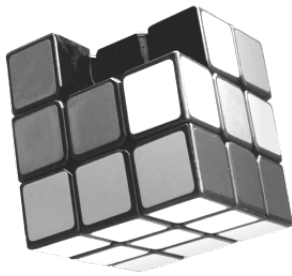


[Contribute](#)   [Edit page \(/edit-article/\)](#)   [New article \(/new-article/\)](#)



# Ruwix

Rubik's Cube Wiki  
(/)

- [Home page \(/\)](#)
- [Programs \(/rubiks-cube-programs/\)](#)
- [Rubik's Cube \(/the-rubiks-cube/\)](#)
- [Twisty Puzzles \(/twisty-puzzles/\)](#)

## Puzzles (<https://ruwix.com/twisty-puzzles/>)

- [Designers \(https://ruwix.com/twisty-puzzles/designers/\)](https://ruwix.com/twisty-puzzles/designers/)
- [Puzzle Modding \(https://ruwix.com/twisty-puzzles/twisty-puzzle-modding/\)](https://ruwix.com/twisty-puzzles/twisty-puzzle-modding/)
- [Siamese Twisty Puzzles \(https://ruwix.com/twisty-puzzles/siamese-twisty-puzzles/\)](https://ruwix.com/twisty-puzzles/siamese-twisty-puzzles/)
- [Electronic Cubes \(https://ruwix.com/twisty-puzzles/electronic-rubiks-cube-puzzles-touch-futuro-slide/\)](https://ruwix.com/twisty-puzzles/electronic-rubiks-cube-puzzles-touch-futuro-slide/)
- [Shape Mods \(https://ruwix.com/twisty-puzzles/3x3x3-rubiks-cube-shape-mods-variations/\)](https://ruwix.com/twisty-puzzles/3x3x3-rubiks-cube-shape-mods-variations/)
- [Sticker Mods \(https://ruwix.com/twisty-puzzles/rubiks-cube-sticker-mods-and-picture-cubes-how-to-solve-orient-center-pieces-sudoku-shepherd-maze-pochmann/\)](https://ruwix.com/twisty-puzzles/rubiks-cube-sticker-mods-and-picture-cubes-how-to-solve-orient-center-pieces-sudoku-shepherd-maze-pochmann/)
- [Bandaged Cubes \(https://ruwix.com/twisty-puzzles/bandaged-cube-puzzles/\)](https://ruwix.com/twisty-puzzles/bandaged-cube-puzzles/)
- [1x1x1 Rubiks Cube \(https://ruwix.com/twisty-puzzles/1x1x1-rubiks-cube/\)](https://ruwix.com/twisty-puzzles/1x1x1-rubiks-cube/)
- [Void Cube \(https://ruwix.com/twisty-puzzles/void-cube/\)](https://ruwix.com/twisty-puzzles/void-cube/)

[Home \(/\)](#)   [Programs \(/rubiks-cube-programs/\)](#)

[Puzzles \(/twisty-puzzles/\)](#)

[ne-puzzle-simulators/](#)

[e-rubiks-cube/how-to-solve-the-rubiks-cube-beginners-method/](#)

[line-rubiks-cube-solver-program/](#)   [\(/shop/\)](#)

[//www.facebook.com/online.rubiks.cube.solver](http://www.facebook.com/online.rubiks.cube.solver)

[//twitter.com/#!/RuwixCube](https://twitter.com/#!/RuwixCube)

[//plus.google.com/s/ruwix#112275853610877028537](https://plus.google.com/s/ruwix#112275853610877028537)

Home (<https://ruwix.com/>) » [Puzzles \(https://ruwix.com/twisty-puzzles/\)](#) » [4x4x4 Rubik's Cube](#)

# 4x4x4 Rubik's Cube - The Easiest Solution



*A scrambled Eastsheen 4x4x4 cube*

**The Rubik's Revenge is the 4x4 version of the Rubik's Cube (/the-rubiks-cube/). This is also a Hungarian invention, designed by **Sebestény Péter**. This twisty puzzle (/twisty-puzzles/) can be**

puzzles/void-cube/)

