1.	F2 L	L R'	D2 D'	R U'	U2 R	F2 B'	U2 D	R U	D' B'	U2	
2.	R2 U'	D2 R'	R2 B2				D' D2		U2 R	L	
3.	F2 U2		U2 R'	R2 U'	D2 F	L' D2		U2 F	R R2		
4.	F' D2	U F	F' L2	D2 F			F B'			U2	
5.	D R2	F' L2	L U'	U F2	L2 U'	D D'	R F2	F U'	L' L2	F B2	
Extr	a scran	nbles									
E1.	F2 D'		2 R B	F2 F		2 R2 2 R'		2 F2 D'			
E2.	L2 R L'	2 D B		2 D 2 F'	R2 L			2 D L'	L2 U	2	

1.	R2 F U2 F U2 R U' R' F' R U	
2.	U' R' F' R2 U' R2 F U2 F U F	
3.	R F U F U2 F U F' R U' R	
4.	U R U2 R2 F' U' F R2 F R2 F'	
5.	U2 R2 U2 F R U' R F' R' U' R'	
Ext	ra scrambles	
E1.	U R' U' R2 U' F U' R' F U' R	
E2.	R' F' U' R2 U' R' U R' F2 U' F	

	L'	U2	R'	U'	В	R	D2	L'	F	D2	
	R2	U'	В2	D'	В2	L2	D'	В2	D	Fw2	
1.	R	В	Rw2	Uw2	В2	D2	F'	L2	Uw2	L2	
1	Uw2	U	L'	F2	Uw	F	L'	Rw'	D2	Fw'	
	Rw2	В	Rw'	F'							
	В2	U	R2	F2	U'	D2	F2	U	R2	U	
	F2	L'	В	U	L'	U'	F'	L'	U'	Uw2	
2.	L2	В'	R2	Fw2	Rw2	F	Rw2	_ ט'	F2	Uw2	
١٢.	F2	- Rw'	D2	 F	U2	- В'	Fw'	D	Rw'	Uw2	
	F2	L	Fw2	_				_			
	U2	L2	В	F2	D2	В'	U2	D'	В2	R '	
	U	F2	D'	F	R	D'	L2	R	Fw2		
3.	Rw2	Uw2	Fw2	F2	В	Rw2	F	D	Fw2	L2	
3.	B	Rw'	Uw2		R2	U'	D2	Uw	L'	Fw	
	Rw	Fw'	L2	I W Z	112	O	םם	OW		I W	
\vdash				7.0	- 0				- 0		
	D2	F2	D'	B2	L2	D'	U'	F2	L2	U	
	R'	U'	B2	R	B2	R	B'	F2	L2	D'	
4.	Rw2 U'	U' F'	R2 Rw'	B L'	L2 B'	Uw2	B2 D'	F'	Rw2	B' U	
	Rw'	R2	Fw2	Rw2	D.	L	D.	Uw'	D.	U	
	ΙζW	<u> </u>	r w Z	KWZ							
	D2	F2	L2	В2	L	F2	U2	L	D2	L	
	В2	D'	F	L2	В	R	F'_	D2	U'	L2	
5.	В'	Fw2	L'	D'	R	L'	Fw2	В2	R2	U'	
	R	Fw2	D'	Fw	R2	U2	R'	Fw'	В2	F2	
	Rw	L	Fw'	D2	Rw2	Uw2	В2				
Extr	a scrai	mbles									
	В2	R2	U	В	${ m L}$	F	U	F'	D'	R'	
	D2	F2	U2	R2	D2	F'	L2	F	В2	R2	
E1.	Uw2	2 F2	R'	U2	Rw.	2 F'	Rw.	2 Fw	2 F	Rw2	
	U2	Fw.				D'	F	Uw	Rw	' L'	
	F'	D'	U2	Rw.	2 Uw						
	В2	D'	L'	D'	U2	L2	U	L2	В	R	
	D2	F	U2	F2	R2	В	L2	F	D2	Uw2	
E2.	Rw2	2 L	U2	В2	Uw	2 F'	R'	Uw	2 L'	D2	
	В	Uw	' U'	R'	L2	U'	Fw	' D2	Fw	' R'	
	Uw2	2 Rw	U'	Rw	2						

