MATH 104G Exam 1 Friday, February 6, 2004
Precalculus II

Name: _____ **Student ID #:** _____

JUSTIFY ALL YOUR ANSWERS

DO **NOT** ANSWER YOUR QUESTIONS ON THIS PIECE OF PAPER

USE PENCIL

This exam has 10 questions, for a total of 100 points.

1. (10 points) Find an angle between 0 and 2π that is coterminal with the angle $\dfrac{51\pi}{2}$.

2. (10 points) A circular arc of length 3 ft subtends a central angle of 25°. Find the radius of the circle.

3. (10 points) Sketch a triangle that has acute angle θ, and find the other five trigonometric ratios of θ, given that $\sin\theta = \dfrac{3}{5}$.

4. (10 points) From the top of a 200-ft lighthouse, the angle of depression to a ship in the ocean is 23°. How far is the ship from the base of the lighthouse?

5. (10 points) Find the exact value of the trigonometric function $\csc\dfrac{5\pi}{4}$.

6. (10 points) Find the values of the trigonometric functions of θ given that $\cot\theta = \dfrac{1}{4}$ and $\sin\theta < 0$.

7. (10 points) Sketch the triangle and then solve it using the Law of Sines given that $\angle A = 23°$, $\angle B = 110°$ and $c = 50$.

8. (10 points) Use the Law of Sines to solve for all possible triangles that satisfy $a = 75$, $b = 100$ and $\angle A = 30°$.

9. (10 points) Solve the triangle for which $a = 10$, $b = 12$ and $c = 16$.

10. (10 points) A car travels along a straight road, heading east for 1 h, then traveling 30 min on another road that leads north-east. If the car has maintained a constant speed of 40 mi/h, how far is it from its starting position?