17/11/16 Assignment 1 in Distr' Alg's (Due to Dec. 10)

1) Describe an alg' that colors an oriented tree in $O(\log^{(10)} n)$ colors. Analyze it's running time.

2) Analyze the recursive formula that governs the running time of Cole-Vishkin's alg' for an oriented tree.

3) The same as ~~problem~~ 2), but for the version of Cole-Vishkin for n-vx graphs with maximum degree at most Δ.

4) We are given an L-coloring ψ of an oriented tree. Using just one single application of the shift-down procedure and without using Cole-Vishkin's

recoloring routine,
color the tree into 5 colors
properly, w/ as few reds as
possible.

5) Devise an alg' that
computes the diameter of an
oriented, possibly wtd tree, in
CONGEST model in $O(D)$ time.
Prove correctness.

6) Show that Maximal Matching
(under containment) is at least a
2-approximation of Maximum
Cardinality Matching.

7) Prove Enjoy! that the
chromatic number of
Grotzsch's graph is 4.
Try to show about a triangle-
-free graph with chromatic
number 5.

Enjoy!