Math 3110 **Due: Fri., Mar. 1st, 2024**

Homework #5
Revision Problem

Name: My Name Goes Here

Revision Problem (Homework #4 Problem #4(a)): Let G be a group. Define $x \sim y$ iff y is a conjugate of x (i.e., there exists $g \in G$ such that $gxg^{-1} = y$).

THEOREM: This relation $\sim$ is an *equivalence relation* on G.

Proof: We show that $\sim$ is reflexive, symmetric, and transitive.

Reflexive: Let $x \in G$ [PROOF]. Thus $x \sim x$.

Symmetric: Let $x, y \in G$ and suppose $x \sim y$ [MORE PROOF]

Transitive: [MORE PROOF]

Since $\sim$ is reflexive, symmetric, and transitive, it is an equivalence relation. $\square$