

GLENCOE CORRELATION

Revised by the Core-Plus Mathematics Project, May 2002

Contemporary Mathematics in Context, **Course 3 (Parts A & B) © 1999/2003**

Ohio Academic Content Standards for Mathematics, Grade 11

OBJECTIVES	PAGE REFERENCES
Number, Number Sense and Operations Standard	
Students demonstrate number sense including an understanding of number systems and operations, and how they relate to one another. Students compute fluently and make reasonable estimates using paper and pencil, technology-supported and mental methods.	
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: 205 (See also Course 2, Unit 1.)
2. Determine what properties hold for vector addition and multiplication, and for scalar multiplication.	This objective falls outside the scope of <i>Glencoe Contemporary Math in Context, Course 3</i> . (See Course 4, Unit 2.)
3. Represent complex numbers on the complex plane.	This objective falls outside the scope of <i>Glencoe Contemporary Math in Context, Course 3</i> . (See Course 4, Unit 7.)
Meaning of Operations	
4. Use matrices to represent given information in a problem situation.	SE: 499-500 (See also Course 1, Unit 4 and Course 2, Units 1, 2, and 5.)
5. Model, using the coordinate plane, vector addition and scalar multiplication.	This objective falls outside the scope of <i>Glencoe Contemporary Math in Context, Course 3</i> . (See Course 4, Unit 2.)
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: 205, 499-500, 517 (See also Course 2, Unit 1.)
7. Compute sums, differences, products and quotients of complex numbers.	This objective falls outside the scope of <i>Glencoe Contemporary Math in Context, Course 3</i> . (See Course 4, Units 5 and 7.)
8. Use fractional and negative exponents as optional ways of representing and finding solutions for problem situations; e.g., $27^{2/3} = (27^{1/3})^2 = 9$.	This objective falls outside the scope of <i>Glencoe Contemporary Math in Context, Course 3</i> . (See Course 2, Unit 4 and Course 4, Unit 7.)
9. Use vector addition and scalar multiplication to solve problems.	This objective falls outside the scope of <i>Glencoe Contemporary Math in Context, Course 3</i> . (See Course 4, Unit 2.)

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Measurement Standard Students estimate and measure to a required degree of accuracy and precision by selecting and using appropriate units, tools and technologies.	
Measurement Units	
1. Determine the number of significant digits in a measurement.	This objective falls outside the scope of <i>Glencoe Contemporary Math in Context, Course 3</i> .
2. Use radian and degree angle measures to solve problems and perform conversions as needed.	SE: 26-27, 28-31, 32-35, 40, 41, 44 (See also Course 2, Unit 6 and Course 4, Unit 7.)
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 opportunity to introduce this objective is available. See the following: SE: 557
4. Calculate distances, areas, surface areas and volumes of composite three-dimensional objects to a specified number of significant digits.	SE: 219, 426, 435, 557 (See also Course 1, Unit 5 and Course 4, Unit 5.)
5. Solve real-world problems involving area, surface area, volume and density to a specified degree of precision.	SE: 34, 41, 219, 426, 435, 553, 555-556
Geometry and Spatial Sense Standard Students identify, classify, compare and analyze characteristics, properties and relationships of one-, two-, and three-dimensional geometric figures and objects. Students use spatial reasoning, properties of geometric objects and transformations to analyze mathematical situations and solve problems.	
Spatial Relationships	
1. Use polar coordinates to specify locations on a plane.	This objective falls outside the scope of <i>Glencoe Contemporary Math in Context, Course 3</i> (See Course 4, Unit 7.)
Transformations and Symmetry	
2. Represent translations using vectors.	This objective falls outside the scope of <i>Glencoe Contemporary Math in Context, Course 3</i> (See Course 4, Unit 2.)
3. Describe multiplication of a vector and a scalar graphically and algebraically, and apply to problem situations.	This objective falls outside the scope of <i>Glencoe Contemporary Math in Context, Course 3</i> (See Course 4, Unit 2.)
4. Use trigonometric relationships to determine lengths and angle measures; i.e., Law of Sines and Law of Cosines.	SE: 26-27, 28-31, 32-36, 40-44, 298, 299, 302, 306

