

Math 143  
Exam 1 Review Sheet

**Section 1.1** Real Numbers

- Types of numbers (Natural, Whole, Integers, Rational, Real, and Complex)
- Properties of Real numbers
- Absolute value
- Scientific Notation

**Section 3.1** Rectangular Coordinates

- The Cartesian Plane, plotting points
- The Pythagorean Theorem and the distance formula
- Finding the midpoint of a line segment

**Section 3.2** Graphs of Equations

- Sketching graphs by plotting points
- Finding  $x$  and  $y$  - intercepts
- Symmetry of graphs ( $x$ -axis,  $y$ -axis, origin)
- Circles (general equation, finding the center and radius, graphing)

**Section 3.4** Functions

- The definition of a function
- The graph of a function, the vertical line test
- Domain and Range (finding algebraically and graphically)
- Functions that are increasing, decreasing, and constant on some interval
- Linear functions, finding the slope and the equation of a linear function
- Evaluating functions both at a point and on an expression

**Section 6.1** Angles

- Definition, positive and negative angles, standard position
- Coterminal angles; complimentary and supplementary angles
- Degree measure and Radian measure; Converting between them
- Key angles (multiples of  $30^\circ$  and  $45^\circ$ ) in degree and radian form
- Finding the length of a circular arc and the area of a circular sector

**Section 6.2** Trigonometric Functions

- Right triangles and the 6 basic trig functions for acute angles
- Solving triangles, Key values of the 6 trig functions (for  $30^\circ$ ,  $45^\circ$ , and  $60^\circ$ )
- Basic trig applications
- Trig Identities (reciprocal, tangent and cotangent, Pythagorean), proving and applying trig identities

**Section 6.3** Trigonometric Functions of Real Numbers

- Defining the 6 basic trig functions for **any** angle
- Finding the value of trig functions for points and angles in any quadrant, the sign of trig functions in various quadrants
- Key values of trig functions (for **all** multiples of  $30^\circ$  and  $45^\circ$ )
- Graphs of trig functions
- Negative Identities, even and odd functions, periodic functions

**Practice Problems: Chapter 3 Review pp. 239-240 # 3, 4, 6, 9, 11, 33, 34, 48, 49, 51**  
**Chapter 6 Review pp. 492-495 # 1, 2, 4, 7, 9, 11, 12, 22, 23, 24, 25, 29, 62**