	Bw'	Dw'	L'	Lw2	U2	В2	Bw'	U	R	Bw2	Uw'	Lw'	
	R2	В	Rw	R'	Uw	Fw	R2	Uw'	Bw2	U2	D'	Fw	
1.	Uw2	В	R'	Fw'	Dw	Rw2	Uw	L2	F'	Bw	U'	D'	
'-	В2	Dw	U2	F'	Uw	Dw'	U	L	F	U2	Uw'	Fw	
	в2	Uw	R	D	L2	F'	R2	L2	Rw2	U	L2	Uw2	
	R2	Bw2	F2	В'	D'	Rw2	L2	Dw2	L2	F2	D'	Uw	
	Lw	R2	U'	Dw2	F'	Uw'	Rw2	R'	Bw'	U2	Bw	Uw'	
	ъw '	U'	Bw'	U	F	Rw2	Bw'	Fw	D'	Lw2	Fw	Uw'	
2.	Fw	R'	B	Lw'	D'	Uw'	L	R	Dw	U	Lw	Bw'	
	Lw	Rw	D2	B2	U	Bw	L'	R'	Bw'	D2	Fw'	Bw'	
	шw	ICW	מע	בע	U	ъw	ш	10	υw	בע	T. M	ъw	
	י ת	Dr - 2	יק	DО	Dr - 0	T7 O	TT 0	Dr!	тО	פת	T !	TTe.e !	
	R'	Bw2	F'	R2	Dw2	Fw2	Uw2	Rw'	L2	R2	Lw'	Uw'	
	D	Rw'	Bw2	F D	Lw2	F	R2	D2	В	R2	Fw	Dw2	
3.	B2	U2	В	Dw	Lw'	В	Uw2	F2	U'	Rw	Uw	L2	
	B'	Lw'	L	F2	B'	L	Lw	Fw	Uw2	Lw'	Uw'	Dw2	
	F2	Lw	Fw	В2	Bw	L'	Uw	Fw	U2	Dw	Rw2	В	
	F2	Lw	Dw	R'	Uw2	Dw	Lw2	F	R	Dw2	Fw'	Lw	
	Fw2	L	U2	Lw	D'	Rw'	R	D'	F'	D	L'	Dw	
4.	L2	Uw2	Dw'	Bw2	Uw2	R2	В2	Rw'	Bw2	D	Dw'	Bw2	
	U	R'	Lw2	Rw	Dw2	F	Dw	Lw	Fw	L	Fw'	Bw'	
	R	В2	Uw2	Fw2	L2	В	Dw2	Lw2	R	Fw	L'	U'	
	Fw2	Dw	Lw'	L'	Rw	F	Bw	U2	Fw2	L	Dw2	L2	
	Uw	L2	Lw	D'	L2	Uw2	U	R'	Uw'	F2	U2	Dw2	
5.	R	F	Bw	D2	F	В	Rw	Dw'	В2	Dw2	L	R'	
0.	U '	Dw'	Lw'	Fw	Uw	В'	Bw	Rw2	R2	D2	Bw	Lw	
	Rw'	Dw'	В	Dw2	Bw	B'	Rw2	B'	U'	F	В2	Fw'	
Ext	ra scra	ambles	S										
	TT	l Dr.	I II	ום כ	D.	Dr.r	DΩ	T T+.+ ()	Devel	וידו	TT 7	DΩ	
	Uw			2 B'	R'	Dw	B2		Rw'	F'	Uw2		
<u> </u>	Dw L	U '	Rw2 B'		D	Lw'		Fw2		D	Fw2		
E1.		_	U2	Uw'		L	D'	B'	Dw2		Rw'	Lw	
	U2		U∠ F'	L'	B2	Rw	B2	R	L	D	Lw2		
	BW	2 U2	r ·	U2	L	Bw'	Fw2	Dw'	RW∠	Bw'	Uw2	ט	
	U2	R2	В2	Dw'			U2	D'	F2	Uw'	L	Fw2	
	Dw		U	В	R'	U2	Uw'	D	Bw2		Bw'	D2	
E2.	F	Fw	Lw2		F	D2	Lw	Fw'	Rw'			Uw'	
	F'	R2		2 L2	Bw	R	Fw'	R'	Bw	В2	R'	Uw2	
	Fw	2 Bw2	2 F2	D'	Dw	Fw	R2	L'	Dw'	Fw2	Lw'	В2	

