Corollary. Given G is a group with $|G| = 4, G \equiv \mathbb{Z}_4 \vee G \equiv Klein\ 4-group\ V$.

Proof :

(i)

$G \coloneqq \{e, a, b, c\}, if\ \forall x \in G^* \coloneqq G \setminus \{e\}, |x| = 2.$ *Claim* $ab = c$. *Otherwise,* $ab = e, b = eb = a^2b = a(ab) = a, C!$. *Analogously,* $ba = c, ac = b = ca, bc = a = cb, hence\ G \cong V$.

(ii)

$If\ \exists x \in G^*\ s.t.\ |x| \neq 2.\ \because |x| \mid |G| = 4, \therefore |x| = 4, G =< x > \cong \mathbb{Z}_4$.