

# MATH 123R Introduction to Functions

## Readings and Practice Exercises

The readings and practice exercises for the course are in the *College Algebra, 12th Edition*, by Michael Sullivan. You must purchase MyMathLab [also referred to as MyLab Math (MML)] access in order to complete the MyMathLab assignments. Through MyMathLab, you may access the MyMathLab assignments and the textbook as well as various resources including additional worked examples, videos, supplementary practice exercises, practice quizzes/tests, and the student solutions manual to accompany the textbook.

Practice exercises for each section are included. You are encouraged to work on additional practice exercises as well as the challenge problems.

## Chapter R Review

### R.1 Real Numbers

Read pages 2 – 15.

Practice Exercises: page 15, #1 – 10, 11 – 17 (odd), 19 – 22, 23 – 49 (odd), 59 – 64, 67 – 87 (odd), 95 – 102.

### R.2 Algebra Essentials

Read pages 17 – 26.

Practice Exercises: page 26, #1 – 12, 25 – 40, 45 – 70, 75 – 112, 129 – 146, 147 – 153 (odd).

### R.3 Geometry Essentials

Read pages 30 – 35.

### R.4 Polynomials

Read pages 39 – 47.

Practice Exercises: page 47, #1 – 8, 19 – 28, 29 – 107 (odd).

### R.5 Factoring Polynomials

Read pages 47 – 56.

Practice Exercises: page 56, #1 – 8, 9 – 141 (odd).

### R.6 Synthetic Division

Read pages 57 – 60.

Practice Exercises: page 60, #1 – 28.

### R.7 Rational Expressions

Read pages 61 – 69.

Practice Exercises: page 70, #1 – 6, 7 – 93 (odd).

### R.8 nth Roots; Rational Exponents

Read pages 72 – 77.

Practice Exercises: page 78, #1 – 10, 11 – 67 (odd), 68, 69 – 123 (odd).

## Chapter 1 Equations and Inequalities

### 1.1 Linear Equations

Read pages 82 – 89.

Practice Exercises: page 89, #1 – 10, 11 – 67 (odd).

## 1.2 Quadratic Equations

Read pages 92 – 100.

Practice Exercises: page 101, #11 – 42, 43 – 57 (odd), 73 – 102.

## 1.3 Complex Numbers; Quadratic Equations in the Complex Number System

Read pages 104 – 111.

Practice Exercises: page 111, #11 – 58, 59 – 77 (odd), 79 – 84.

## 1.4 Radical Equations; Equations Quadratic in Form; Factorable Equations

Read pages 113 – 117.

Practice Exercises: page 117, #9 – 89 (odd), 97, 98, 101 – 112.

## 1.5 Solving Inequalities

Read pages 119 – 126.

Practice Exercises: page 127, #25 – 40, 59 – 94, 107 – 115, 117.

## 1.6 Equations and Inequalities Involving Absolute Value

Read pages 130 – 132.

Practice Exercises: page 132, #9 – 68.

## 1.7 Problem Solving: Interest, Mixture, Uniform Motion, Constant Rate Job Applications

Read pages 134 – 140.

Practice Exercises: page 141, #9 – 38, 41 – 45, 48, 49, 51.

### *Chapter Review*

Read pages 144 – 145.

Review Exercises: page 145, #1 – 20, 23 – 26, 28 – 43, 51– 58, 60.

Chapter Test: page 147, #1 – 13.

## **Chapter 2 Graphs**

### 2.1 The Distance and Midpoint Formulas

Read pages 150 – 154.

Practice Exercises: page 154, #19 – 46.

### 2.2 Graphs of Equations in Two Variables; Intercepts; Symmetry

Read pages 158 – 165.

Practice Exercises: page 166, #13 – 30, 57 – 72.

### 2.3 Lines

Read pages 169 – 179.

Practice Exercises: page 180, #13 – 31 (odd), 33 – 38 [point-slope form and slope-intercept form],  
53 – 109 (odd), 110 – 114, 123 – 128.

### *Chapter Review*

Read page 197.

Review Exercises: page 198, #1 – 10, 16 – 21.

Chapter Test: page 200, #1 – 7, 10.

Cumulative Review: page 200, #1 – 19.

## Chapter 3 Functions and Their Graphs

### 3.1 Functions

Read pages 203 – 215.

Practice Exercises: page 216, #31 – 70, 71 – 81 (odd), 99 – 103 (odd).

### 3.2 The Graph of a Function

Read pages 219 – 223.