6x6x6 Cube Round 1 NU_CUBING_08-23-2015

	3Fw'	F'	T 7.7 T	F2	D2	TTr7	T 7.7 !	F2	3Rw'	
	3Uw2	3Rw'	Lw2 R'	F∠ Dw'	U2	Uw2 L	Lw' Uw2	F2 R2	U'	
	30w∠ Bw	U'	Dw2	Uw .	Bw2	ъ 3Rw'	Rw2	RZ R	ט י ' ט	
	Dw'	Bw2	F	Lw	Rw	Uw	Bw	3Rw	Rw	
	R2	Bw2	L'	U'	D2	3Fw2	3Rw'	3Uw'	R2	
1.	Rw	Lw	В2	Rw	D'	3Fw'	Rw2	3Uw2	B2	
	Uw	R'	3Fw2	F		3Fw2	F2	L	3Uw2	
	Uw	Fw	B'	Dw'	Dw R	Lw2	Bw2	Dw2	D D	
	R2	3Rw	Вw	F2	D2	U2	L2	3Rw	ט	
	NZ		ьw	I. Z			ш∠	3I\W		
	Bw2	F2	U'	R'	3Uw2	Bw'	3Rw'	Lw'	Rw	
	L2	Fw2	Lw	3Fw	Rw	Fw2	3Rw'	Dw2	3Uw'	
	В2	F'	Dw	Fw2	D'	Bw	R'	В	Dw2	-
	R2	3Uw	R2	L	Lw	Rw	3Rw'	В'	3Rw2	
2.	Dw2	L2	3Fw'	R'	3Rw'	Fw'	Dw2	Rw	3Rw2	
	Bw2	Uw2	Fw'	L	Dw	U'	F	Rw	3Fw'	
	Uw	Lw2	3Fw	Uw	L'	3Fw'	Bw2	Uw	L2	
	Bw2	D2	Rw'	3Uw2	R2	D	F'	3Uw	D2	
	Lw	U'	Dw2	Lw'	L	F	3Rw	Lw		
	L2	3Fw	3Rw2	Lw2	Bw	Rw	Fw'	Uw'	D2	
	Fw	Uw2	Fw	F2	Bw2	3Uw2	Uw2	R2	D2	
	Fw2	3Rw	Fw'	3Fw'	Bw'	R	Lw'	Fw2	3Fw'	
	L	Fw'	Rw	3Rw2	3Fw'	Fw2	D2	В'	3Uw	
3.	Rw	Dw2	Lw	Uw	L'	3Fw2	Fw2	В'	L2	
J.	Uw	3Rw'	3Uw	B'	Rw'	3Rw'	Uw	3Fw	Bw2	
	R	Bw2	Fw	U2	Dw2	3Fw'	3Uw'	Uw	R'	
	3Fw	3Rw2	R2	В	3Rw2	Uw	L'	Rw2	Lw	
	3Rw2	В	R'	Fw'	Dw2	R2	L2	Dw		-
Fxt	ra scrar	mbles								
	3Uw	U2	Fw2	F'	Rw	Uw	Rw'	Uw	В	
	L2	Dw	Fw'	3Uw	Rw	U	L'	Fw'	R	
	Bw'	Uw2	Fw2	Bw	R	3Fw'	В	F	R'	
	F'	Uw	U	Rw	D'	Bw2	Dw'	3Uw	R'	
	_	U2	3Uw	3Fw'	F	Bw	Uw'	Lw2	3Fw'	
E1.	B'	3Uw		Rw2	Dw'	Uw2	3Rw2	3Uw'	3Rw'	
	Lw'	B	Rw'	U'	Lw2	U'	Fw'	R2	3Fw'	
	D2	F'	U	3Fw'	F	Dw2	3Fw2		Rw'	
	B'	R	D'	L	Fw	3Fw'	R	B2		
	3Fw	' B	3Rw	' F'	В'		3Fw2	D2		
	В	Rw	Bw'	Fw	U'	3Fw'	В	Dw'	В	
	R'	L	Fw	Bw2	Dw'	Fw'	3Uw	F'	3Uw '	
	F2	R	3Fw			В	Uw'	3Rw	D2	
E2.	2-		R'	D	3Uw	L'	Dw2	Lw'	U	
	Lw2	R2	U2	F2	Fw2	3Rw	Lw'	L'	Bw2	
	3Fw		Dw2	D2	Rw2	Bw	Fw	3Uw	D	
	Rw2	D2	Rw2	Uw	3Fw'	Bw'	Dw	L'	Bw	
		2 3Uw		R'	D	Dw'	F'	Dw		

