

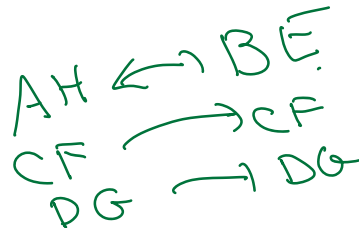
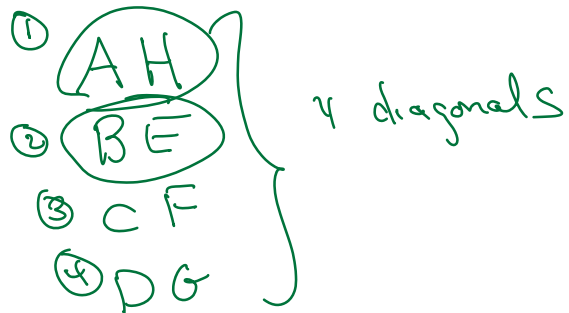
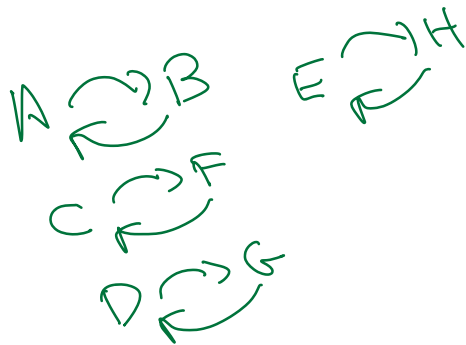
8 vertices

6 faces.

G symmetries of cube.

Prop: $|G| = 24 = 4!$
 $4! = |S_4|$.

Prop: $G = S_4$



$$\sigma = (12)$$



$$\sigma = (14)$$

G contains all transpositions

(12) (13) (14) (23) (24) (34)

\therefore Contains all permutations
get all of $S_4 \subseteq$ symmetries of cube