Practice Exercises: page 224, #11 – 33.

### 3.3 Properties of Functions

Read pages 229 – 237.

Practice Exercises: page 238, #13 – 56.

### 3.4 Library of Functions; Piecewise-defined Functions

Read pages 242 – 249.

Practice Exercises: page 250, #11 – 18, 19 – 41 (odd), 43 – 46.

### 3.5 Graphing Techniques: Transformations

Read pages 254 – 263.

Practice Exercises: page 264, #7 – 36, 37 – 59 (odd), 65 – 71.

### 3.6 Mathematical Models: Building Functions

Read pages 267 – 269.

Practice Exercises: page 270, #11 – 19, 23 – 25.

#### *Chapter Review*

Read page 273.

Review Exercises: page 275, #6 – 17, 20 – 24.

Chapter Test: page 277, #2 – 5, 7 – 9, 12, 13.

Cumulative Review: page 278, #1 – 19.

## Chapter 4 Linear and Quadratic Functions

### 4.1 Properties of Linear Functions and Linear Models

Read pages 281 – 287.

Practice Exercises: page 287, #13 – 46.

### 4.3 Quadratic Functions and Their Properties

Read pages 299 – 308.

Practice Exercises: page 309, #15 – 80, 85 – 93.

### 4.4 Build Quadratic Models from Verbal Descriptions and from Data

Read pages 312 – 317.

Practice Exercises: page 317, #3 – 10.

### 4.5 Inequalities Involving Quadratic Functions

Read pages 320 – 322.

Practice Exercises: page 323, #3 – 36.

### *Chapter Review*

Read page 325

Review Exercises: page 325, #1 – 27.

Chapter Test: page 327, #1 – 10.

Cumulative Review: page 328, #1 – 12, 14, 15.

## **Chapter 5 Polynomial and Rational Functions**

### 5.1 Polynomial Functions

Read pages 331 – 342.

Practice Exercises: page 343, #15 – 26, 41 – 58, 59 – 69 (odd), 71 – 78.

### 5.2 Graphing Polynomials Functions; Models

Read pages 346 – 351.

Practice Exercises: page 351, #5 – 41 (odd).

### 5.3 Properties of Rational Functions

Read pages 354 – 361.

Practice Exercises: page 362, #15 – 56.

### 5.4 The Graph of a Rational Function

Read pages 365 – 375.

Practice Exercises: page 376, #7 – 53 (odd).

### 5.5 Polynomial and Rational Inequalities

Read pages 380 – 384.

Practice Exercises: page 384, #5 – 18, 19 – 71 (odd).

### 5.6 The Real Zeros of a Polynomial Function

Read pages 387 – 398.

Practice Exercises: page 398, #11 – 83 (odd).

### 5.7 Complex Zeros; Fundamental Theorem of Algebra

Read pages 401 – 406.

Practice Exercises: page 406, #9 – 32.

### *Chapter Review*

Read pages 408 – 409.

Review Exercises: page 410, #1 – 34, 43 – 48.

Chapter Test: page 411, #1 – 12.

Cumulative Review: page 412, #1 – 6, 8, 9, 11, 12, 15 – 24.

## **Chapter 6 Exponential and Logarithmic Functions**

### 6.1 Composite Functions

Read pages 415 – 419.

Practice Exercises: page 420, #9 – 52.

### 6.2 One-to-One Functions; Inverse Functions

Read pages 423 – 431.

Practice Exercises: page 432, #21 – 26, 35 – 62.

## Chapter 8 Systems of Equations and Inequalities

### 8.1 Systems of Linear Equations: Substitution and Elimination

Read pages 559 – 569.

Practice Exercises: page 569, #9 – 18, 19 – 55 (odd).

### 8.2 Systems of Linear Equations: Matrices

Read pages 573 – 583.

Practice Exercises: page 584, #7 – 38, 39 – 71 (odd).

### 8.3 Systems of Linear Equations: Determinants

Read pages 588 – 596.

Practice Exercises: page 596, #7 – 14, 15 – 41 (odd), 43 – 56.

### 8.4 Matrix Algebra

Read pages 599 – 611.

Practice Exercises: page 612, #9 – 44, 45 – 63 (odd), 65 – 70, 79 – 86.

#### *Chapter Review*

Read page 648.

Review Exercises: page 649, #1 – 33.

Chapter Test: page 651, #1 – 20.

Cumulative Review: page 652, #1 – 3, 7, 10.