Math 241, Spring 2022 — Homework 0

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Due January 28 at 5:00 pm

Instructions. This introductory problem set is partly to get you familiar with the class structure and technological tools. I know it's fast to have homework due right away, so thanks for jumping in! You will submit responses to Problems 7 and 8 below.

Problem 1. Please respond to the pre-semester survey on Moodle.

Problem 2. Bookmark the class web page and read the syllabus there.

Problem 3. Read these guidelines for writing homework solutions.

Problem 4. We will use Gradescope for homework submissions. If you haven't used it before, you should make an account with your MHC email address and read this short tutorial on submitting assignments. Your account should be linked to our course automatically but please let me know if it's not.

Problem 5. We will use Piazza as a forum for posting questions and answers related to class material. Please use this sign-up link for our class.

Problem 6. Download our class textbook. If you have trouble using this official link, take a look at our class Moodle page for another way to get the textbook.

Problem 7. MATLAB is a piece of software useful in various areas of mathematics, particularly when mathematical modeling, dynamical systems, or other areas of applied mathematics are involved due to many convenient built in functions. In our class we will use it to gain intuition for dynamical systems qualitatively and numerically.

1. Go to the Library Research Guide and install MATLAB on your personal computer or learn how to access MATLAB from a web browser.
2. Download the Iterator.m script file and open it with MATLAB.
3. Try pressing the Run button at the top of the MATLAB window. If it's working, you should see a list of 11 numbers in the Command Window at the bottom of the MATLAB window. These are values in the orbit of a map F.
4. Modify lines 12, 13, and 14 of the Iterator.m file to find $F^5(x_0)$ when $F(x) = 3x(1-x)$ and $x_0 = 0.3$. In your Gradescope submission tell me the value of $F^5(x_0)$ that you get.

Problem 8. Write up solutions to the from the worksheet on day 1 and submit them on Gradescope. I know we might have discussed aspects of these in class, but I want you to write things up for yourself.