This is a sample latex document with emphasis on using math mode and equation environments. You should use it
Conjecture:

$$x^n = \sum_{i=1}^{n} y_i^n \text{ has an integer solution such that } y_i \neq x, \forall i.$$

Andrew D'Amario, February 18, 2021

Introduction The objective of this project is to investigate the conjecture above: whether or not we can always find

Some of this investigation and research will involve:
Finding parameters and conditions for possible valid solutions
Computational analysis on random integers raised to the power of n and finding an integer solution to the sum.
Noting differences between even and odd n.
Identifying different families of solutions that take on a similar form.

Though this conjecture may be false, we hope to investigate as much as we can on the matter and provide some de

References

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including the $n = 4$ and $n = 5$ cases of the conjecture.
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doi.org/10.1017/S0305004100003091 Brief paper outlining found solutions for the $n = 4$ case and considerations that rec

Writing Before getting to latex comments, I'll say a few words about writing, venting from many years of hard expe
It is important that what you write is something you would actually like to read. There should be no overuse of sy
Grammar should be correct. Never start a sentence with "Where ...". Mismatches of singular and plural are excruc
Avoid words or phrases like Simply, Obviously, Just, ..., It is easy to see. They serve only to intimidate or to browb
References to numbered statements are best in the form Theorem 2.3, not just 2.3. Equations should be referred to
Bad writing makes for unpleasant papers, no matter how good the material.
What does the table of contents command do?
The table of contents command will automatically make a contents. You must run tex at least twice for this to wor
How do the environment commands work?
"Environments" are commands that are given using the `\begin{}` and `\end{}` syntax. In the preamble, you can se

Definition .1 *This is how to define a definition.*

And for a theorem and its proof you type:

Theorem .2 *This is the statement of a theorem.*

And this shows that the statement is correct.

Note that the numbering is taken care of automatically, and that we've predefined a bunch of these sorts of environ
Another useful kind of enviroment is the equation environment. Equations get numbered in sequence with statemer

Note that if you do not want a numbered equation, you can use the environment "equation*" like so:
e=mc^2 But a quicker way to tex the same command and get the same displayed result is:

There are plenty of other equation-type enviroments that allow you to align several equations and such like things.
You can also typeset math directly in a paragraph by placing it within dollar signs. This is called "math mode." Fo
Remember that letters get put in a different font in math mode, so whenever you are referencing a mathematical ob
Both [**?**] and [**?**] have good lists of other symbols you can use in math mode. These include greek letters ($\alpha, \beta, \Gamma, \Delta$
Xypic and diagrams
If you want to draw diagrams, you should use xypic. It's actually much easier than it looks, and we've already inclu

*Acknowledgments You should thank anyone who deserves thanks, and for sure you should thank your mentor. "It

bibliography The bibliography should list all sources that you have used and referenced. And you should reference

http://math.uchicago.edu/ may/REU2020/
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