2x2x2 Rubik's Cube  
(<https://ruwix.com/twisty-puzzles/2x2x2-rubiks-cube-pocket/>)

Edges Only Void Cube  
(<https://ruwix.com/twisty-puzzles/edges-void-cube/>)

2x2xN Cuboid Puzzles  
(<https://ruwix.com/twisty-puzzles/2x2xn-cuboid-puzzles/>)

4x4x4 Rubik's Cube  
(<https://ruwix.com/twisty-puzzles/4x4x4-rubiks-cube-rubiks-revenge/>)

Parity (<https://ruwix.com/twisty-puzzles/4x4x4-rubiks-cube-rubiks-revenge/parity/>)

5x5x5 Rubik's Cube  
(<https://ruwix.com/twisty-puzzles/5x5x5-rubiks-cube-professors-cube/>)

NxNxN Big Cubes  
(<https://ruwix.com/twisty-puzzles/big-cubes-nxn-n-solution/>)

Cuboid (<https://ruwix.com/twisty-puzzles/cuboid/>)

1x3x3 Floppy Cube  
(<https://ruwix.com/twisty-puzzles/super-floppy-cube/>)

2x3x3 Domino Cube  
(<https://ruwix.com/twisty-puzzles/2x3x3-domino-cube/>)

3x3x4 Rubik's Cube  
(<https://ruwix.com/twisty-puzzles/3x3x4-rubiks-cube/>)

5x3x3 and 7x3x3  
(<https://ruwix.com/twisty-puzzles/5x3x3-and-7x3x3-rubiks-cube-cube4you-c4y/>)

Kilominx (<https://ruwix.com/twisty-puzzles/kilominx/>)

Megaminx (<https://ruwix.com/twisty-puzzles/megaminx-gigaminx-teraminx-petaminx/>)

Gear Cube (<https://ruwix.com/twisty-puzzles/gear-cube-extreme-ultimate-how-to-solve-gearcube-solution/>)

Gear Shift Puzzle  
(<https://ruwix.com/twisty-puzzles/gear-shift-puzzle/>)

Pyraminx (<https://ruwix.com/twisty-puzzles/pyraminx-triangle-rubiks-cube/>)

Square-1 (<https://ruwix.com/twisty-puzzles/4x4x4-rubiks-cube-rubiks-revenge/>)

used as a 2x2x2 (/twisty-puzzles/2x2x2-rubiks-cube-pocket/), not turning the outer layers or can be used as a 3x3x3 if we rotate only the outer layers. There are about  $7.4 \times 10^{45}$  possible permutations for this puzzle.

It has 24 edges, 24 centers and 8 corner fields. It has similar core mechanism as a Rubik's Cube (/the-rubiks-cube/how-take-apart-disassemble-the-rubiks-cube-and-put-back-together/) but in this case the 4 center pieces are held together by a hidden center. To take it apart pop out a center piece with a screwdriver. Reassembling can be hard unless you have four spare hands.

**Play with the Rubik's  
Revenge simulator  
(/online-puzzle-simulators/4x4x4-rubiks-revenge-cube-simulator.php)**

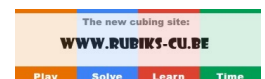


Give the  
of fitne

fitbit

accessory bands sold separ

starting at ~~\$149.99~~  
\$129.95  
+ Free shipping



(<http://rubiks-cu.be/>)

puzzles/square-1-back-to-square-one/)

Skewb (<https://ruwix.com/twisty-puzzles/skewb-pyraminx-mod-skewb-diamond/>)

Dino Cube (<https://ruwix.com/twisty-puzzles/dino-cube/>)

Helicopter Cube (<https://ruwix.com/twisty-puzzles/helicopter-cube/>)

Curvy Copter (<https://ruwix.com/twisty-puzzles/curvy-copter/>)

DaYan Gem (<https://ruwix.com/twisty-puzzles/dayan-gem-3-jumble-solution/>)

