

Name: _____

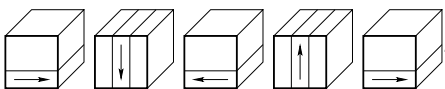
Rubik's Cube Homework 1

All MOVES are viewed from the FRONT.

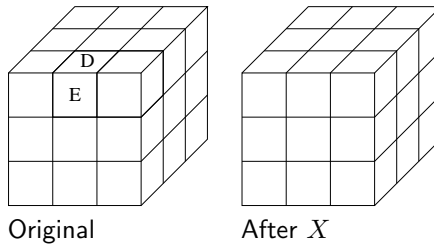
1. Rubik's Cube has _____ center cubies, _____ edge cubies, and _____ corner cubies. (How many?)

2. Circle the correct answer for each of the following.

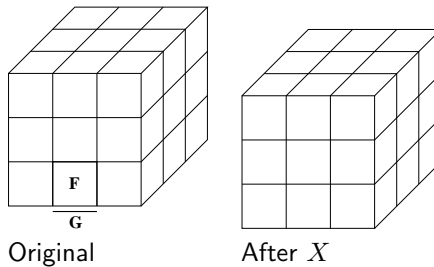
- (a) Is it possible to move an edge cubie into a corner position? YES NO
- (b) Is it possible to move a center cubie into a corner position? YES NO
- (c) Is it possible to move a center cubie into an edge position? YES NO
- (d) Is it possible to move a corner cubie into a center position? YES NO

3. Let $X =$ 

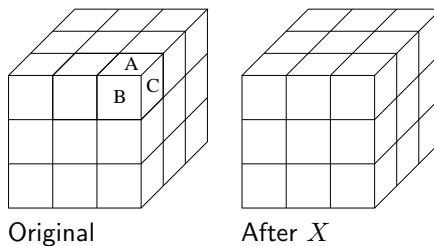
(a) We wish to trace the movement of the edge cubie labeled DE after an application of X . Label the new position and orientation of the cubie with D and E (if visible on the upper, front, or right faces pictured).

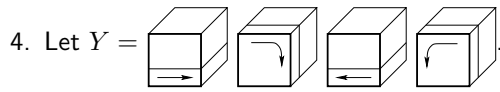


(b) We wish to trace the movement of the edge cubie labeled FG after an application of X . Label the new position and orientation of the cubie with F and G (if visible on the upper, front, or right faces pictured).

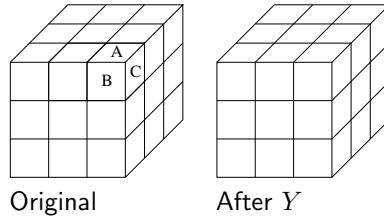


(c) We wish to trace the movement of the corner cubie labeled ABC after an application of X . Label the new position and orientation of the cubie with A , B , and C (if visible on the upper, front, or right faces pictured).

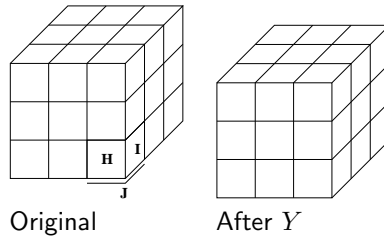




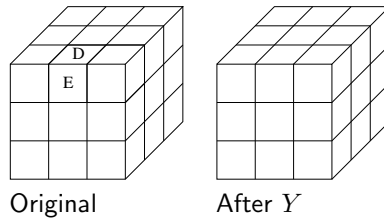
- (a) We wish to trace the movement of the corner cubie labeled ABC after an application of Y . Label the new position and orientation of the cubie with A , B , and C (if visible on the upper, front, or right faces pictured).



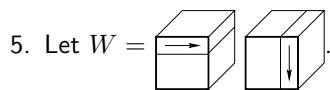
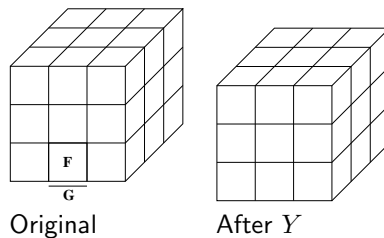
- (b) We wish to trace the movement of the corner cubie labeled HIJ after an application of Y . Label the new position and orientation of the cubie with H , I , and J (if visible on the upper, front, or right faces pictured).



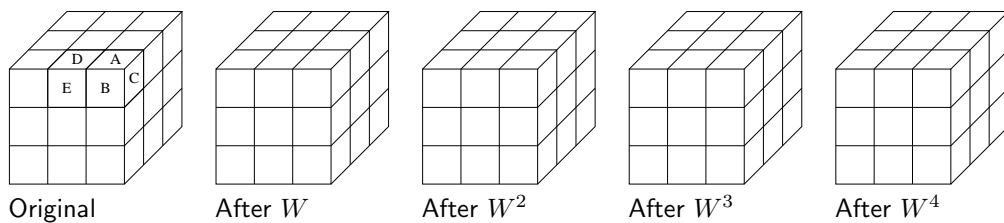
- (c) We wish to trace the movement of the edge cubie labeled DE after an application of Y . Label the new position and orientation of the cubie with D and E (if visible on the upper, front, or right faces pictured).



- (d) We wish to trace the movement of the edge cubie labeled FG after an application of Y . Label the new position and orientation of the cubie with F and G (if visible on the upper, front, or right faces pictured).



- (a) We wish to trace the movement of the corner cubie labeled ABC and the edge cubie labeled DE after successive applications of W . Label the new position and orientation of the two cubies with A , B , C , D , and E (if visible on the upper, front, or right faces pictured).



- (b) How many applications of W does it take to get both of these cubies back into their original positions and orientations?