MATH HISTORY: ITEMS I CONSIDER IN EVALUATING A PAPER

Your Thesis
- Makes an assertion about a subject or idea
- Is focused and accurate
- “Drive’s” the paper’s organization

Your Details: Topics, Points, and Evidence
- Connect to the thesis
- Inclusion of primary/secondary source materials
- Inclusion of views/positions of authorities
- Inclusion of sufficient, appropriate, and significant information
- Inclusion of mathematical examples to support the thesis, explain points, and enhance the reader’s understanding
- Clarity of the thesis, discussion, arguments, and organization

Your Organization
- Logical soundness of the points, arguments, and positions
- Sentences are logically connected
- Provides transitional links between paragraphs
- Strong introduction that sets the stage and motivates the reader
- Strong closure that give’s reader sense that thesis has been argued well

Your Mechanics
- Correct grammar and usage
- Spells words correctly
- Ideas and Sources are well-documented
- Correct use of quotations

Your Mathematics
- Correct and significant application of understandings/theories
- Completeness and clarity of the information and arguments
- Examples are well-chosen

Your History
- Correct and significant aspects to build historical context for the mathematics
- Completeness and clarity of the information (and historical arguments if appropriate)

Your Commitment
- Generates the feeling that a person with a point of view is writing the paper
- Evidence of serious thinking, through research, and creativity
- Creates sense that author enjoyed writing the paper
FINAL GRADES ON PAPERS: IN RETROSPECT

Someone once shared this rubric with me, and it makes sense....!

C: Clear central thesis; an organization that proceeds logically and organically from it
B: "C" plus sufficiency of detail/examples to show that the central idea is understood and argued
A: "B" plus flawlessness in mechanics, grammar, and spelling; makes me say "I wish I had written that" repeatedly
D: Writer is not sure; confusion is evident
F: Does not meet purpose; unclear confusion or little attempt at a central thesis

SUPPORT DURING WRITING OF FIRST DRAFT

Students usually start out with great expectations, then discover that writing about mathematics in a historical context is not easy. To help, I provide the following via e-mail....

My Expectations: You need to do the following...

• Provide enough history so that one has a feeling for both the mathematicians involved and the mathematics involved
• Provide enough mathematics (with examples, etc.) so that one has both a "partial" understanding and appreciation for the specific work by the mathematicians involved
• An evaluation by you as author of the relative merits of the mathematical ideas (possibly from your present context historically)

All page limit sugestions will vary with each paper, being dependent on the mathematics involved as well as your use of equations, pictures, diagrams, and graphs.

At the end of your paper, the reader should walk away conversant with the mathematicians (as identities) and their mathematics...which you can best reveal through carefully through-through examples that both illustrate their work and your own understanding. In your rough drafts, I will give you an indication relative to the "ampleness" of each of the above relative to your paper.

Creativity is always encouraged, but it should not disrupt your paper’s ideas or approach. The primary focus should be more on your ability to produce an understandable paper with a mathematically-informed, critical attitude.
GENERAL PAPER FEEDBACK: FIRST DRAFT

After first draft of each paper, I share general concerns/weaknesses, such as:

- Read paper out loud to catch word errors/flow
- Use last name of mathematicians
- Historical dates/context
- Geographical content
- Use italics for book titles
- Make each word appropriate and count
- Avoid glittering generalities
- One idea per paragraph usually
- Avoid short choppy sentences
- Avoid one sentence paragraphs
- Work in more mathematics
- Read aloud to catch awkward phrasing/constructions
- Use word “mathematics” vs. “math”
- Check tense/vague references (it, he, she, they)
- Content: Important vs. Interesting vs. Necessary (weigh careful)
- Need an enticing beginning, substantial body, and convincing closure
- Variety in style/usage
- Unless appropriate to context, avoid informality
- Use of word "I"
- Document claims
- Citing resources/references
- Creative Title for paper
- Avoid passive sentence structures
- Embed quotations
- Insert examples, pictures, diagrams
- Make up your own examples to show you understand the mathematics
- Show you are interested in your own paper

SPECIFIC PAPER FEEDBACK: DRAFT OF MAJOR TERM PAPER

[This is from actual feedback given to a paper on continued fractions.]

Your Thesis for paper:

- Needs to be clear ...perhaps as a summary statement after your opening sentences.....That is, what exactly will you show (beyond what a continued fraction is and their use, as these are explanations only)....exactly why do they exist? And are they really important...or merely recreational asides?
- To repeat this in another way...explaining what a continued fraction is and how it is manipulated are not part of a thesis because there is probably no
"argument" there....the "argument" arises when you think about their creation or potential uses/importance.

List of “generic” things you need to check on specific to writing aspects:

- Have you chosen a title that "grabs" the reader (and fits your paper)
- Read your paper out loud....locate short choppy sentences...
- Create variety using phrases, combining adjacent sentences, descriptive (well-chosen) adjectives, etc.
- Look for awkward constructions ...phrases, sentences
- Make sure your pronoun references are clear
- Are your verb tenses consistent?
- Avoid one-sentence paragraphs or overly-long paragraphs that include multiple ideas
- Check your use of quotes...are they embedded with a lead-in transition....What do they contribute? Select and use them carefully to maximize their impact.
- Make a final check on spelling...both with computer and your own eye (to catch correct spelling of wrong word)
- Finally, are your paragraphs organized to give maximum focus on your argument (i.e. thesis)?

History of mathematics aspect of paper:

- Can you examine the "why" relative to this history....that is, why were the continued fractions created....did they offer something to Cataldi that other representations did not?
- Need more history....how does your subject fit in the grand scheme of the history of mathematics? More on the people involved?

Mathematics aspect of paper:

- Clarity (I)...i.e. are the ideas in your paper restated in your own words and presented in a way that demonstrates/transmits your understanding of the mathematics involved?
- Correctness of mathematics? I will do careful check on final draft
- Paper can benefit from more mathematics. That is, use mathematics to clarify. It is easy to get lost amidst a long string of variables/parameters. Help the reader by using more number- based examples.
- Can complex numbers be written using a continued fraction (My question comes from looking at your cover page)?

Other comments:

- Do you find your own paper interesting (I do not get that feeling)? If not, how can you make it interesting?
• Need a summary statement that ties the paper’s content back to the thesis....in a sense, saying you did what you said you were going to....
• Document sources when necessary in body of paper
• List of references...were all used...how? Did you list all of the references that you used?