CSE 5392 Study Guide 1
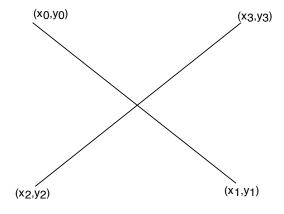
1. Visit O'Rourke's web pages and download code.

2. Review determinants. `http://mathworld.wolfram.com/Determinant.html` is informative.

3. What is the complexity of finding a determinant?

4. How is the determinant of a matrix found after LU decomposition?

5. 1.3.9, #1   6.   1.3.9, #2   7.   1.3.9, #4

8. Write a program (that outputs a PostScript file) to demonstrate left and right turn tests. The input is a sequence of integers. The first two integers are `x` and `y`, while the remaining integers will take on the role of `z`. The output will be a segment from `x` to `y`, along with an indication of the turn that each `z` makes. You are encouraged to use routines provided for our textbook.

    a.   What are the limits of your program?   b.   How does your output compare to others?

9. Write a program to perform the segment intersection test (2-d) in section 1.5 and count the calls to `AreaSign()`. (*Selectively* borrow code from `tri.c`.) The input is integers for the following diagram in the order x_0 y_0 x_1 y_1 x_2 y_2 x_3 y_3.

10. Modify O'Rourke's `segseg.c` to output a PostScript file to demonstrate the segment intersection computation (2-d) in section 7.2. Have your program output each instance on a separate page.

11. 1.1.4, #1   12.   1.2.5, #1   13.   1.6.4, #1

14. 1.6.4, #5   15.   1.6.8, #2   16.   2.2.3, #1

17. 2.3.4, #5