

Advanced Mathematics/Computer Science Research 10 (9674)

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Google Classroom Code: 57ggnwr

Problem solving skills and mathematics research are closely related. It is not possible to do mathematical research without spending time doing mathematics. So be prepared to do a bit of exploring this year.

Selecting a topic is not only the first step in doing research but it is also the *most* critical step. Your topic should allow you to examine material that interests you. Pay attention in class - you might be inspired by an unanswered question or an alternate solution to spark your interest. The topic that you choose should be something you truly enjoy since you will be spending a great deal of time reading, writing, and experimenting with different cases and parameters.

Your summer assignment has been designed in the hopes of sparking your interest in a topic or in giving you time before school to figure out more about your topic.

“Mathematics possesses not only truth, but also supreme beauty” Bertrand Russell. I hope you find this to be the most exhilarating, enjoyable, and rewarding course you have ever taken. I know that it can be. All it takes is your commitment to do the best that you are capable of doing.

What is meant by a summary?

A summary means exactly that. Read the article and then write the paper in your own words. Do not quote unless necessary. Watch out for plagiarism. The articles may be found in mathematics journals, magazines, sections or chapters of mathematics texts, in newspapers, or excerpts downloaded from the internet. Include all pertinent documentation relative to the source of the article. If an internet page was the basis for your paper, print out the entire section or pages from the website and include it as an addendum to your paper. Read each article with thoughts about how you might extend the topic. Ask yourself if you would be interested in learning more about the subject matter. If the author left you with some unanswered questions would you like to do research to discover those answers? Be sure to include these remarks in your summaries. Remember, as you read the articles, you are searching for a main area of study that will keep your interest at an optimum level for many months.

Summer Assignments Checklist:

<p>1. Start a log book on Google Docs (or use a traditional notebook but be prepared to upload PDFS of the pages, not pictures) as soon as possible that documents your efforts to pick a topic and begin your research this summer. The logbook <i>will be collected on your first day of class</i> and must contain at least 25 entries.</p> <p>Each entry must:</p> <ul style="list-style-type: none">(a) Possess a date.(b) Start with a “Purpose”(c) Have a minimum of 10 sentences that details your work for the day(d) Conclude with a “My Next Step Is”	
<p>2. Watch all 7 Episodes of YouTube tutorials that will teach you how to write a mathematical paper using the online software called “ShareLaTeX”. Your research paper must be written in this format, so get comfortable with it.</p> <ul style="list-style-type: none">● Search “Beginners Latex Tutorials” on YouTube or click: https://www.youtube.com/watch?v=Qg2WtaSy-zQ&list=PLCRFsOKSM7ePUBOfh3O-K5XZldM5uCPwk	
<p>3. Examine the Society for Science website to see a list of past abstracts submitted.</p> <p>Keyword: Math, Any Category, Any Country, Any State, and click All Abstracts Matching Criteria. This will allow you to see all projects in this category since 2004. Use these abstracts as your guide. https://abstracts.societyforscience.org/</p> <p>Also, spend time on:</p> <ul style="list-style-type: none">(a) http://mathforum.org/library/toc.html(b) http://www.ams.org/programs/students/emp-student-research(c) http://mathforum.org/library/drmath/sets/high_projects.html(d) https://www.youtube.com/channel/UCoxcj-q-8xIDTYp3uz647V5A(e) http://www.ncams.org/math-fair.html <p>Pick three topics that interest you and research them further - via videos, articles, and books.</p>	

4. Read at least three mathematical articles or journals on your topics from #1 from reputable publications, and type a one page summary on each article.	
5. Watch 5 lectures or videos on any of your topics. Record the website, professor, and topic of the lecture. Then, write a summary of what you learned and the greatest take-away.	
6. Finally, create a 10 minute Prezi presentation file that summarizes/highlights <u>all</u> of the items above and be ready to present in class the first day of class. Your presentation will be graded based on content and your presentation skills.	

****A topic must be chosen by September 15th****