Let $D$ be an integral domain. We define a $\tau$-atom to be any nonzero, nonunit element $a$ of $D$ with no proper factorization $a = a_1 \cdots a_n$ such that $[a_i, a_j] = 1$ for $i \neq j$. We then define a $\tau$-UFD to be an integral domain such that each nonzero, nonunit element $a$ can be uniquely written, up to units, as a product of $\tau$-atoms $a = a_1 \cdots a_n$ with $[a_i, a_j] = 1$ for $i \neq j$. We explore $\tau$-UFD’s with an emphasis on one-dimensional Noetherian domains and GCD domains. (Received September 18, 2009)