GLENCOE CORRELATION
ALGEBRA 2
OHIO
Mathematics Benchmarks and Indicators
Grade Eleven

BENCHMARKS AND INDICATORS	PAGE REFERENCES
Number, Number Sense and Operations Standard	
Number and Number Systems	
1. Determine what properties hold for matrix addition and matrix multiplication; e.g., use examples to show addition is commutative and when multiplication is not commutative.	SE: 160-166, 167-173 TWE: ICE 170
2. Determine what properties hold for vector addition and multiplication, and for scalar multiplication.	This objective can be met during teacher/class discussion.
3. Represent complex numbers on the complex plane.	SE: *Algebra Activity* 272
Meaning of Operations	
4. Use matrices to represent given information in a problem situation.	SE: 154-158, 160-166, 167-173, 175-181, 202-207 TWE: ICE 155, 161, 169, 203
5. Model, using the coordinate plane, vector addition and scalar multiplication.	This objective can be met during teacher/class discussion.
Computation and Estimation	
6. Compute sums, differences and products of matrices using paper and pencil calculations for simple cases, and technology for more complicated cases.	SE: 160-166, 167-173, 175-181, 195-201, 202-207 TWE: ICE 161-163, 168-170, 176-178, 196-197 OEA 174
7. Compute sums, differences, products and quotients of complex numbers.	SE: 270-275 TWE: ICE 270-273
8. Use fractional and negative exponents as optional ways of representing and finding solutions for problem situations; e.g., $27^{2/3} = (27^{1/3})^2 = 9$.	SE: 222-227, 257-262, 361-362 TWE: ICE 223-225, 258-260 OEA 262
9. Use vector addition and scalar multiplication to solve problems.	This objective can be met during teacher/class discussion.
Measurement Standard	
Measurement Units	
1. Determine the number of significant digits in a measurement.	This objective can be met during teacher/class discussion.
2. Use radian and degree angle measures to solve problems and perform conversions as needed.	SE: 701-708, 709-713, 717-724 TWE: ICE 703-705, 711
Use Measurement Techniques and Tools	
3. Derive a formula for the surface area of a cone as a function of its slant height and the circumference of its base.	The formula for surface area of a cone is used in the following problems: SE: 22, 266 #12

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4. Calculate distances, areas, surface areas and volumes of composite three-dimensional objects to a specified number of significant digits.	SE: 8-10, 378-381 TWE: ICE 8, 379
5. Solve real-world problems involving area, surface area, volume and density to a specified degree of precision.	SE: 8-10, 184-187, 379-381, 725-732 *Mixed Problem Solving* 862 TWE: ICE 8, 185, 704-705, 726
Geometry and Spatial Sense Standard	
Spatial Relationships	
1. Use polar coordinates to specify locations on a plane.	Angles are graphed in the coordinate plane in standard position. SE: 717-724
Transformations and Symmetry	
2. Represent translations using vectors.	Translations are represented on a coordinate plane. SE: 175-181 TWE: ICE 176-178
3. Describe multiplication of a vector and a scalar graphically and algebraically, and apply to problem situations.	This objective can be met during teacher/class discussion.
4. Use trigonometric relationships to determine lengths and angle measures; i.e., Law of Sines and Law of Cosines.	SE: 701-708, 725-732, 733-738 TWE: ICE 702-705, 726-729, 734-738 OEA 708
Visualization and Geometric Models	
5. Identify, sketch and classify the cross sections of three-dimensional objects.	SE: 419, 449-452 *Algebra Activity* 453-454 TWE: ICE 450
Patterns, Functions and Algebra Standard	
Use Patterns, Relations and Functions	
1. Identify and describe problem situations involving an iterative process that can be represented as a recursive function; e.g., compound interest.	SE: 606-610 TWE: ICE 607-608
2. Translate a recursive function into a closed form expression or formula for the *n*th term to solve a problem situation involving an iterative process; e.g., find the value of an annuity after 7 years.	SE: 606-610 TWE: ICE 607-608
3. Describe and compare the characteristics of the following families of functions: quadratics with complex roots, polynomials of any degree, logarithms, and rational functions; e.g., general shape, number of roots, domain and range, asymptotic behavior.	SE: 91, 322-326 *Graphing Calculator Investigation* 70, 320-321 TWE: ICE 91, 323-325
4. Identify the maximum and minimum points of polynomial, rational and trigonometric functions graphically and with technology.	SE: 286-293, 294-299, 314-319, 762-768, 769-776 TWE: ICE 287-289, 295-296