Starminx (<https://ruwix.com/twisty-puzzles/starminx-solution-dodecahedron-shaped/>)

Ivy Cube (<https://ruwix.com/twisty-puzzles/ivy-cube/>)

Hungarian Rings (<https://ruwix.com/twisty-puzzles/hungarian-rings-sliding-puzzle/>)

Rubik's Clock (<https://ruwix.com/twisty-puzzles/rubiks-clock-mechanical-puzzle-solution-machanism/>)

Rubik's UFO Solution (<https://ruwix.com/twisty-puzzles/rubiks-ufo-solution/>)

Rubiks Cheese (<https://ruwix.com/twisty-puzzles/rubiks-cheese/>)

Rubik's Magic (<https://ruwix.com/twisty-puzzles/rubiks-magic-master-magic/>)

rubiks snake twist (<https://ruwix.com/twisty-puzzles/rubiks-snake-twist/>)

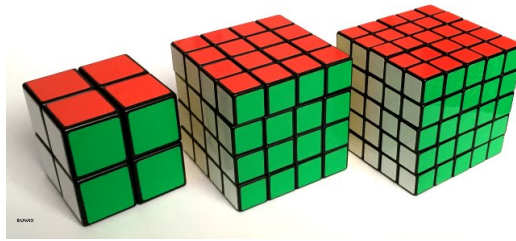
Sliding 15-Puzzle (<https://ruwix.com/twisty-puzzles/sliding-15-puzzle/>)

Smart Egg (<https://ruwix.com/twisty-puzzles/smart-egg/>)

Non-Twisty Puzzles (<https://ruwix.com/twisty-puzzles/non-twisty-puzzles-snake-cube-hanayama-babylon-tower-brain-racker/>)

Jigsaw Puzzles (<https://ruwix.com/twisty-puzzles/jigsaw-puzzles/>)

Neo Cubes (<https://ruwix.com/twisty-puzzles/neo-cubes-magnetic-balls-puzzle/>)



2x2, 4x4 and 5x5 cube puzzles

## Variations

Just like the Rubik's Cube, the 4x4 has many shape mods ([/twisty-puzzles/3x3x3-rubiks-cube-shape-mods-variations/](https://ruwix.com/twisty-puzzles/3x3x3-rubiks-cube-shape-mods-variations/)), built on the same inner mechanism.



**Axis Cube** – cube in solved position but it changes its shape as you scramble it.

**Octahedron** – the centers become corners and the corners become centers.

**Fisher Cube** ([/twisty-puzzles/3x3x3-rubiks-cube-shape-mods-variations/fisher-cube/](https://ruwix.com/twisty-puzzles/3x3x3-rubiks-cube-shape-mods-variations/fisher-cube/)) – the mother of shape mods.

**Bandaged Cube** ([/twisty-puzzles/bandaged-cube-puzzles/](https://ruwix.com/twisty-puzzles/bandaged-cube-puzzles/)) – with some pieces attached together. 2x2 ([/twisty-puzzles/2x2x2-rubiks-cube-pocket/](https://ruwix.com/twisty-puzzles/2x2x2-rubiks-cube-pocket/)) in a 2x2 by Meffert's.



Mirror Cube

([/twisty-puzzles/3x3x3-rubiks-cube-shape-mods-variations/mirror-blocks-cube/](https://ruwix.com/twisty-puzzles/3x3x3-rubiks-cube-shape-mods-variations/mirror-blocks-cube/))



Like Ruwix

(<https://www.facebook.com/ruwix/>)



Buy Puzzles

([/shop/](https://puzzlewebshop.com/))

## Rubik's Programs (/rubiks-cube-programs/)

Cube solver (/online-rubiks-cube-solver-program/)

Timer (/online-rubiks-stopwatch-timer/)

Simulator (/online-puzzle-simulators/)

Widget (/saved-rubiks-cube/edit.php)

Scrambler (/puzzle-scramble-generator)

