Graph Colorings | Instructors: Marisa and Paddy

Homework 5: Ramsey Theory

Week 2 | *Mathcamp 2010*

1. Find $R(3, 5)$.
2. We have shown that the Ramsey numbers have bounded growth from above. Can you find an explicit bound for the growth of the diagonal Ramsey numbers (i.e. $R(n, n)$?) More specifically, can you find a function $f(n)$ such that $R(n, n) \leq f(n)$? How small can you get $f(n)$ to be?
3. Similarly to the above: can you find a lower bound $g(n)$ for the growth of the diagonal Ramsey numbers? How large can you make g?
4. Find a construction that shows $R(3, t + 1) > 3t - 1$.