## Rings and Fields Test 3.

## 12 March 2008

In the following questions you are asked to justify your answers. You can use any results from lectures if you state them explicitly.

1. Find all prime numbers p such that the polynomial  $x^3 + 2x + p$  is irreducible in  $\mathbb{Q}$ .

2. Find all the subfields of  $\mathbb{Q}(\sqrt[7]{2})$  (other than this field itself).