Loyola University Chicago
Math 201, Section 001, Fall 2009

Quiz 6 Sample 2

Name (print): _____ **Signature:** _____

You have 30 minutes. Show your work. Notes not allowed! Problems are on both sides of this sheet.

Problem 1. Find the decimal expansion of $\frac{49}{132}$. Clearly show the repeating digits.

Problem 2. Prove that:

(a) If a and b are rational then $5a - 7b$ is rational.

(b) If x is irrational then $\sqrt[3]{x+1}$ is irrational.

Problem 3. Write down an explicit formula for a bijection from natural numbers divisible by 17 to $\mathbb{Z}$.

Problem 4. Suppose that x is a rational number such that x^2 is an integer. Prove that x is an integer.