Math 143
Exam 1 Review Sheet

Section 2.1 Rectangular Coordinates and Graphs

• Understand the Cartesian coordinate system. Be able to plot points in the plane. Also know the four quadrants.
• Be able to use both the distance formula and the midpoint formula.
• Be able to work basic application problems involving distance and/or midpoints.
• Be able to graph functions in the plane by plotting points.

Section 2.2 Circles

• Understand the equation for a circle in Center-Radius form and be able to graph a circle given in this form.
• Given the graph of a circle, be able to find its equation in center-radius form.
• Be able to use completing the square to convert the equation for a circle in general form into center-radius form (and vice versa).

Section 2.7 Graphing Techniques

• Understand the six basic types of function transformations. Be able to graph a function by understanding and applying one of more transformations to the underlying graph.
• Be able to determine where a given point moves when a particular transformation is applied.
• Be able to test to see whether or not a graph has symmetry with respect to the x-axis, y-axis, or origin.
• Be able to find an equation for a graph in terms of the transformations used on the graph.

Section 5.1 Angles

• Know and be able to apply the definitions of positive and negative angles and be able to draw an a give angle in standard position.
• Know and be able to apply the definitions of coterminal angles, complimentary angles, supplementary angles, and quadrantal angles.
• Be able to convert an angle from decimal degree form into degree/minute/second form and vice versa.
• Be able to solve application problems involving revolutions and unit conversion.

Section 5.2 Trigonometric Functions

• Know and be able to apply the definitions of the six trigonometric functions for angles in standard position. Be able to find the value of each of the six trigonometric functions for an angle defined by a point $P(x, y)$.
• Be able to compute the values of the six trigonometric functions for any quadrantal angle.
• Know the following trigonometric identities: reciprocal identities, Pythagorean identities, quotient identities. Be able to compute trigonometric function values with the help of these identities.
• Understand the sign of trigonometric functions in each of the four quadrants. Be able to identify which quadrant an angle is in based on the sign its trigonometric function values.
• Know the range of each of the six trigonometric functions.
• Be able to compute the trigonometric function values for an angle given one of its values and the quadrant it is in.

Section 5.3 Evaluating Trigonometric Functions.

• Know the definition of the 6 basic trig functions based on the sides of a right triangle.
• Be able to finding the values of the 6 basic trig functions for a given right triangle.
• Memorize the key values of the 6 trig functions for multiples of 30° and 45°.
• Know and be able to apply the cofunction identities.
• Be able to find the reference angle of a given angle and be able to use a reference angle and known key values to compute the exact values of the 6 trig functions for a given angle.
• Be able to use inverse trigonometric functions to find an angle in degrees given one of its trig function values.

Section 5.4 Solving Right Triangles

• Be able to solve (find all missing sides and angles) a right triangle.
• Know how to round your answer to an appropriate number of significant digits.
• Understand the definitions of angle of elevation, angle of depression, and bearings.
• Be able to solve application problems by setting up and solving an appropriate right triangle.

Practice Problems:
Chapter 2 Review pp. 275 - 279 # 2, 4, 5, 7, 9, 11, 16, 19, 71, 73, 91, 94, 97, 101
Chapter 5 Review pp. 535- # 1, 3, 4, 9, 11, 14, 17, 18, 21, 25, 26, 27, 31, 34, 37, 42, 51, 52, 57, 62, 64, 65, 68, 71