## Latest News (/rubiks-blog/)

33x33x33 Rubik's Cube - World Record  
(<https://ruwix.com/33x33x33-rubiks-cube/>)

Rubik's Cube World Record:  
SeungBeom Cho 4.59  
(<https://ruwix.com/seungbeom-cho-rubiks-cube-record-459/>)

Rubik's Cube World Record - Patrick Ponce 4.69  
(<https://ruwix.com/rubiks-cube-world-record-patrick-ponce-4-69/>)

Rubik's Cube World Championships  
2017 Paris (<https://ruwix.com/rubiks-cube-world-championships-2017-paris/>)

Feliks Zemdegs world record average:  
5.97 seconds (<https://ruwix.com/feliks-zemdegs-world-record-average-5-97-seconds/>)

Non-Cubers say the Darndest Things  
(<https://ruwix.com/non-cubers-say-darndest-things/>)

Cube 3x3 Competition - Write and Win!  
(<https://ruwix.com/cube-3x3-competition/>)

Feliks Zemdegs World Record: 4.73s  
(<https://ruwix.com/feliks-zemdegs-rubiks-world-record-2016-4-73/>)

Mats Valk World Record: 4.74s  
(<https://ruwix.com/mats-valk-rubiks-cube-world-record-4-74/>)

Why Speedcubers Dislike Rubik's  
Branded Products  
(<https://ruwix.com/why-rubiks-brand-cube-disliked-hated/>)

**Windmill** – with a slightly twisted core.

**Mastermorphix** – 4 colored pillowed shape shifter.

4 colored shape-shifter. We have to mention the 4x4 Ghost and [Mirror cubes \(/twisty-puzzles/3x3x3-rubiks-cube-shape-mods-variations/mirror-blocks-cube/\)](#) too.

## How to solve a 4x4

The solution is more complicated than the classic [Rubik's Cube method \(/the-rubiks-cube/how-to-solve-the-rubiks-cube-beginners-method/\)](#), but if you know how to solve a 3x3x3 then you shouldn't have difficulties with this one either. We solve the 4x4 grouping the 4 centers and the edge-pairs together, and finally solving it like a 3x3. Some speedcubers can solve this cube under 30 seconds so it can't be that hard!

## Notation

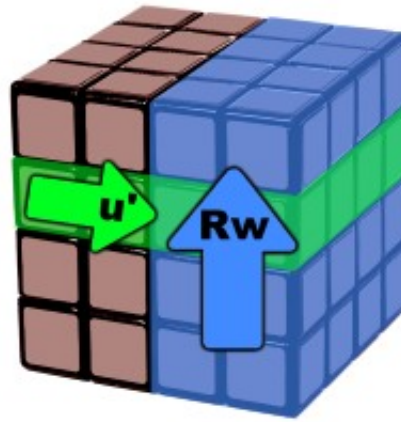


Share this  
page



Check  
out  
**GeekPrank.com**  
(<http://geekprank.com>)  
for the  
best  
online pranks!

We  
use



letters to mark the rotations on the cube, similar to the the Rubik's Cube notation (/the-rubiks-cube/notation/). Deep turns come in when we move two letters together, but we can define slice turns when we move the second layer only. We are going to use the official NxNxN notation (/the-rubiks-cube/notation/advanced/):

**F** – Outer front face clockwise

**U'** – Outer up face anticlockwise

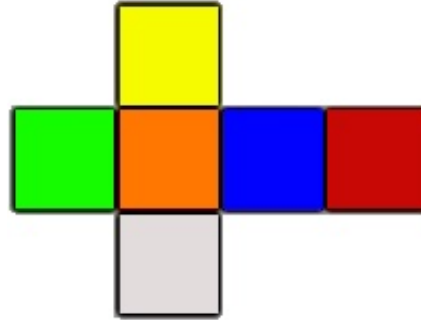
**L2** – Double turn of the left face (180°)

**Fw** – Outer block move: the two front faces together clockwise. For NxNxN cubes we mark how many layers to grab but we can ignore this for a 4x4 cube since the numbers is always 2: **2Rw'**. Other tutorials use lowercase letters to mark double turns.

