1122-20-4 **Janusz Konieczny*** (jkoniecz@umw.edu). *A New Definition of Conjugacy for Semigroups.*

The conjugacy relation plays an important role in group theory. If a and b are elements of a group G, a is conjugate to b if $g^{-1}ag = b$ for some $g \in G$. The group conjugacy extends to inverse semigroups in a natural way: for a and b in an inverse semigroup S, a is conjugate to b if $g^{-1}ag = b$ and $gbg^{-1} = a$ for some $g \in S$.

I will define a conjugacy for an arbitrary semigroup S that reduces to the inverse semigroup conjugacy if S is an inverse semigroup. (None of the existing notions of conjugacy for general semigroups has this property.) Moreover, this conjugacy is close to the group conjugacy in the following sense. Every transformation on a set can be represented as a directed graph in a natural way. It is well known that in the symmetric group of permutations on a set, two elements are group conjugate if and only if their digraphs are isomorphic. Similar results hold for the new conjugacy in several important semigroups of transformations.

I will compare the new notion of conjugacy with existing definitions, characterize the conjugacy in basic semigroups of transformations on a set using the representation of transformations as directed graphs, and determine the number of conjugacy classes in these semigroups. (Received December 03, 2015)