Using Oracles

Recall the definitions of the decision problem, *k*-colorability (i.e., does the given graph have a proper vertex coloring with at most *k* colors?).

- Suppose we have an Oracle that solves 3-coloring. Can we use it to solve 4-colorability?
- Suppose we have an oracle that solves 4-coloring. Can we use it to solve 3-coloring?