From the Cayley table, the subgroup is cyc[lic] generated by (124635). It is therefore isomorphic to any cyclic group of order 6 eg $(Z_6, +_6)$
The Cayley table for $(Z_{6}, +_6)$ is

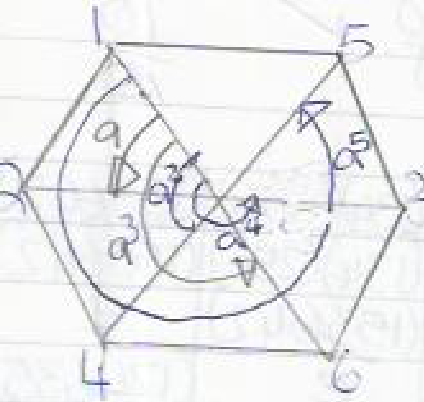
$+_5$	0	1	2	3	4	5
0	0	1	2	3	4	5
1	1	2	3	4	5	0
2	2	3	4	5	0	1
3	3	4	5	0	1	2
4	4	5	0	1	2	3
5	5	0	1	2	3	4

This group is cyclic, generated by 1. An isomorphism is found by matching corresponding powers of 1 and (124635) under their respective compositions.

The isomorphism is then

$(124635) \to 1$
$(143)(265) \to 2$
$(16)(23)(45) \to 3$
$(134)(256) \to 4$
$(153642) \to 5$
$(1)(2)(3)(4)(5)(6) = e \to 0.$

~~Alsofor~~ Consider the hexagon, labelled as shown.



an isomorphism is then
$(124635) \to \frac{\pi}{3} = a$
$(143)(265) \to$ rotation anticlockwise about $\frac{2\pi}{3} = a^2$
$(16)(23)(45) \to$ rotation about π anticlockwise $= a^3$
$(134)(256) \to$ rotation anticlockwise about $\frac{2\pi}{3} = a^4$
$(153)(642) \to$ rotation anticlockwise about $\frac{5\pi}{6} = a^5$
$(1)(2)(3)(4)(5)(6) \to$ rotation about 2π anticlockwise $= e$

The isomorphism is then to the set of rotations of a hexagon, irregularly labelled.

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