Name:		

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 geometry texts selected for this course
- 3. To become familiar with the resources in the texts we will be using in the course

For this project, you will need to bring your copy of Stillwell's Four Pillars of Geometry with you to the library, where the two geometry textbooks (Cederberg's A Course in Modern Geometries and Hartshorne's Geometry: Euclid and Beyond) that we will be using as supplementary texts are available on reserve. You will compare the three books and answer some questions about them.

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

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

- 2. 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.

give page references.

(b) Write down three topics that *not* all three books cover and where each topic can be found. (c) Write down two topics that look familiar to you from your previous mathematics education (e.g. high school geometry, linear algebra) and where each topic can be found. (d) Write down three topics that are not familiar to you and where each topic can be found. 3. Peruse the index of each book. (a) Find the names of three mathematicians, and briefly describe the context in which the text mentions them, along with the citation. (b) Write down three things that you found in the indices that made you wonder what they are, and (c) Based on the topics mentioned in the tables of contents and the indices of these three books, what do you think are the three to five most important topics to include in an undergraduate geometry course?

- 4. Find the author's preface and/or introduction in each book, and skim it. Open to the beginning of a chapter and skim the first few paragraphs. Flip to the end of the chapter, read the concluding paragraphs, and look over the exercises.
 - (a) Briefly describe the writing style of each book. Is it conversational? Formal? Dry? Poetic??

(b) Which chapters/sections do the authors consider to be the core of their books?

(c) Very briefly (no more than one sentence per book), give your first impression of each of the authors' approaches to teaching an undergraduate geometry course. (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?)

- 5. After having perused the table of contents, the index, and the preface/introduction of each book, and after having read some sample material from the chapters, you should have a good idea of what is in each of the books. To answer the following questions, you will need to look again at what you've perused and read some parts carefully.
 - (a) What is Euclid's *Elements*?

(b) Compare and contrast the three authors' opinions about the role that Euclid's *Elements* should play in an undergraduate geometry course today.

(c) What are the "four pillars" of geometry Stillwell refers to in his title?

(d) What are some of the topics that Cederberg suggests for student projects or for independent study?

(e) How does Cederberg view a course in geometry as a part of a liberal arts education?

(f) What does Hartshorne say about working the exercises in his book? (Hint: look at the end of Section 1.1, before the first set of exercises.) Compare this with Cederberg's comments about the activities in her book.

(g) Is there anything that you read/discovered during this activity that surprized you? Or that you had not thought about before?