1096-05-1318 **Thomas W. Tucker*** (`ttucker@colgate.edu`), Po Box 163, Sagamore Beach, MA 02562. *Skew morphisms and group factorizations.* Preliminary report.

A skew morphism of a group A is a permutation ϕ of A fixing the identity such that for any $a \in A$ there is an integer $\pi(a)$ such that $\phi(ab) = \phi(a)\phi^{\pi(a)}(b)$ for all $b \in A$. An automorphism is the case where $\pi(a) = 1$ for all a. Given a group factorization AY where $Y = \langle y \rangle$ and $A \cap Y = \{1\}$, left multiplication by y defines a skew morphism $ya = \phi(a)y^{\pi(a)}$, and, conversely any skew morphism defines a factored group $G = AY$. Their introduction and study were motivated by the observation that rotation about the identity of a regular Cayley map for A is a skew morphism. We present a number of new techniques for skew morphisms using the group-factorization viewpoint. This allows short, elementary proofs of work by Kovacs and Nedela on cyclic groups. Other results include that all skew morphisms of an elementary abelian 2-group are automorphisms and that any map skew morphism for the cyclic group C_n preserves all subgroups when n is odd and all subgroups of order dividing $n/2$, when n is even. (Received September 14, 2013)