# Math 215.  Homework 11

## due 04/30/08

1.  Is the set of real numbers which are fractions $\frac{a+b\sqrt{2}}{c+d\sqrt{2}}$, $\quad a, b, c, d \in \mathbf{Z}, c^2 + d^2 \neq 0$ denumberable?

2. Consider the set of segments in $\mathbf{R}^2$ such that the coordinates of both ends of each segment are rational. Is this set denumerable?

3.  Consider the set of segments in $\mathbf{R}^2$ such that ot least one of the ends of each segment has both coordinates rational. Is this set denumnerable?

4. Solve the congruence $3x \equiv 1 \bmod 7$.