College of the Redwoods
Mathematics Department

Math 25 — Trigonometry
Reveiw Questions

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Review Questions

What follows is a description of the final examination.

EXERCISE 1. We will begin the final examination with a "rapid fire" quiz. You will need a scantron for this part of the examination. You will take this part without the use of a calculator. Once you've finished this part you will be allowed to use your calculator for the remainder of the examination.

EXERCISE 2. We now have had 5 examinations, named Exam #1, Exam #2, Exam #3, Exam #4, and Exam #5. These examinations (and there solutions) are available at the following url:

`http://online.redwoods.edu/instruct/darnold/trig/exams.htm`

The plan is to select a variety of problems from these examinations and gather them together for the essay part of the examination. Because these questions will be selected "verbatim" from the previous exams, this part of the exam will be closed book, closed notes. You will be allowed to use your calculator.

EXERCISE 3. What follows are questions from recent material that may be asked on the examination.

(a) Simplify $(-1+\sqrt{3}i)^6$. You should be able to do this without the use of a calculator.

(b) Find all solutions of $z^4 = -1$. Place your final answers in Cartesian form $a + bi$.

(c) Without the use of a calculator, sketch the graph of the circle $x^2 + y^2 - 4x + 6y - 87 = 0$. Label the center with its coordinates and clearly indicate the length of the radius.

(d) Without the use of a calculator, sketch the graphs of $x^2 - 2x + 4y + 9 = 0$ and $y^2 - 8x + 4y + 12 = 0$. Label the vertex and focus with their coordinates. Plot and label the directrix with its equation. State the length of the latus rectum and use it to help sketch the graph of the given parabola.

(e) Without the use of a calculator, sketch the graph of the ellipse $x^2 + 4y^2 - 2x + 16y + 1 = 0$. Label the vertices with their coordinats. Plot and label the foci with their coordinates.

(f) Without the use of a calculator, sketch the graph of the hyperbola $9x^2 - 4y^2 - 36x - 24y - 36 = 0$. Plot and label the vertices and foci with their coordinates. Draw and label the asymptotes with their equations.