

Math 676, Homework 7

Do this assignment by December 8, 2008. The first problem is mandatory, the second one is optional.

1. [Online Course Evaluation on the Web]

(a) Please complete the Online Course Evaluation for Math 676 at:

<https://ctools.umich.edu/portal>

Go to My Workspace in CTools, and fill out the questionnaire for the course.

(b) Please turn in a receipt confirming evaluation is done.

Note. (i) The university is supposed to send out emails informing students of what to do; the process may not be perfected yet.

(ii) The receipts may be identical, so they can be faked by copying one receipt. This preserves your anonymity.

2. [Fermat's last theorem-lite]

Let $l \geq 5$ be a prime, and consider the equation

$$x^l + y^l = z^l.$$

(a) Determine what you can for which p -adic fields this equation has a solution with x, y, z all p -adic units, i.e. they are in \mathbb{Z}_p^* .

(b) For definiteness, what can you say about the p 's having this property for $l = 7$?