(i) *Any right annihilator over S is an ideal of S.*
(ii) *Any left annihilator over S is an ideal of S.*
(iii) *A semigroup S is semicommutative.*

Definition 2. We say a semigroup S is a reduced if $s^2 = 0$ implies $s = 0$ for any $s \in S$.

Definition 3. We call a semigroup S to be reversible if $st = 0$ implies $ts = 0$ for any $s, t \in S$.

Proposition 2. *The following implications hold for semigroup S:*
S − reduced ⇒ S − reversible ⇒ S − semicommutative.

In general, each of these implications is irreversible (see [**4**]).

Easy to prove that every reduced semigroup is a semicommutative. In [**3**] D. Anderson and V. Camillo proved that if S is a reduced semigroup, then S satisfies ZC_n, for all $n \geq 2$. (A semigroup S satisfies condition ZC_n, if for any $a_1, \ldots, a_n \in S$ $a_1 \cdots a_n = 0$ implies $a_{\sigma(1)} \cdots a_{\sigma(n)} = 0$ for all $\sigma \in S_n$.) We prove the following

Proposition 3. *If S is Clifford semigroup (i.e. inverse semigroup with central idempotents) and satisfies ZC_n for some $n \geq 2$, then S is a reduced semigroup.*

Definition 4. We say a (right) S-polygon A_S is abelian if, for any $a \in A_S$ and any $s \in S$, any idempotent $e \in S$, $ase = aes$.

Proposition 4. *The class of abelian S-polygons is closed under subpolygons, direct products and homomorphic images.*

Proposition 5. *If the S-polygons A_S is semicommutative, then A_S is abelian.*

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Basarab Loop and the Generators of its Total Multiplication Group

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A loop $(Q, \cdot)$ is called a Basarab loop if the identities: $(x \cdot yx^{\rho})(xz) = x \cdot yz$ and $(yx) \cdot (x^{\lambda} z \cdot x) = yz \cdot x$ hold. It was shown that the left, right and middle nuclei of the Basarab loop coincide, and the nucleus of a Basarab loop is the set of elements x whose middle inner mapping T_x are automorphisms. The generators of the inner mapping group of a Basarab loop were refined in terms of one of the generators of the total inner mapping group of a Basarab loop. Necessary and sufficient condition(s) in terms of the inner mapping group (associators) for a loop to be a Basarab loop were established. It was discovered that in a Basarab loop: the mapping $x \mapsto T_x$ is an endomorphism if and only if the left (right) inner mapping is a left (right) regular mapping. It was established that a Basarab loop is a left and right automorphic loop and that the left and right inner mappings belong to its middle inner mapping group. A Basarab loop was shown to be an automorphic loop if and only it's inner mapping group is generated by the middle inner mapping. Some interesting relations involving the generators of the total inner mapping group of a Basarab loop were derived, and based on these, the generators of the total inner mapping group of a Basarab loop were finetuned. A Basarab loop was shown to be a totally automorphic loop (TA-loop) if and only if it is a commutative and flexible. These afore mentioned results were used to give a partial answer to a 2013 question and an ostensible solution to a 2015 problem in the case of Basarab loops.

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Laboratory works in courses of algebraic disciplines of higher educational institutions

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At this moment, the main role of mathematical knowledge is the effective preparation of future specialists in the field of teaching natural sciences, programming, technology, medicine, etc.