

Math 2406B (Fall 08) – Homework 1 (Due: Sept. 3rd)

Instructor : Prasad Tetali, office: Skiles 234, ph: 404-894-9238

Webpage: <http://www.math.gatech.edu/~tetali> **email**: tetali@math.gatech.edu

Office Hours: **Mon. Wed. 3:00-4:30pm** plus by appointment

1. Prove that \sqrt{pq} is irrational, where p and q are any two distinct primes.
2. Determine whether each of the following functions is an *injection*, *surjection* (or onto), and a *bijection*. Also determine the range of the function in each case.
 - (a) $f : R \rightarrow R$ defined as $f(x) = x^3$.
 - (b) $f : R \rightarrow R$ defined as $f(x) = 1/(1 + x^2)$.

- Section 1.4 : Exercises 5, 7 (b,c)
- Section 1.8 : Exercises 3, 10, 20
- Section 1.11 : Exercises 18(a), 19

Advisory Remarks: Try to make proofs succinct, clear and complete. The grader or I need to understand your logic, so please try to communicate your explanation well.

The book might have answers at the end, but you need to explain (or prove) and not simply report the answer.