Final Formal Writing Assignment

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Math 189: Experiencing Mathematics Through Writing

Final Formal Writing Guidelines

Your sixth and final formal writing is on a topic of your choice. You should pick some mathematical topic that you want to explore, and write a 5-7 page paper on it.

Important Dates:

April 10 – One page paper proposal due.
May 1 (last day of classes) – Final paper due.

Topic:

You need to clear your topic with me (submitting the proposal is sufficient). Pick any topic that interests you. You can browse The Mathematical Universe for some ideas. I also put Beyond Numeracy by John Allen Paulos on reserve in the math library; it might give you some ideas too. Anything by William Dunham, John Allen Paulos, Martin Gardner, or Ivars Peterson could help. If you are interested in geometry, you can find lots of ideas in Henderson’s Experiencing Geometry book (also on reserve).

Your topic should have significant mathematical content. You may explore a topic of historical or social significance, but be sure to focus on exploring the mathematics of the topic. For example, you could write a paper on the mathematical contributions of an influential mathematician, but you should not just write a paper on the personal and political life of Bertrand Russell.

More than one person can pick the same topic. If you do pick the same topic as others, you may discuss the mathematics together. (Please no more than 4 people in such a group.) Working together can help you explore the topic deeply, but you should write your papers on your own.

Some ideas:

- Geometry on cones and/or cylinders – What are the straight lines? What happens to those lines at the cone point (the tip of the cone)? What do triangles look like? Which triangle congruencies hold?
- More spherical geometry: polygons, areas of triangles.
• Pick a topic, formula, theorem, etc. that you have encountered (before or during college) but never really understood. Think about why it works, why it important, and/or why it was developed? (For example, why is the area of a circle $\pi r^2$?)

• An application of mathematics. For example, mathematics in cryptography (e.g. the mathematics of RSA).

**Audience:**
When you write your final paper, you should think of your audience as a fellow member of this course. Do not assume that your reader has any mathematical knowledge beyond high school math and the math we have covered in this course.