The first exam is on Monday February 4th. You will have one hour, 6:30pm-7:30pm, to complete the exam. Bring a photo ID with you to the exam. No notes will be allowed during the exam. You may use a calculator during the exam, but you must SHOW ALL OF YOUR WORK to receive credit.

The exam will cover sections: 4.1, 4.2, 4.3, 4.4, 4.5 and 4.6 from the book. Make sure you are comfortable with all of the assigned homework problems from these sections. The assigned homework from these sections are due at the beginning of class on February 4th.

Topics and Breakdown of the Exam

• (30 points) **Angle Measure**
  - Know and be able to apply the definitions of degree measure and radian measure.
  - Sketch an angle in standard position.
  - Convert between radian measure and degree measure.
  - Find coterminial angles.
  - Find the reference angle.
  - Know the formula for arclength and be able to solve applied problems involving this concept.
  - Know the formula for the area of a sector of a circle and be able to solve applied problems involving this concept.
  - Know the relationship between angular speed and linear speed and be able to solve applied problems involving theses concepts.

• (40 points) **The Trig. Functions**
  - Know and be able to apply the definitions of the six trig. functions from all three perspectives: right triangles, the unit circle and on any circle centered at the origin of radius $r$.
  - Know the value of the six trig. functions at the special angles.
  - Know and be able to apply the reciprocal identities, pythagorean identities and the cofunction identities.
  - Know the sign of the six trig. functions in each quadrant.
  - Find the value of a trig. function of an angle using the reference angle as an aid.
  - Find the value of a trig. function of an angle using the period of the function as an aid.
  - Find the value of a trig. function of an angle using even/odd properties of the function as an aid.
  - Find the value of a trig. function of an angle from a point on the terminal side of the angle.
  - Be able to determine the value of the six trig. functions of an angle under given constraints.
  - Be able to draw diagrams which involve right triangles and solve applied problems which involve “solving a right triangle“.

• (30 points) **Graphing**
  - Given a sine, cosine, tangent or cotangent function:
    * Find the amplitude, period, phase shift and vertical shift.
    * Find one cycle interval and key points.
    * Graph the function over two cycles.
  - Know how to graph a secant or cosecant function from the corresponding cosine or sine function.
  - Be able to determine a sine or cosine function from given information about the amplitude, period, phase shift and vertical shift.
Practice Problems

- **Angle measure**
  - pg 270: 60
  - pg 342: 1, 3, 5, 9, 16
  - pg 343: 51, 52

- **The Trig. Functions**
  - pg 287: 46
  - pg 288: 72
  - pg. 296: 36
  - pg 297: 96
  - pg 342: 21, 28
  - pg 343: 48, 55, 56, 57, 58

- **Graphing**
  - pg 307: 60, 73, 84
  - pg 343: 67, 66, 71, 74