Chapter 1 Functions and Their Graphs

1.1 Functions
- How to decide whether a relations between two variables are functions
- How to use function notation and evaluate
- How to find the domains of functions
- How to use functions to model and solve real-life models
  Pg 82 15-69 every 3rd, 80-86 evens

1.2 Graphs of Functions
- How to find the domain and ranges of functions
- How to use the Vertical Line Test for functions
- How to determine intervals on which functions are increasing or decreasing
- How to determine relative maximum and relative minimum values of functions
- How to identify and graph step functions and other piecewise-defined functions
- How to identify even and odd functions
  Pg 96 3-72 every 3rd

1.3 Shifting, Reflecting and Stretching Graphs
- How to recognize graphs of common functions
- How to use vertical and horizontal shifts and reflections to sketch graphs of functions
  Pg 107 3-72 every 3rd

1.4 Combinations of Functions
- How to add, subtract, multiply, and divide functions
- How to find compositions of one function with another function
- How to use combinations of functions to solve real-life problems
  Pg 116 9-78 every 3rd

1.5 Inverse Functions
- How to find inverse functions informally and verify that two functions are inverses of each other
- How to find inverse functions algebraically
  Pg 127 6-16 evens, 44-54 evens

CHAPTER 1 TEST
Chapter 2 Polynomial and Rational Functions

2.1 Quadratic Functions
- How to analyze graphs of quadratic functions
- How to write quadratic functions in standard form and use the results to sketch graphs of functions
- How to use quadratic models to solve real-life problems
Pg 143 14-34 evens, 40-46 evens, 73

2.2 Polynomial Functions of Higher Degree
- How to use transformations to sketch graphs of polynomial functions
- How to find and use zeros of polynomial functions to sketch their graphs
- How to use the Intermediate Value Theorem to help locate zeros of polynomial functions
Pg 156 28-64 evens

2.3 Real Zeros of Polynomial Functions
- How to use long division and synthetic division to divide polynomials
- How to use the Remainder Theorem, Factor Theorem, and Rational Zero Test
Pg 170 8-28 evens, 56-68 evens

2.4 Complex Numbers
- How to use the imaginary unit to write complex numbers
- How to add, subtract, multiply, and divide complex numbers
Pg 180 2-66 evens

2.5 The Fundamental Theorem of Algebra
- How to use the Fundamental Theorem of Algebra to determine the number of zeros of polynomial functions
- How to find all zeros of polynomial functions, including complex zeros
- How to find conjugate pairs of complex zeros
- How to find zeros of polynomials by factoring
Pg 187 14-32 evens, 42-48 evens

2.6 Rational functions and Asymptote
- How to find domains of rational functions
- How to find horizontal and vertical asymptotes of graphs of rational functions
- How to use rational functions to model and solve real-life problems
Pg 195 8-18 evens, 35

2.7 Graphs of Rational Functions
- How to analyze and sketch graphs of rational functions
- How to decide whether graphs of rational functions have slant asymptotes
- How to use rational functions to model and solve real-life problems
Chapter 3 Exponential and Logarithmic Functions

3.1 Exponential Functions and Their Graphs
- How to recognize, graph, and evaluate exponential functions with base $a$ and $e$
- How to use exponential functions to model and solve real-life problems
  Pg 226 36-52 evens, 73, 74, 75

3.2 Logarithmic Functions and Their Graphs
- How to recognize, graph, and evaluate logarithmic functions with base $a$ and natural logarithms
- How to use logarithmic functions to model and solve real-life problems
  Pg 236 2-42 evens, 62-66 evens, 73

3.3 Properties of Logarithms
- How to rewrite logarithmic functions with different bases
- How to use properties of logarithms to evaluate and rewrite logarithmic expressions
- How to use properties of logarithms to expand and condense logarithmic expressions
- How to use logarithmic functions to model and solve real-life problems
  Pg 244 3-66 every 3rd

3.4 Solving Exponential and Logarithmic Functions
- How to solve simple exponential and logarithmic equations
- How to solve more complicated exponential and logarithmic equations
- How to use exponential and logarithmic equations to solve real-life problems
  Pg 254 15-60 every 3rd, 80-96 evens, 124

3.5 Exponential and Logarithmic Models
- How to recognize the five most common types of models involving exponential or logarithmic functions
- How to use exponential growth and decay functions to model and solve real-life problems
  Pg 267 27-30, 35-37, 41-43

CHAPTER 3 TEST
Chapter 4 Trigonometric Functions

4.1 Radian and Degree Measure
- How to describe angles
- How to use radian measure
- How to use degree measure
- How to use angles to model and solve real-life problems
  Pg 291 2-66 evens

4.2 Trigonometric Functions: The Unit Circle
- How to identify the unit circle and its relationship to real numbers
- How to evaluate trigonometric functions using the unit circle
- How to use the domain and period to evaluate sine and cosine functions
- How to use a calculator to evaluate trigonometric functions
  Pg 300 6-36 evens, 44-52 evens

4.3 Right Triangle Trigonometry
- How to evaluate trigonometric functions of acute angles
- How to use fundamental identities
- How to use a calculator to evaluate trigonometric functions
- How to use trigonometric functions to model and solve real-life problems
  Pg 310 8-32 evens, 48-62 evens

4.4 Trigonometric Functions of Any Angle
- How to evaluate trigonometric functions of any angle
- How to use reference angles to evaluate trigonometric functions
- How to evaluate trigonometric functions of real numbers
  Pg 320 6-84 every 3rd

4.5 Graphs of Sine and Cosine Functions
- How to sketch the graphs of basic sine and cosine functions
- How to use amplitude and period to help sketch the graphs of sine and cosine functions
- How to sketch translations of graphs of sine and cosine functions
- How to use sine and cosine functions to model real-life data
  Pg 331 40-54 evens

