

Ramsey Theory Projects

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1. Use the prob method by really flipping coins and getting coloring to get concrete examples of lower bounds. Can also use prob method on other things.
2. Ramsey Theory is always about FOR ALL colorings. Run experiments and make conjectures about what happens if you know more about the coloring. For example
Theorem For all 2-colorings of K_{18} there is a mono K_4 .
If you choose RED with prob $3/4$ and BLUE with prob $1/4$ in K_{18} then are you likely to get a mono K_4 ? How likely?
Can ask this kind of question for ANY Ramsey Theory Result.
3. Finding Large Ramsey Numbers (that is a technical term) is hard, but perhaps we can do better if we look for mono C_k instead of K_k .
4. Canonical Ramsey Theorem when looking for C_k instead of K_k .
5. Refer to Rectangle Free Colorings of Graphs. Can we finally get the Obs set for 5-colors? Is 4-colors now easier with modern computers.
6. Find some Poly VDW numbers (using a computer). Find some easier proofs they exist (using a computer).