Mathematics 220 — Fall 2000 — Bill Casselman's section

First homework — due Monday, September 18

1. Write a complete java program that accepts a command like `java diff 567 345` that returns the difference between the two numbers, prefaced with a minus sign if it is negative. Write out a description of the core algorithm in your own words (pseudo code).

2. Write a complete java program that accepts a command like `java prod 567 345` that returns the product of the two numbers. Write out a description of the core algorithm in your own words (pseudo code).

3. Write out 3456 in base 20; 5678 in base 16; 976 in base 2.

4. Write out a complete program that accepts a command like `java base 20 3456` and prints out an expression of the second number expressed with the first as base. You may assume the base is small.

5. Find the gcd of 45676545 & 5467543.

6. Follow the algorithm presented in class to express these fractions as repeating decimals: 17/13, 67/7, 78/23.

7. What fraction is the repeating decimal $4.5678678678\ldots$?