Alternate CHAPTER 3 GROUP WORK

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Solve the following by considering the group G given by the Cayley table above.

1. Find $<ba^2>$.
2. Find $|ba^2|$.
3. Prove or disprove: $\{e, a, b, ba\} \leq G$.
4. Find $C(b)$.
5. Find $Z(G)$.

Answers:
1. $<ba^2> = \{e, b, a^2, ba^2\}$  2. $|ba^2| = 4$  3. $\{e, a, b, ba\}$ isn’t a subgroup. It is not closed; e.g., $aa = a^2$ isn’t in $\{e, a, b, ba\}$  4. $C(b) = \{e, b, a^2, ba^2\}$  5. $Z(G) = \{e, a^2\}$