due-03-05.sagews

February 26, 2014

Contents

1 Homework 7 Due March 5, 2014

1.1 Instructions

- Put your solutions in the empty space below the problem.

- When youre done, open the worksheet, and copy/paste the URL to this worksheet into an email to wstein@gmail.com with the subject math 480: homework 03-05.

1.2 Problems

1.2.1 Problem 1: Recognizing a rational number

I made up a neat-looking rational number $\alpha = \frac{a}{b}$ with a and b each having 8 digits. Its decimal expansion begins

0.99900695138991803948115419435

What is α?

1.2.2 Problem 2: Quadratic reciprocity

Use the law of quadratic reciprocity to deduce that for $p \geq 5$ prime

$$\left(\frac{3}{p}\right) = \begin{cases} 1 \text{ if } p \equiv 1, 11 \pmod{12}, \\ -1 \text{ if } p \equiv 5, 7 \pmod{12}. \end{cases}$$

1.2.3 Problem 3: Your Project

- a. If you havent already, add cross referencing to your project, which will look something like this. So youll use the ref and label commands systematically to refer to things somewhere else in your document. The actual generated numbers are created automatically by LaTeX!

  \sectionIntroduction In Section \refproof we prove the theorem.

  \sectionProof\labelproof

- b. Add bibliography references, if you havent already. One easy way is by using bibtex. I put a bibtex example in the subdirectory using_bibtex.

1.2.4 Problem 4: Your Presentation

- Use LaTeX beamer to create a rought draft of a 5-minute presentation about your project (tell me where it is so I can find it). There is a folder using_beamer that illustrates how to use beamer (or just google for examples).