

CSC544 Assignment #6

due Tuesday 3/31 in class

version 1.0

Problems

1. Show that the complexity classes P and NP are closed under concatenation and union.
2. A *triangle* in an undirected graph is a 3-clique. Show that $TRIANGLE \in P$, where

$$TRIANGLE = \{\langle G \rangle \mid G \text{ contains a triangle}\}.$$

3. Call graphs G and H *isomorphic* if the nodes of G may be reordered so that it is identical to H . Show that $ISO \in NP$, where

$$ISO = \{\langle G, H \rangle \mid G \text{ and } H \text{ are isomorphic graphs}\}.$$