1086-13-1971 **Alina A Florescu*** (alina-florescu@uiowa.edu). *Reduced τ_n-factorizations of the Integers.* Preliminary report.

Given a natural number n, a reduced τ_n-factorization of an integer a is a factorization of the type

$$a = a_1 a_2 \dots a_k,$$

where $a_1 \equiv a_2 \equiv \dots \equiv a_k \mod n$ and $a_i \neq \pm 1$ for all $1 \leq i \leq k$. With these generalized factorizations new irreducible elements emerge. For example, for $n \geq 2$, $6 = 2 \cdot 3$ has no nontrivial reduced τ_n-factorizations. The analogue of the Fundamental Theorem of Arithmetic, that any positive integer has a unique reduced τ_n-factorization into these new irreducibles, fails in the existence part for most n. For the remaining n, the uniqueness of the factorization is not guaranteed. (Received September 24, 2012)