**f** – Lowercase letters mark inner slice turns. **u' = Uw' U**



## Step 1: Two adjacent centers



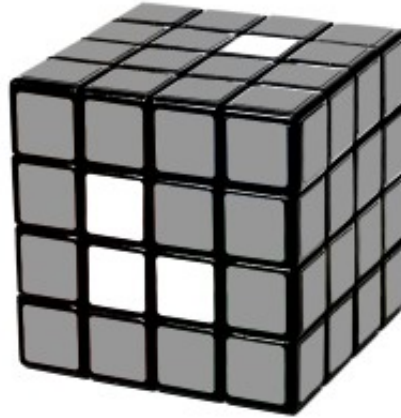
Since the 4x4 has no fixed center piece which determines the color of each face we have to calculate the [color scheme \(/the-rubiks-cube/japanese-western-color-schemes/\)](#) from the colors of the corner pieces.

The image shows the most common color scheme, which is copyrighted by the Rubik's brand so other manufacturers avoid it by replacing the orange with purple or reorganizing the faces. If you have a Rubik's logo on your cube then this is the one you have to use.

Let's solve the **white and yellow** adjacent centers first. If you can't find any corners having these two colors next to each other then these should be fine.

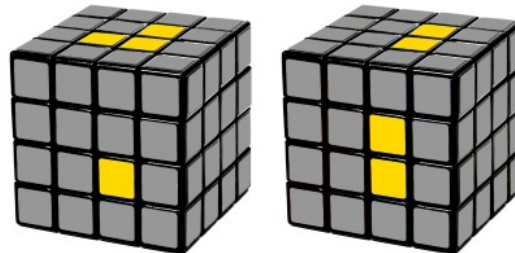
This step shouldn't be a problem because there are no solved pieces that we can mess up. Use

this short algorithm to insert a piece from the top to the front layer.



**Dw' Fw' Dw**

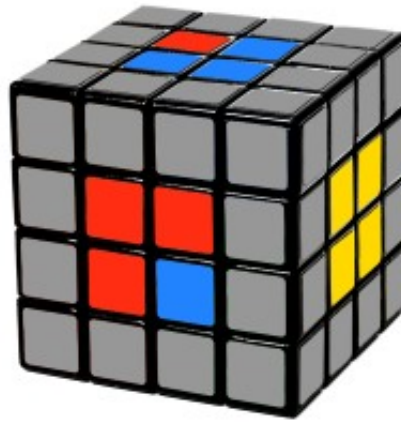
When the white face is complete, Try to build the yellow 2x2 block on the opposite side with the white face moved to the bottom.



With the completed white center at the bottom: **Rw U Rw'** and **Rw U2 Rw'**

## Step 2: Remaining four centers

Move the completed centers to the left and right sides to keep them out of the way. Build the first block then keep an eye on the color scheme for the next ones.



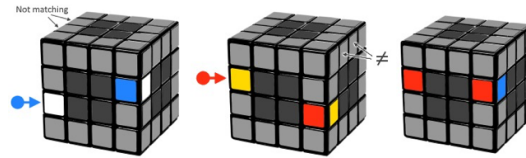
Use the same algorithms as above, with the white and yellow centers on the left and right: **Rw U Rw'**

### Step 3: Pairing the edges

The center blocks are done and now we have to pair the edges. Use the algorithms below to attach two edges from the front-left and front-right edges. Depending on their position we have to use two mirrored algorithms. Make sure there's no complete edge above the lower edge piece (marked with arrows) because this algorithm would break that.

When the matching pieces are side by side on the same level (3rd picture) you need to turn the one on the right upside down to be able to perform one of the moves.



