The goals of this project are:

1. To learn how to determine what resources a book has to offer without reading the whole book
2. To observe different mathematical writing styles and pedagogical approaches by by comparing the calculus literature available at the library
3. To become familiar with the resources in the text we will be using in the course
4. To understand the philosophy of the text we will be using in the course

For the first part of this project, you will need to bring your copy of Shahriari's *Approximately Calculus* with you to the library. You will compare Shahriari's book to two other calculus textbooks in the library and answer some questions about the three books.

For the second part of this project, you will read Shahriari's preface carefully and answer some questions about the book.

This worksheet is due at the beginning of class Monday Jan 9.

1. Bring your copy of Shahriari's *Approximately Calculus* with you to the library. Find two additional calculus textbooks in the library. List the author, title, and year of publication of each of the three books below.

2. Besides the main body of the text (the chapters), list the supplementary material provided, (e.g. table of contents, index, appendices, etc.) by each book.

3. Peruse the table of contents of each book.

   (a) Write down three topics that all three books cover, and state where each topic can be found in each book.

   (b) Write down three topics that *not* all three books cover and where each topic can be found.

(c) Write down three topics that you have already learned in a previous calculus course and where each topic can be found.

(d) Write down three topics that you have *not* already learned in a previous calculus course and where each topic can be found.

4. Peruse the index of each book.

(a) Which book has the most detailed index?

(b) Find the names of three mathematicians, and briefly describe the context in which the text mentions them, along with the citation.

(c) Write down three things (besides names of mathematicians) that can be found in the index of one of the books that cannot be found in the table of contents of that book, and give the page number.

(d) Based on the topics mentioned in the tables of contents and the indices of these three books, what do you think are the top five most important topics in calculus?

5. Find the author's (or editors') introduction (not necessarily called an introduction) in each book, and skim it. Open to the beginning of a chapter and skim the first few paragraphs.

   (a) Briefly describe the writing style of each book. Is it conversational? Formal? Dry? Poetic??

   (b) Write one or two sentences about each book describing the author's (or editors') approach to teaching calculus. For example, does the introduction explain why certain topics were included, why the problems/exercises are the way they are, why the book includes the supplementary material that it does, etc?

6. Read Shahriari's preface carefully.

   (a) Who is his audience?

   (b) What is his goal in writing the book?

   (c) What is the theme of the book?

   (d) What are the main ideas of the book?

   (e) In what order does he suggest that we cover the material?

   (f) What does he expect students to know before reading his book?

   (g) How does he characterize a good proof?

(h) What do you think he means by "the mathematical enterprize"?

(i) Why do you think he suggests that we work on a couple different strands at the same time?

(j) What is his philosophy on the roles of intuition and rigor in mathematics?

(k) Is there anything that he said that surprized you? Or that you had not thought about before?