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Use Algebraic Representations	
5. Identify families of functions with graphs that have rotation symmetry or reflection symmetry about the *y*-axis, *x*-axis or *y* = *x*.	SE: 91, 390-394, 746-751 *Graphing Calculator Investigation* 320-321, 396 TWE: ICE 91
6. Represent the inverse of a function symbolically and graphically as a reflection about *y* = *x*.	SE: 390-394, 746-747, 795 TWE: ICE 391
7. Model and solve problems with matrices and vectors.	SE: 154-158, 160-166, 167-173, 175-181, 202-207 TWE: ICE 155, 161, 169, 203
8. Solve equations involving radical expressions and complex roots.	SE: 263-267, 271-274, 362-364 *Graphing Calculator Investigation* 268-269 TWE: ICE 264-265, 271, 362
9. Solve 3 by 3 systems of linear equations by elimination and using technology, and interpret graphically what the solution means (a point, line, plane, or no solution).	SE: 138-144, 191-193 TWE: ICE 139-141, 191
Analyze Change	
10. Describe the characteristics of the graphs of conic sections.	SE: 419-425, 426-431, 433-440, 441-447, 449-452 *Algebra Activity* 453-454 TWE: ICE 420-422, 428, 436, 443-444
11. Describe how a change in the value of a constant in an exponential, logarithmic or radical equation affects the graph of the equation.	SE: 523-530, 531 TWE: ICE 524
Data Analysis and Probability Standard	
Data Collection	
1. Design a statistical experiment, survey or study for a problem; collect data for the problem; and interpret the data with appropriate graphical displays, descriptive statistics, concepts of variability, causation, correlation and standard deviation.	SE: *Algebra Activity* 83, 522, 681, 686
2. Describe the role of randomization in a well-designed study, especially as compared to a convenience sample, and the generalization of results from each.	SE: 682-685 TWE: ICE 683
Statistical Methods	
3. Describe how a linear transformation of univariate data affects range, mean, mode and median.	Range, mean, median and mode are calculated. SE: 664-669 *Getting Ready for the Next Lesson* 663 *Prerequisite Skills* 822-823 TWE: ICE 665
4. Create a scatterplot of bivariate data, identify trends, and find a function to model the data.	SE: 81-86 *Graphing Calculator Investigation* 87-88, 539-540 TWE: ICE 82-83

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5. Use technology to find the Least Squares Regression Line, the regression coefficient, and the correlation coefficient for bivariate data with a linear trend, and interpret each of these statistics in the context of the problem situation.	SE: *Graphing Calculator Investigation* 87-88, 300
6. Use technology to compute the standard deviation for a set of data, and interpret standard deviation in relation to the context or problem situation.	SE: 665-669 TWE: ICE 665 OEA 670
7. Describe the standard normal curve and its general properties, and answer questions dealing with data assumed to be normal.	SE: 671-675 TWE: ICE 672
8. Analyze and interpret univariate and bivariate data to identify patterns, note trends, draw conclusions, and make predictions.	SE: 81-86, 664-669 *Graphing Calculator Investigation* 87-88, 539-540 TWE: ICE 82-83
9. Evaluate validity of results of a study based on characteristics of the study design, including sampling method, summary statistics and data analysis techniques.	SE: 671-675, 682-685 *Algebra Activity* 522, 681, 686 TWE: ICE 672, 683
Probability	
10. Understand and use the concept of random variable, and compute and interpret the expected value for a random variable in simple cases.	SE: 644-649 TWE: ICE 646 OEA 650
11. Examine statements and decisions involving risk; e.g., insurance rates and medical decisions.	SE: 644-649 TWE: F 644 ICE 645-646

Codes Used for TWE Pages

F	Focus
ICE	In-Class Examples
OEA	Open-Ended Assessment