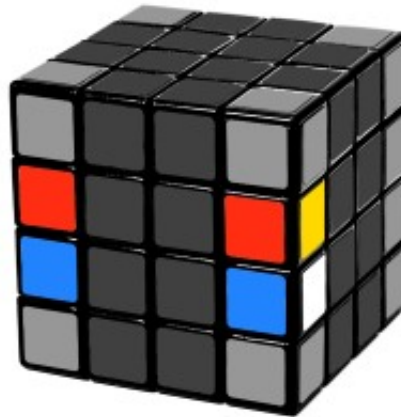


First case: **Uw L' U' L Uw'**

Second case: **Uw' R U R' Uw**

Side by side: **R U' B' R2**

When you reach the last two edges then you won't be able to use any non-matching edge pairs in the top layer because they all have been paired already. We have a separate algorithm to solve the last two edges. Use the **R U' B' R2** trick above if the pieces are not aligned correctly.

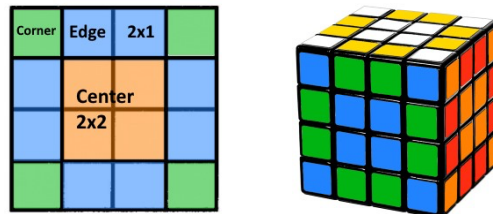


Last edges: **Dw R F' U R' F Dw'**

### Step 4: Solve it like a 3x3

From this point we can finish the cube solving it like a 3x3, turning the outer layers only. Read here [how to solve the Rubik's Cube \(https://how-to-solve-a-rubix-cube.com/\)](https://how-to-solve-a-rubix-cube.com/) if you need further help but don't close this page yet

because you might be facing one of the parity cases as you go further.



*The 4x4 reduced to a 3x3*

## Step 5: Parity cases

As you reach the last layer you might find yourself in a situation where the cube seems to be [unsolvable \(/the-rubiks-cube/unsolvable-rubiks-cube-invalid-scramble/\)](#). For example when you reach the [yellow cross \(/the-rubiks-cube/how-to-solve-the-rubiks-cube-beginners-method/step-4-yellow-cross/\)](#) and one edge seems to be oriented wrong or you find two pieces on the correct spot when you are [positioning the last layer corners \(/the-rubiks-cube/how-to-solve-the-rubiks-cube-beginners-method/step-6-position-yellow-corners/\)](#). See which of the long algorithms below solves your situation.



Reorient 2 and 3 with minor side effects in the last layer:

**Rw2 B2 U2 Lw – U2 Rw' U2 Rw –  
U2 F2 Rw F2 – Lw' B2 Rw2**

Swap 4 and 5:

**Rw2 f2 U2 Fw2 – D Rw2 U2 Fw2  
– U' Fw2 L2 U2 – B2 Lw2 U**

The same algorithm without slice moves:

**Rw2 Fw2 F2 U2 Fw2 – D Rw2 U2  
Fw2 – U' Fw2 L2 U2 – B2 Lw2 U**

Swap 1 and 4:

**F2 R2 B' - D' B R2 F' U - Fw2 F  
L2 - f2 Lw2 - f2 l2 U' (ok)**

The same algorithm without slice moves:

**F2 R2 B' - D' B R2 F' U - Fw2 F  
L2 - Fw2 F2 Lw2 - Fw2 F2 Lw2  
L2 U'**

**More about the 4x4  
Parity (/twisty-  
puzzles/4x4x4-rubiks-**

# cube-rubiks-revenge/parity/

## Solve any NxNxN cube (/twisty-puzzles/big-cubes-nxn-n-solution/)

### Comments

35 comments

35 Comments Sort by Oldest

Back To The Top 



Add a comment...



**Kristo Karl Aedma** · Works at Õpilane

Can you please put up old solving notations aswell, cant understand sh\*\* when its all like 2U222D22R2URR2r

Like · Reply · 4 · Jul 23, 2016 3:25am



**Kristo Karl Aedma** · Works at Õpilane

Also old solving methods

Like · Reply · Jul 23, 2016 3:32am



**Tim Wu** · National Taiwan University

the very basic idea is: we want to move a tile to a certain position with changing the other tiles as little as possible in 2x2x2 you

possible. in 6x6x6, you can try this. say you have already make the top face of the cube, then move one edge tile out with operations[A], then use operations[B] to move it back... than observe the changes to the other tiles. If [B] eq [A.reverse], there would be no change.... Say if it changes 3 tiles(cells), you can repeat the [A][B] process to adjust those 3 tiles to push some tile(s) to the "right" position. Once you are familiar with moving the edge tile, you can try the corner.

