

8. No, $Z_3 \oplus Z_9$ does not have an element of order 27. See also Theorem 8.2.
9. Yes, By Theorem 8.2.
13. Z_{n^2} and $Z_n \oplus Z_n$.
17. By Exercise 3 in this chapter G is isomorphic to $G \oplus \{e_H\}$ and H is isomorphic to $\{e_G\} \oplus H$. Since subgroups of cyclic groups are cyclic, we know that $G \oplus \{e_H\}$ and $\{e_G\} \oplus H$ are cyclic. In general, if the external direct product of any number of groups is cyclic, each of the factors is cyclic.
18. $\langle 10 \rangle \oplus \langle 10 \rangle$; $\langle 20 \rangle \oplus \langle 5 \rangle$.