1067-08-1102 **John H. Johnson*** (johnsojh@dukes.jmu.edu). *J-sets in Commutative and Uncommutative Semigroups.*

A J-set in $\mathbb{N}$ enjoys an easily derived combinatorial property:

> Given a sequence $\langle x_n \rangle_{n=1}^{\infty}$ in $\mathbb{N}$, a J-set in $\mathbb{N}$ contains arbitrarily long arithmetic progressions with difference from $\{\sum_{n\in F} x_n : \emptyset \neq F \subseteq \mathbb{N} \text{ is finite}\}$.

It's also a (not so easily derived) fact that every set with positive upper density is a J-set in $\mathbb{N}$. The notion of a J-set makes sense in any semigroup, and it is from this context we will look at J-sets. In this talk we will show the following result.

> **Proposition.** *Let S be a commutative semigroup, $T \subseteq S$ a subsemigroup, and $A \subseteq T$. If A is a J-set in S, then A is a J-set in T.*

We will also show that this Proposition is false when the commutativity assumption is dropped. (Received September 18, 2010)