

Research Paper Instructions
Calculus (MA2) – Mr. Shahom

Requirements

- Must be 750 to 1000 words in length (about 2½ to 3 pages), typed, double-spaced and have reasonable margins.
- Include a cover page with a title, your name, and the date.
- A bibliography with at least three references. (At least two references must be non-electronic resources.)
- Proper spelling and grammar is expected and will be a part of your grade.

Deadlines

- Brief summary of proposed topic due **Thursday, May 22, 2008**. (Two to three sentences will suffice. This summary need not be typed.)
- Research paper due **Wednesday, June 4, 2008**. You may turn in your paper earlier, if you wish. If turned in late, your grade will be lowered by ten points for each day late.

Choosing Your Topic

Your paper must involve mathematical ideas, proofs, explanations, or examples from a calculus-related topic that you select. In lieu of a calculus-related topic, you may choose another advanced mathematics topic that is approved by me. The clear explanation of a mathematical concept is sufficient. It is expected that you explain one concept rather than listing many ideas without an explanation.

The topic you select must reflect either material that you have not been taught or advancement in a topic beyond what you have been taught. You are expected to research the topic and learn something new.

It cannot be a history report. If your paper deals with a mathematician, state and explain the contribution that he/she made by explaining the mathematics.

Each student must choose a different topic. If another student has already chosen the topic you wish to research, you will have to choose another topic.

Resources

You may use the school library, public libraries, bookstores, or any mathematics textbook and periodicals not used in Bronx Science classes.

Encyclopedias are an unacceptable source of information. You may only use an encyclopedia to give you ideas to start your paper. Other sources include newspapers (such as the Tuesday *New York Times* Science section), math magazines, the Internet, periodicals, and books in the library or math office.

Sample Topics

Mean-Value Theorem/Rolle's Theorem

Second Fundamental Theorem of Calculus

Euler's Identity

L'Hôpital's Rule

Newton's Method

An application of conic sections

A specific application of calculus to another field such as physics, biology, chemistry, astronomy, pharmacology, etc.