Math 481 - Graded Problems #7 Fall 2013 - Nathan Reff Name: \_\_\_\_\_

- 1. Show that  $S = \{(x, x) \mid x \in R\}$  is a subring of  $R \oplus R$ . (Note: see Example 7 on p.247 for the direct sum of rings).
- 2. Show that  $\mathbb{Q}(\sqrt{3}) = \{a + b\sqrt{3} \mid a, b, \mathbb{Q}\}$  is a subring of  $\mathbb{R}$ .
- 3. Explain why  $GL(2,\mathbb{R})$  and  $SL(2,\mathbb{R})$  are not a rings.