

# Homework 4

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Math 282 Computational Geometry  
due 5:00pm on Friday, January 13

Solve the following problems from the textbook, and write your solutions clearly and neatly. Make sure to explain your reasoning and provide mathematical details that support your answers. For a few tips on writing solutions, see [this helpful guide for mathematical writing](#).

If you are taking this course for elective credit towards the computer science major, then do the problem labeled **CS only** and not the problem labeled **math only**.

You may write or type your solutions electronically, or write them on paper and scan/photograph them. If you photograph your papers, please use a scanning app to produce a single PDF file containing your solutions. Upload your written solutions (and your code/output if you do the CS only problem) to the [Homework 4](#) assignment on Moodle.

1. **all:** Exercise 2.19
2. **all:** Exercise 2.20
3. **all:** Exercise 2.23 — You may assume that the points are in general position. Pseudocode suffices, but give enough detail to precisely describe your algorithm.
4. **CS only:** Implement the Graham Scan convex hull algorithm in your favorite programming language. Provide sample input and output to demonstrate that your algorithm works.
5. **all:** Exercise 2.31
6. **all:** Exercise 2.38
7. **math only:** Exercise 2.43 — Note that the cube is translated but not rotated.