4.6 Graphs of other Trigonometric Functions
- How to sketch the graphs of tangent, cotangent, secant, and cosecant functions
- How to sketch the graphs of damped trigonometric functions
  Pg 341 10-30 evens
4.7 Inverse Trigonometric Functions

- How to evaluate inverse trigonometric functions
- How to evaluate compositions of trigonometric functions

Pg 351 8-14 evens

NO 4.8

CHAPTER 4 TEST

Chapter 5 Analytical Trigonometry

5.1 Using Fundamental Identities

- How to recognize and write fundamental trigonometric identities
- How to use fundamental trigonometric identities to evaluate trigonometric functions, simplify trigonometric equations, and rewrite trigonometric expressions

Pg 381 3-78 every 3rd

5.2 Verifying Trigonometric Identities

- How to verify trigonometric identities

Pg 389 24-52 evens

5.3 Solving Trigonometric Equations

- How to use standard algebraic techniques to solve trigonometric equations
- How to solve trigonometric equations of quadratic type
- How to solve trigonometric equations involving multiple angles
- How to use inverse trigonometric functions to solve trigonometric equations

Pg 400 12-42 evens

5.4 Sum and Difference Formulas

- How to use the sum and difference formulas to evaluate trigonometric functions
- How to use sum and difference formulas to verify identities and solve trigonometric equations

Pg 408 3-63 every 3rd

5.5 Multiple-Angle and Product-Sum Formulas

- How to use multiple-angle formulas to rewrite and evaluate trigonometric functions
- How to use power-reducing formulas to rewrite and evaluate trigonometric functions
- How to use half-angle formulas to rewrite and evaluate trigonometric functions
- How to use product-sum formulas to rewrite and evaluate trigonometric functions

Pg 418 2-8 evens, 22, 24, 32-38 evens, 48, 50, 82-92 evens

CHAPTER 5 TEST
Chapter 6 Additional Topics in Trigonometry

6.1 Law of Sines
- How to use the Law of Sines to solve oblique triangles
- How to find areas of oblique triangles
- How to use the Law of Sines to model and solve real-life problems
  Pg 434 2-20 evens, 24-28 evens, 32, 36

6.2 Law of Cosines
- How to use the Law of Cosines to solve oblique triangles
- How to use the Law of Cosines to model and solve real-life problems
- How to use Heron’s Area Formula to find areas of triangles
  Pg 441 2-10 evens, 18-22 evens, 26, 31, 32

NO 6.3-6.5

CHAPTER 6 TEST

Chapter 7 Systems of Equations and Inequalities

7.1 Solving Systems of Equations
- How to use the method of substitution to solve systems of equations in two variables
- How to solve systems of equations graphically
- How to use systems of equations to model and solve real-life problems
  Pg 495 16-62 evens

7.2 Systems of Linear Equation in Two Variables
- How to use the method of elimination to solve systems of linear equations in two variables
- How to graphically interpret the number of solutions of systems of linear equations in two variables
- How to use systems of linear equations in two variables to model and solve real-life problems
  Pg 505 12-56 evens

7.3 Multivariable Linear Systems
- How to recognize linear systems in row-echelon form and use back-substitution to solve systems
- How to use Gaussian Elimination to solve systems of linear equations
  Pg 519 14-32 evens
7.4 Systems of Inequalities
  • How to sketch graphs of inequalities in two variables
  • How to solve systems of inequalities
  • How to use systems of inequalities in two variables to model and solve real-life problems
  Pg 533 40-50 evens

NO 7.5

CHAPTER 7 TEST

Chapter 8 Matrices and Determinants

8.1 Matrices and Systems of Equations
  • How to write matrices and identify their orders
  • How to perform elementary row operations on matrices
  • How to use matrices and Gaussian elimination to solve systems of linear equations
  Pg 563 48-60 evens

8.2 Operations with Matrices
  • How to decide whether two matrices are equal
  • How to add and subtract matrices and multiply matrices by a real number
  • How to solve matrix equations
  • How to multiply two matrices
  • How to use matrix operations to model and solve real-life problems
  Pg 577 3-39 every 3rd, 69-76

8.3 The Inverse of a Square Matrix
  • How to verify that two matrices are inverses of each other
  • How to use Gauss-Jordan elimination to find inverses of matrices
  • How to use a formula to find inverses of a 2 X 2 matrices
  • How to use inverse matrices to solve systems of linear equations
  Pg 588 13-26

8.4 The Determinant of a Square Matrix
  • How to find determinants of 2 X 2 matrices
  • How to find determinants of square matrices
  Pg 596 3-12, 23, 24, 51, 52

8.5 Applications of Matrices and Determinants
  • How to use determinants to find areas of triangles
  • How to use Cramer’s Rule to solve systems of linear equations
  Pg 607 17-24
CHAPTER 10 Topics in Analytic Geometry

10.1 Introduction to Conics: Parabolas
- How to recognize a conic as the intersection of a plane and a double-napped cone
- How to write equations of parabolas in standard form
- How to use the reflective property of parabolas to solve real-life problems
  Pg 701 12 - 36 every 3<sup>rd</sup>, 42 - 48 evens

10.2 Ellipse
- How to write equations of ellipses in standard form
- How to use properties of ellipses to model and solve real-life problems
- How to find eccentricities of ellipses
  Pg 710 9 - 42 every 3<sup>rd</sup>

10.3 Hyperbolas
- How to write equations of hyperbolas in standard form
- How to find asymptotes of hyperbolas
- How to use properties of hyperbolas to solve real-life problems
- How to classify conics from general equations
  Pg 720 6 - 39 every 3<sup>rd</sup>, 44 - 51

No 10.4-10.8

CHAPTER 10 TEST