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Visualization and Geometric Models	
5. Identify, sketch and classify the cross sections of three-dimensional objects.	This objective falls outside the scope of <i>Glencoe Contemporary Math in Context, Course 3</i> . (See Course 4, Unit 8.)
Patterns, Functions and Algebra Standard Students use patterns, relations and functions to model, represent and analyze problem situations that involve variable quantities. Students analyze, model and solve problems using various representations such as tables, graphs and equations.	
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: 488-504, 506-510, 519-522, 524-527, 531-533 (See also Course 1, Units 3 and 6 and Course 2, Units 4 and 7.)
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: 488-491, 491-494, 494-504, 506-510, 524-527, 531-533 (See also Course 1, Units 3 and 6 and Course 2, Units 4 and 7.)
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: 175-178, 427, 431-433, 436, 438, 440, 442-446, 446-449, 449-453, 453-461, 462-466, 466-468, 469-479, 480-485, 522
4. Identify the maximum and minimum points of polynomial, rational and trigonometric functions graphically and with technology.	SE: 209-211, 219, 232, 235, 239, 437, 458
5. Identify families of functions with graphs that have rotation symmetry or reflection symmetry about the y -axis, x -axis or $y = x$.	SE: 431-433, 446-449
Use Algebraic Representations	
6. Represent the inverse of a function symbolically and graphically as a reflection about $y = x$.	This objective falls outside the scope of <i>Glencoe Contemporary Math in Context, Course 3</i> . (See Course 4, Unit 3.)
7. Model and solve problems with matrices and vectors.	SE: 499-500, 517 (See also Course 2, Units 1, 2, and 5 and Course 4, Unit 2.)
8. Solve equations involving radical expressions and complex roots.	SE: 433 (See also Course 2, Unit 4 and Course 4, Unit 6.)
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: 517, 520, 522, 526, 548
10. Describe the characteristics of the graphs of conic sections.	SE: 211, 248, 252, 475

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Analyze Change	
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: 431-433, 442-445, 446-448, 449-452, 459 (See also Course 1, Unit 6 and Course 4, Units 3 and 7.)
Data Analysis and Probability Standard Students pose questions and collect, organize, represent, interpret and analyze data to answer those questions. Students develop and evaluate inferences, predictions and arguments that are based on data.	
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: 134, 151, 165, 377, 397 (See also Course 1, Units 1 and 7 and Course 2, Unit 7.)
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: 124-128, 130
Statistical Methods	
3. Describe how a linear transformation of univariate data affects range, mean, mode and median.	SE: 246, 249, 351-354, 359
4. Create a scatterplot of bivariate data, identify trends, and find a function to model the data.	SE: 3-4, 422-427, 434, 441, 454, 459, 561-564
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.	The opportunity to address this objective is available. See the following: SE: 422-427, 434, 454-455, 564 (See also Course 1, Units 1 and 3 and Course 2, Unit 3.)
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: 346-370
7. Describe the standard normal curve and its general properties, and answer questions dealing with data assumed to be normal.	SE: 362-370, 371-374, 375-383
8. Analyze and interpret univariate and bivariate data to identify patterns, note trends, draw conclusions, and make predictions.	SE: 3-4, 291, 362-370, 371-374, 375-383, 384-393, 396-402, 441, 454
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: 115-120, 121-124, 124-127, 128-134, 165-168, 401-405

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Probability	
10. Understand and use the concept of random variable, and compute and interpret the expected value for a random variable in simple cases.	This objective falls outside the scope of <i>Glencoe Contemporary Math in Context, Course 3</i> . (See Course 1, Unit 7, Course 2, Unit 7 and Course 4, Unit 5.)
11. Examine statements and decisions involving risk; e.g., insurance rates and medical decisions.	SE: 135-139, 140-143, 143-147, 153-158