

# Notations for 3x3 cube

Notation for a 3x3 Rubik's Cube is a system of letters that tells you which face to turn and how.

## Faces (letters):

- **R** = right
- **L** = left
- **U** = up (top)
- **D** = down (bottom)
- **F** = front
- **B** = back

## Turns:

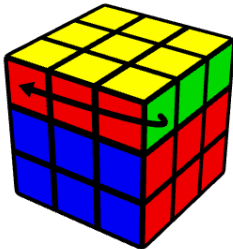
- **R** → turn right face clockwise (90°)
- **R'** → turn right face counterclockwise
- **R2** → turn right face 180°

Same applies to all faces (U, L, F, etc.).

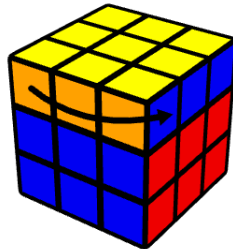
**Prime moves (')** mean turning a face **counterclockwise (90°)** when you look directly at that face.

Examples:

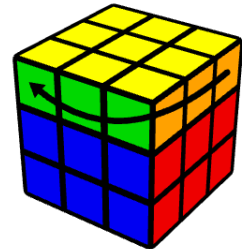
- **R'** → right face counterclockwise
- **U'** → top face counterclockwise
- **F'** → front face counterclockwise
- **L', D', B'** → same idea for those faces



**U**



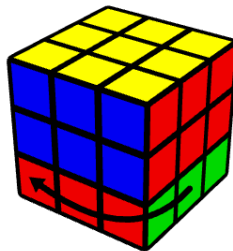
**U'**



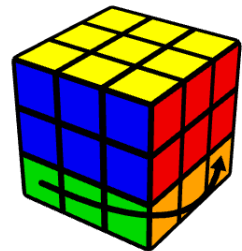
**U2**



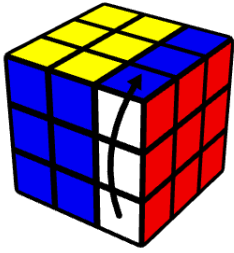
**D**



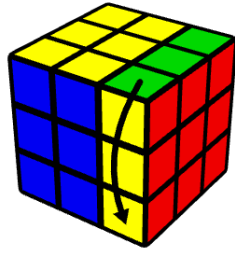
**D'**



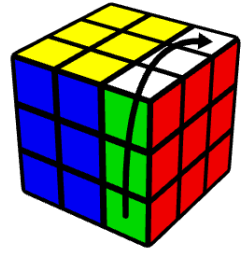
**D2**



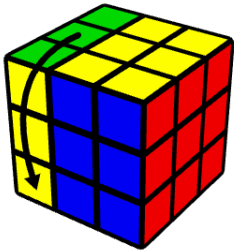
**R**



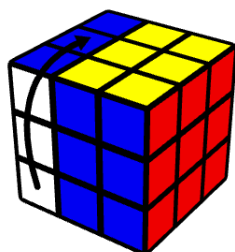
**R'**



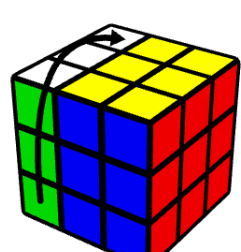
**R2**



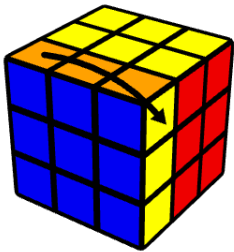
**L**



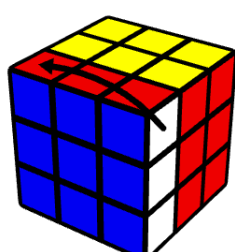
**L'**



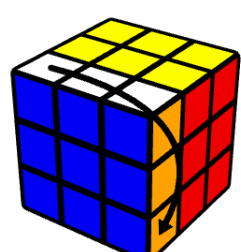
**L2**



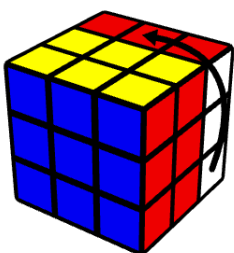
**F**



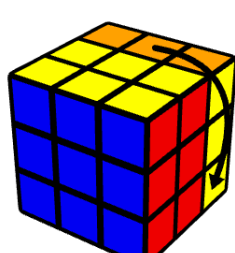
**F'**



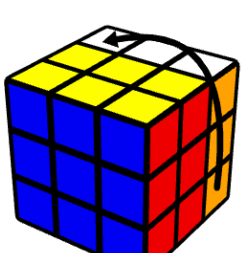
**F2**



**B**

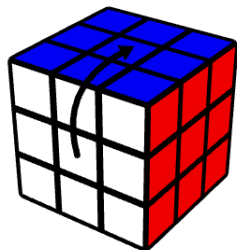


**B'**

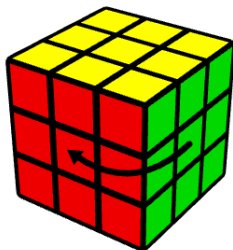


**B2**

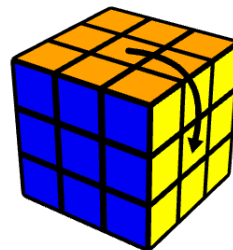
$x$  follows the **R** direction,  $y$  follows the **U** direction,  $z$  follows the **F** direction.



**x**

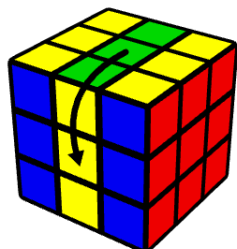


**y**

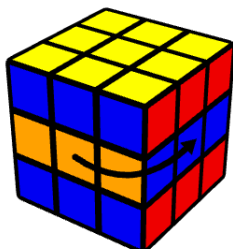


**z**

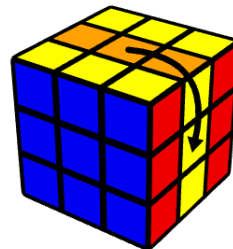
There are also  $x'$  and  $x^2$ ,  $y'$  and  $y^2$ ,  $z'$  and  $z^2$



**M**



**E**



**S**

There are also  $M'$  and  $M^2$ ,  $E'$  and  $E^2$ ,  $S'$  and  $S^2$