

CALIFORNIA INSTITUTE OF TECHNOLOGY
Computing and Mathematical Sciences

CDS 112

R. Murray
Winter 2023

Final Exam

Issued: 10 Mar 2023
Due: 17 Mar 2023, 5p

The exam consists of 4 questions, worth a total of 60 points. The time limit for the exam is 3 hours in one sitting.

The point values for each part are given in square brackets in the right margin at the beginning of the question. Budget your time to complete as much of the exam as possible and show all of your work. If time does not permit a complete answer, indicate how you would proceed as explicitly as possible.

The exam is open book. You may use the following course texts:

- FBS2e: *Feedback Systems*, by Åström and Murray
- OBC: *Optimization-Based Control* (course notes), by Murray

as well as course homework sets and solutions, and *your own* individual notes (from this class or others). No other materials are allowed (including any other textbooks or notes/problem sets/posted solutions from other courses).

You are not allowed to use the Internet during the exam, except for accessing local computing resources, such as material posted on the course web site (within the caltech.edu domain or explicitly listed above), or Piazza. You may use a computer, but you shouldn't need one.

The exam must be completed *and turned in via Gradescope* by 5 p.m. 17 March 2023 (Fri).