Let $K$ be a finite extension of the $p$-adic numbers with $p > 3$, $L/K$ a sextic extension, and $G$ the Galois group of the splitting field of $L$. We prove that $G$ must be either $C_6$ or $D_6$. Moreover, we show the determination of $G$ depends only on the prime $p$ and the residue degree of $K$. The techniques used are Krasner’s mass formula, ramification considerations, and the Galois theory of cubic extensions. (Received September 07, 2010)