

4.2

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ABSTRACT. We will solve all problems in section 4.2 of [1]

- 1., 2., 3., 4., 5., and 6. are routine!
7. a) This is a corollary of Cayley's theorem.
b) Note that $-1 \in G_a \forall a \in A$, where A is set which Q_8 is acting.
8. This is a corollary of Theorem 3, section 4.2 and the First Isomorphism Theorem.
9. Use Corollary 5 in this section.
10. Trivial, and S_3 is what we are finding!
11. Routine.
12. If H is that group then we have...? Use the hint we can said about it. See at $G = \cup_{i=1}^n k_i < x >$.
13. This is a corollary of 11. and 12.
14. Assume that p is the smallest prime divisor of $|G|$, by hypothesis, there is a subgroup of G has order $|G|/p$, this is a normal subgroup. Now note that $1 < |G|/p < |G|$ we are done.

Am I wrong? Have you got an other solution?... This is my email:
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REFERENCES

[1] Dummit and Foote, Abstract Algebra

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