Problem Set 10   **Real Analysis 1**   **Due 12/9/16**

Four of these problems will be graded, with each problem worth 5 points. Clear and complete justification is required for full credit. You are welcome to discuss these problems with anyone and everyone, but must write up your own final submission without reference to any sources other than the textbook and instructor.

1. Do Problem 2 in §6.5.

2. Show that if $x > 0$ then $\Gamma(x + 1) = x\Gamma(x)$.

3. If $n \in \mathbb{N}$, then $\Gamma(n) = (n - 1)!$.

4. State (legibly!) the definition of the error function.

5. State (legibly!) the definition of the Bessel function of the first kind of order p.

6. What's cool about the set of equivalence classes under the relation on $\mathbb{R}$ given by $a \sim b \Leftrightarrow a - b \in \mathbb{Q}$?

7. Give a good example of a Dedekind cut.

8. What problem(s) would you like to see on the final exam?