

College of the Redwoods
Mathematics Department

Math 25 — Trigonometry
Exam #2

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Exam Questions

Read Carefully! You have until Monday of next week (3/10/08) to complete the exam. The exam is due, in my hands, at the beginning of class.

This exam is open notes, open book. This includes any supplementary texts or online documents. You must answer all of the exercises on your own. You are not allowed to work in groups or pairs on the exam. You are not allowed to enlist the aid of a tutor or friend to help with the exam. You are not allowed to read the exercises in the exam, then seek help on similar questions. Once you open the exam and read the questions, you may not seek any outside help of any kind.

I am not interested in reading pages and pages of calculations without accompanying narrative. It is essential that you include sound mathematical writing that both explains and justifies your solution or proof. Grammar and punctuation are important, as is the organization of your solution on the written page. Carefully labeled sketches and diagrams are equally important.

When working in the Mathlab or in the study rooms in the Physical Sciences Building (such as rooms PS116 or PS119), please do not work near any other student who is also working on the exam. For the sake of propriety, please separate yourselves when working on the exam in these areas.

Place the solution to each exercise on a separate sheet of paper. On a good sheet of paper, write out (longhand) and sign the following honor pledge.

I promise that all work found herein is my own. I have received no help from tutors, colleagues, or other teachers. I have honored all of the exam constraints listed in the directions.

Arrange your solutions in order, place these exam page(s) on top of your solutions, then place the honor pledge on top of the exam as a cover sheet. Staple. Good luck!

In each exercise that follows, sketch the graph of the given function. As you craft your solution, comply with each of the following conditions exactly.

- i. Each problem must be drawn on a separate set of axes. That is, don't put more than one exercise on a set of axes.
- ii. No postage stamp sized graphs! Use on full sheet of graph paper for each exercise.
- iii. Clearly indicate the scale on both axes.
- iv. If you decide to break an exercise into more than one step, color code each intermediate equation and craft the graph in the same color. For example, if your exercise is to sketch the graph of $y = \sin(x - \pi/2)$, and you decide to first draw the graph of $y = \sin x$, followed by the graph of $y = \sin(x - \pi/2)$ on the same set of axes, then draw one in one color, the second in a second color, and indicate the equation of each in matching colors.
- v. If you decide to do sequential steps in different colors, as described in the previous instruction, then you must provide a second set of axes with the final answer. That is, consider your sequential graphs in multiple colors to be your scratch work, but then draw another set of axes that contains only the final answer that you want graded.

EXERCISE 1. Sketch one period of the graph of $y = -2 \cos \pi x$. State the amplitude and period.

EXERCISE 2. Sketch one period of the graph of $y = \pi \sin(x/2)$. State the amplitude and period.

EXERCISE 3. Sketch one period of the graph of $y = -\tan \pi x$. State the amplitude and period.

EXERCISE 4. Sketch one period of the graph of $y = \cot(2x - \pi)$. State the amplitude, period, and phase shift.

EXERCISE 5. Sketch one period of the graph of $y = 2 \sec(x/4)$. State the amplitude and period.

EXERCISE 6. Sketch one period of the graph of $y = -\csc(\pi x - \pi/4)$. State the amplitude, period, and phase shift.