

$$\begin{aligned}
&|G|=p^kr\Rightarrow\exists H\subseteq G,|H|=p^k\\
&|G|=p^nm,p\nmid m,P_i\subseteq G,|P_i|=p^n\Rightarrow\\
&P_1=gP_2g^{-1},H\subseteq P_i\\
&\sum_i1=s\Rightarrow s|m,s\equiv1\pmod p
\end{aligned}$$