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Some Irreducible Characters of $\mathrm{GL}(2, \mathbb{Z}/p^n\mathbb{Z})$ *and* $\mathrm{GL}(3, \mathbb{Z}/p^n\mathbb{Z})$

Nowadays there is considerable interest in the representations of $\mathrm{GL}(n, \mathbb{Z}_p)$, where $\mathrm{GL}(n, \mathbb{Z}_p)$ are the p-adic integers. Since every continuous irreducible representation of $\mathrm{GL}(n, \mathbb{Z}_p)$ comes from a representation of $\mathrm{GL}(n, \mathbb{Z}_p/p^m\mathbb{Z}_p)$ and $\mathbb{Z}_p/p^m\mathbb{Z}_p) \cong \mathbb{Z}/p^m\mathbb{Z}$, I focus on finding some irreducible characters of $\mathrm{GL}(n, \mathbb{Z}/p^m\mathbb{Z})$. Clifford Theory gives us a method to construct irreducible characters of a group G, by inducing up certain irreducible characters of subgroups H of G. I apply Clifford Theory to construct three types of irreducible characters of groups $\mathrm{GL}(2, \mathbb{Z}/p^n\mathbb{Z})$ and $\mathrm{GL}(3, \mathbb{Z}/p^n\mathbb{Z})$.