

# k-coloring a graph

Let  $G$  have vertices  $v_1, v_2, v_3, \dots, v_n$

Algorithm to k-color the vertices:

- For  $i=1$  up to  $n$  DO:
  - Pick a color for vertex  $v_i$

Analysis: each coloring is produced exactly once, and there are  $k^n$  ways of applying the algorithm.