Math 581d, Fall 2010, Homework 1

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Do the following, and turn them in by the beginning of class on Wednesday, October 6, 2010.

1. Read some papers:

   (a) Read the 1-page paper [Joyner-Stein, 2007]: `http://www.ams.org/notices/200710/tx071001279p.pdf`. What do you think?

   (b) Read as much of [Erocal-Stein, 2010] as interests you: `http://wstein.org/papers/icms/icms_2010.pdf`. What do you think?

   (c) Read as much of the canonical paper about Magma [Bosma-Cannon-Playout, 1997] as interests you: `http://www.math.ru.nl/~bosma/pubs/JSC1997Magma.pdf`. What do you think? What is the mathematical definition of a "magma"?

2. Write a program in each of the following math software systems that computes the sum $1 + 2 + \cdots + 2010$ via some obvious naive brute force algorithm (i.e., set a counter, make a for loop, etc.): Sage (i.e., Python), C, Cython, GAP, Singular, PARI, Macaulay2, Maxima, Magma (you can use `http://magma.maths.usyd.edu.au/calc/`), Mathematica, and Maple. Note that most of the above software is on the sage.math cluster, and I can give you an account if you email me.