[Like](#) · [Reply](#) · Sep 12, 2016 5:42pm



**Aldjer Cuaresma**

with pictures/examples

[Like](#) · [Reply](#) · 2 · Jul 31, 2016 8:34pm



**Net Harry**

dont understand

[Like](#) · [Reply](#) · 1 · Aug 16, 2016 5:01am



**Jcramos Lazaro**

Santiago City National High School

i can't understand the process  
can you post a picture for solving a 4x4x4 ?

[Like](#) · [Reply](#) · 1 · Aug 20, 2016 9:33pm

**Maryann Calma** ·

Eusebio High School

haysssss

[Like](#) · [Reply](#) · Aug 25, 2016 5:05am**Aarti Agarwal** ·

Loreto Convent Lucknow

can you please put up more examples or with pictures or maybe that step by step tutorial in the 3x3x3 cube ??? its very hard to understand

[Like](#) · [Reply](#) · Sep 10, 2016 4:55am**Alejandro Seno** ·

Texas A&amp;M University

I dont understand the formula

[Like](#) · [Reply](#) · Sep 10, 2016 5:46pm**Aly Yasser Serry** ·

Works at Nefertari British International School

Online solver??

[Like](#) · [Reply](#) · 1 · Sep 15, 2016 11:07am**Sky Carter** ·

Collinsville High School

the two front layers like U2 would be how you would spin the first top layer like just the top you would go one down from the top and spin the top and the one down so as (up) and (down) 2 so look at the 16 tiles and its 1234567 and 8 you would spin for U2 very simple anytime theres a 2 you go one more deep (I hope this helped some people)

[Like](#) · [Reply](#) · Sep 19, 2016 7:09pm**Sky Carter** ·





Collinsville High School

F = outer front face

f = 2 front layers together

2F = inner front layer

[Like](#) · [Reply](#) · 3 · Sep 19, 2016  
7:10pm



**Matthew Whalen**

Wrong way around.

[Like](#) · [Reply](#) · Jun 25, 2017  
3:24pm



**Lalit Kumar Agarwal**

F= outer front layer, f=  
inner front layer, 2f=  
2front layers  
together(clockwise)  
and if either of these  
three ends with an  
apostrophe (!) it's anti-  
clockwise

[Like](#) · [Reply](#) · Aug 23,  
2017 5:27am



**Gerwin Gutierrez Goja**

F Outer layer. f Inner  
Layer. Fw both outer  
and Inner Layer. F2  
move Outer Layer  
twice. f2 move  
InnerLayer twice

[Like](#) · [Reply](#) · Oct 6, 2017  
6:02pm

[Show 1 more reply in this  
thread](#)

[Load 10 more comments](#)

Facebook Comments Plugin

© 2017 Ruwix. All Rights Reserved. | Template by

HTML5 Templates (<http://html5-templates.com/>)

Privacy, Terms and Conditions (</rubiks/terms-and-conditions-privacy-policy/>)

Sitemap (</sitemap/>) RSS (</feed/>)

Facebook (<https://www.facebook.com/online.rubiks.cube.solver>)

Twitter (<https://twitter.com/RuwixCube>) Contact (</contact>)

This website is using cookies to improve the user experience, to collect anonymous visitor analytics and to show personalised ads.



(<https://www.facebook.com/online.rubiks.cube.solver>)



(<https://plus.google.com/s/ruwix#112275853610877028537>)



(<https://twitter.com/RuwixCube>)



(<https://www.youtube.com/user/modusbeke/videos>)



(</rubiks-blog/>)



(<http://ruwix.blogspot.com/>)



(<https://www.flickr.com/photos/ruwix>)



(/contact/)