

First Draft Due: Wednesday, January 18th in class (typed hard copy)

Final Draft Due: Wednesday, January 25th in class (e-copy in email AND typed hard copy)

Problem Solving and Logic: THE FOUR COLOR THEOREM

In the world of mathematics, formal proof via deductive reasoning is king. Inductive reasoning, in the form of examples, stands to only support conjectures but fails to provide unequivocal proof. Straddling the line between inductive and deductive arguments are *exhaustive* proofs, where all possible cases are confirmed. In 1976, a famous mathematical theorem called the Four Color Theorem was proven exhaustively using a computer, a controversial approach to most mathematicians. Decades later it was finally proven formally.

Your task:

- I.** Research the origins and evolution of the Four Color Theorem, including important mathematicians involved.
- II.** Explain the theorem as you understand it.
- III.** Discuss the logical implications of proof by exhaustion in the case of the Four Color Theorem and why it was controversial.
- IV.** Provide an image of your own creation as an example of the theorem. (half-page max)
- V.** Provide your own opinion on the matter.

Do this in no more than three complete pages without unreasonable margins, line spacing, or image sizes.

Papers will be graded with the 5 items above in mind in addition to appropriate formatting, punctuation, grammar, and – most importantly – style.

See Writing Guidelines for more details.

Final drafts will be checked for plagiarism.