Math 143
Exam 2 Review Sheet

Section 6.1 Radian Measure

• Understand the definition of radian angle measure. Be able to convert from degree measure to radian measure and vice versa.
• Memorize the value of key angles in terms of radians (multiples of $\frac{\pi}{6}$, multiples of $\frac{1}{4}$ and quadrantal angles).
• Memorize the key values of the 6 basic trigonometric functions based on angles given in radians.
• Know the relationship between arc length and radian angle measure and be able to solve basic applications involving arc length, radius, and angle.
• Know the relationship between the area of a sector of a circle and radian angle measure and be able to solve basic applications involving sector area, radius, and angle.

Section 6.2 The Unit Circle and Circular Functions

• Understand the alternate definition of the six trigonometric functions in terms of points on the unit circle.
• Be able to find the point on the unit circle corresponding to an angle in any quadrant.
• Be able to use points on the unit circle to find **exact** values of trigonometric functions.
• Know the domains of the six trigonometric functions.
• Be able to compute values of trigonometric functions or inverse trigonometric functions using a calculator in radian mode.
• Understand angular speed and linear speed and be able to solve applications problems involving these concepts.

Section 6.3 and 6.4 Graphs of the Sine and Cosine Functions, Translations of Sine and Cosine Functions

• Understand the features of sine and cosine graphs based on corresponding coefficients in its equation (amplitude, period, phase shift, midline, max, and min)
• Be able to use shift constants to either create graphs or interpret the features of sine and cosine graphs
• Be able to graphing sine and cosine graphs involving multiple shifts.
• Be able to finding the equation for a sine or cosine function from its graph
• Be able to finding and/or describe a sine or cosine graph that fits data describing a physical phenomenon

Section 6.5 Graphs of Tangent and Cotangent Functions

• Know the key features of tangent and cotangent graphs (domain, range, asymptotes, zeros, period)
• Be able to graph tangent and cotangent functions with one or more shifts
• Be able to do applications problems related to graphs of tangent and cotangent functions.

Section 6.6 Graphs of Secant and Cosecant Functions

• Know the key features of secant and cosecant graphs (domain, range, asymptotes, zeros, period)
• Be able to graph secant and cosecant functions with one or more shifts (note that the related sine or cosine graph is very helpful)
• Be able to do applications problems related to graphs of secant and cosecant functions.

Practice Problems:
Chapter 6 Review pp. 619-625 # 4, 6, 7, 12, 15, 21, 23, 24, 25, 28, 30, 33, 36, 39, 43, 45, 48, 52, 54, 56, 58, 60, 62, 64, 65, 70, 75, 81, 83, 87, 90, 93, 96, 97, 100, 102, 106