Reading/Blogging Assignments

Come to class on

1. Friday having tried to square a rectangle and square a triangle.
2. Monday having read and blogged on section 3.2 up to **Discussion** on p. 43.
3. Wednesday having read and blogged on the rest of section 3.2
4. Friday having read and blogged on 3.3.

Problem Set 6, Due October 15

Feel free to do some experimentation via a computer algebra system to develop intuition for the problem.

1. Problem 5 in the notes. Also show that, for example, $\mathbb{Q}(\sqrt{3}, \sqrt{5}) = \mathbb{Q}(\sqrt{3} + \sqrt{5})$. Can you generalize this result? (10 points)
2. Prove that the square roots of all prime numbers are linearly independent over $\mathbb{Q}$. Deduce that algebraic extensions need not be finite. (10 points)
3. Let L/K be a finite extension and let f be an irreducible polynomial over K. Show that if $\deg f$ and $[L : K]$ are coprime, then p has no zeros in L (3 points)
4. Problems 9 and 10 in the notes (10 points).