE: RA 265

STANDARDS	PAGE REFERENCES
5M-P4. Solve enumeration and finite probability problems	
Core – will be tested on AIMS	
PO 1. Find the outcome set of a situation	SE: *Preparing for Standardized Tests* 139 #10, 451 #6
PO 2. Find the probability that a specific event will happen	SE: 438 #24, 484 Example 3, 486 #24-#25, 487 #28c *Preparing for Standardized Tests* 138 SAT Example, 139 #4, 185 #9, 347 #2, 629 #2
PO 4. Determine the number of possible outcomes in a real-world situation using the counting principle and tree diagrams	The following examples use tree diagrams to determine possible outcomes found outside of real-world situations. SE: 549 *Preparing for Standardized Tests* 139 #10
Core –to be taught in grades 9-10, but will not be tested on AIMS	
PO 3. Determine theoretical geometrical probabilities, given necessary formulas (e.g., "Given a circular target on a square base, what is the probability of hitting the circle with a dart, providing the dart goes inside the square?")	SE: 484 Example 3, 486 #24-#25, 487 #28c TWE: A 487 RA 486
STANDARD 6: MATHEMATICAL STRUCTURE/LOGIC	
6M-P1. Use inductive and deductive logic to construct simple valid arguments	
Core – will be tested on AIMS	
PO 2. Produce a valid conjecture using inductive reasoning by generalizing from a pattern of observations (e.g.,, if $10^1 = 10$, $10^2 = 100$, $10^3 = 1000$, make a conjecture)	SE: 4-5, 8 #15-#31, 458 #37, 642 #15, #18-#19, #23-#24, 653 #12 *Problem-Solving Workshop* 631 *Study Guide and Assessment* 42 *Enrichment Masters* 637 *Practice Masters* 8
Core – to be taught in grades 9-10, but will not be tested on AIMS	
PO 1. Construct a simple informal deductive proof (e.g., write a proof of the statement: "Given an airline schedule with cities and flight times, you can fly from Bombay to Mexico City.")	SE: 639-643 TWE: A 643 FA 642 IE 639-640 RA 640 *Enrichment Masters* 643 *Practice Masters* 642 *Study Guide Masters* 641
6M-P2. Determine the validity of arguments	
Core – will be tested on AIMS	
PO 2. Draw a simple valid conclusion from a given *if…then* statement and a minor premise	SE: 24-28, 635, 637 #35, 640 Example 3, 641-642 #4-#20 *Quiz 1* 648 #3-#4 TWE: IE 26 *Enrichment Masters* 643 *Practice Masters* 642 *Study Guide Masters* 641

STANDARDS		PAGE REFERENCES
PO 3.	Distinguish valid arguments from invalid arguments	SE: 24, 639, 641-642, 653 #12 *Quiz 1* 648 #3 TWE: 5MC 644 EC 643 FA 642 IE 639 *Practice Masters* 642
PO 4.	List related *if…then* statements in logical order	SE: 25, 637 #36, 639-642 TWE: EC 28, 643 *Enrichment Masters* 643 *Practice Masters* 642 *Study Guide Masters* 641
Core – to be taught in grades 9-10, but will not be tested on AIMS		
PO 1.	Determine if the converse of a given statement is true or false	SE: 28 #30, 633-634, 635 Example 7, 637 #35, 643 #28-#30 *Study Guide and Assessment* 44 #32 TWE: IE 634-635 TT 25 *Practice Masters* 636 *Study Guide Masters* 635
PO 6.	Analyze assertions about everyday life by using principles of logic (e.g., examine the fallacies of advertising)	SE: 24, 632, 637 #34-#35, 641 #8 TWE: FA 642 ML 638, 644 *Enrichment Masters* 28
Beyond Core*		
PO 7.	Recognize the difference between a statement verified by mathematical proof (i.e., a theorem) and one verified by empirical data (e.g., women score higher than men on vocabulary tests)	SE: 644, 646 #2, 648 #17, 649, 654, 660 *Investigation* 666-667 TWE: EC 648
6M-P3.	**Formulate counterexamples and use indirect proof**	
Core – will be tested on AIMS		
PO 1.	Construct a counterexample to show that a given invalid conjecture is false (e.g., Nina makes a conjecture that $x^3 > x^2$ for all values of x. Find a counterexample.)	SE: 6 Example 4, 8 #14, 9 #35, 17 #37, 24, 281 #33 *Extending the Investigation* 209 *Study Guide and Assessment* 44 #32 *Enrichment Masters* 637, 653
6M-P4.	**Make and test conjectures**	
Beyond Core		
PO 1.	Write an appropriate conjecture given a certain set of circumstances	SE: 7 Example 5, 458 #37, 641 #8 *Graphing Calculator Exploration* 193, 317 *Hands-On Geometry* 65 *Study Guide and Assessment* 670 #29
PO 2.	Test a conjecture by constructing a logical argument or a counterexample	SE: 6 Example 4, 8 #14, 9 #35, 17 #37, 658 #16, 659 #18, 662 Example 3, 664 #16-#17 TWE: FA 642 IE 6

STANDARDS		PAGE REFERENCES	
6M-P5. Understand the logic of algebraic procedures			
Core – will be tested on AIMS			
PO 1.	Determine whether a given algebraic expression and a possible simplified form are equivalent (e.g., show that $(x + y)^2 = x^2 + y^2$ is invalid)	SE:	130 Example 3, 195 Example 3, 618, 619 Example 2 *Preparing for Standardized Tests* 86 State Test Example
		TWE:	EA 621 TT 619
PO 2.	Determine whether a given procedure for solving an equation is valid	SE:	265 #3, 513 #3, 525 #3, 615 #3 *Preparing for Standardized Tests* 272 State Test Example

Codes Used for TWE Pages

5MC	5-Minute Check
A	Assess
EA	Error Analysis
EC	Extra Credit
FA	Family Activity
FC	From the Classroom of . . .
IE	In-Class Examples
ML	Motivating the Lesson
RA	Reteaching Activity
TT	Teaching Tip