

Date due: November 21, 2005. There will be a quiz on this date.

Hand in only the starred questions.

Section 7.1 1, 6, 7, 9, 10*, 11, 13, 14*, 15, 16*, 21, 24, 28*, 30

There are many good questions in the exercises at the end of this section.

II. Find a ring R and elements a, b, c all distinct from 0 such that $a \cdot b = a \cdot c$ and yet $b \neq c$.

JJ. Show that the quaternions z for which $z^2 + 1 = 0$ are precisely those which may be written $z = bi + cj + dk$ with $b^2 + c^2 + d^2 = 1$.

[Hint: you may want to show as a first step that if z satisfies the equation then $z = \pm \bar{z}$, and then go on to show that in fact $z = -\bar{z}$. Now continue.]

Section 7.2 2, 7*, 8