MA 330 HOMEWORK
DUE MONDAY, APRIL 14

Chapters 9 and 10 of *Journey Through Genius* discuss two contributions of Euler to analysis and number theory in the 17^{th} century; they are centered around the following "great theorems": the evaluation of

$$\sum_{k=1}^{\infty} \frac{1}{k^2}$$

and Euler's refutation of Fermat's conjecture regarding primality of $2^{2^5} - 1$.

- For both of these theorems, explain what the theorem says and provide an outline of the proof given in *Journey Through Genius*. This outline can be in bulleted form or paragraph form, with or without diagrams. Your outlines should capture the fundamental ingredients, ideas, and methods of the proof.
- Choose your favorite proof of the two discussed above and write one paragraph explaining why this proof is your favorite.

This homework should be typed and is worth 10 points (rather than the typical 5 point assignment).