A sequence of elements of a finite group $G$ is called a zero-sum sequence if it sums to the identity of $G$. The study of zero-sum sequences has a long history with many important applications in number theory and group theory. In 1989 Kleitman and Lemke, and independently Chung, proved a strengthening of a number theoretic conjecture of Erdős and Lemke. Kleitman and Lemke then made more general conjectures for finite groups, strengthening the requirements of zero-sum sequences. In this paper we prove their conjecture (first obtained by Geroldinger) in the case of abelian groups. Namely, we use graph pebbling to prove that for every sequence $(g_k)_{k=1}^{G}$ of $|G|$ elements of a finite abelian group $G$ there is a nonempty subsequence $(g_k)_{k \in K}$ such that $\sum_{k \in K} g_k = 0_G$ and $\sum_{k \in K} 1/|g_k| \leq 1$, where $|g|$ is the order of the element $g \in G$. This is joint work with Shawn Elledge. (Received September 28, 2005)