Exposition by William Gasarch

May 28, 2025

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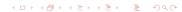
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We compare our LBs to the UB 2^{2k} for convenience.

How to Show A Lower Bounds

To show that $R(k) \ge f(k)$ we need to construct



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a 2-coloring of the edges of $K_{f(k)}$ such that there is no mono K_k .

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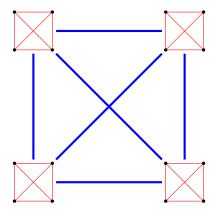
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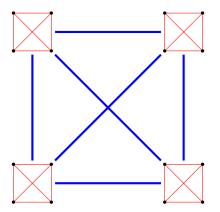
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Thm $R(k) \ge (k-1)^2$. We first give an example, on the next slide.

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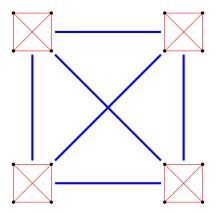


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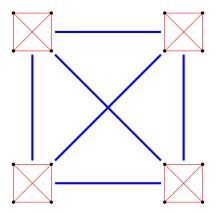
The thick **blue** lines between two K_4 's, X and Y, means that there is a blue edge between every pair $\{x, y\}$ with $x \in X$ and $y \in Y$.

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The upper and lower bounds are far apart. We will do better!