7x7x7 Cube Round 1 NU_CUBING_08-23-2015

	Fw2	Dw'	Fw2	3Fw	3Uw2	Uw2	R2	3Fw	3Lw	В'	
	L	R	F'	Dw2	В	L	Bw'	Rw2	В'	Rw2	
	Bw'	Uw'	L2	3Bw'	U2	3Lw'	R'	Lw	3Dw'	Rw'	
	Bw	Uw	L'	3Dw	D'	F	Fw'	3Rw2	Lw2	L	
	3Lw'	3Fw	3Dw2	3Lw2	Uw'	R2	3Bw'	Bw2	Fw'	D	
1.	В	Dw2	Uw2	Bw2	3Rw'	Dw	Fw	F	3Fw'	3Bw2	
	3Dw	L'	3Bw'	В	Bw2	Lw	3Lw2	Rw'	3Fw'	Bw	
	3Uw'	Rw	R2	Dw2	L'	Fw2	U	Lw	Rw2	3Bw'	
	F	Rw2	L	D'	3Lw'	3Rw	R'	3Uw2	3Fw	D'	
	L'	D	L2	Rw'	3Fw2	Rw'	D2	3Uw2	U'	3Fw	-
	D	U2	3Dw2	Bw'	F	В2	3Uw'	3Lw	Dw2	3Lw'	
	U	3Lw'	Rw'	В2	U2	3Uw'	Uw'	Bw	Fw'	3Lw	
	Rw'	U'	L'	Rw'	Fw	U'	Uw	3Bw'	U2	3Lw'	
	Rw	3Rw	В	3Uw	3Fw'	L2	3Bw2	U'	3Dw	Lw	
	3Lw'	3Rw'	L'	U	Fw	3Uw	Fw2	В	3Rw	В'	
2.	3Lw'	3Rw2	R2	3Dw	Fw2	3Lw2	L	3Bw'	Dw	Bw'	
	3Bw'	Uw2	Fw2	L'	Lw'	R2	3Uw	3Fw	3Dw2	Dw'	
	D2	3Uw'	F2	Fw2	3Lw	В2	Uw'	D'	Fw'	D'	
	3Fw2	R2	Uw'	Dw2	R'	F'	R	Lw	3Bw'	Bw'	
	Fw	3Lw'		3Fw'	3Lw	F'	Uw2	3Dw'	Rw'	Lw2	
	3Dw	L2	3Bw	3Lw2	Lw	Fw	R'	3Fw'	Lw	3Rw	
	Rw2	Bw'	3Rw2	Fw'	3Bw2	D'	3Fw2	В	3Bw	Bw'	
	3Lw	3Fw'	Uw2	U'	Lw2	F2	Rw2	Dw2			
	3Lw2	3Bw2	3Lw	L'	U2	D'	3Bw2	3Lw'	L'	3Uw	
	R'	D'	Lw'	Fw2	B'	Uw2	Lw2	3Lw'	Dw	Lw	
3.	Fw	D'	L	В'	F	Lw	L'	Fw'	3Uw2	3Rw2	
	Uw	D'	3Bw'	3Lw'	Uw2		L2	U'	Bw2	3Dw	
	L'	D2	3Fw	D	R'	L'	U'	Uw'	Rw'	3Bw	
	Uw'	U	L	D'	3Dw	L	R	Rw'	3Uw	3Fw	
	3Rw'	Rw	R'	3Dw'	3Uw'	Lw'	3Bw	F2	В	3Fw	
Ext	ra scra	ambles	 S								
	В2	3Rw		В2	Fw'	3Uw2	L2	3Lw	Rw'	Dw2	
	L'	R'	Rw	Lw'	3Rw	Dw'	3Rw'	L'	Rw'	U'	
	Uw	3Fw		L	Rw2	3Dw'		Lw2	Dw'	U2	
	3Fw		R	3Bw	3Lw		Fw2	R	Bw'	3Dw	
	3Fw		3Uw	Dw'	Lw'	3Rw2		Bw2	3Rw	Bw	
E1.	Rw	3Rw	' Fw'	3Fw	В2	Uw	Lw2	L'	Bw2	3Bw2	
	Fw'	3Lw	Dw'	Uw	D'	3Dw'		D	В	3Fw2	
	U2	Dw2	D	L2	Uw2	3Fw'	Fw'	L	3Rw	Uw2	
	D'	Bw'	L	3Dw	В	Rw'	Fw'	3Rw'	D'	Lw'	
	R2	F'	3Uw	' Uw2	Dw	U2	Bw	Fw	3Uw'	R	***
	Fw2	Bw	31Jw:	2 F'	3Bw	3Uw	Fw2	L2	R2	Rw	
	Bw'			3Fw2		U'	3Bw	3Uw'	R'	Dw2	
	3Rw		L'	3Rw'		Uw	Rw2	L	3Fw'	3Bw	
	Rw2		3Bw		L'	3Fw	Uw'	3Uw'	3Bw2	3Lw	
	3Bw	2 L	3Dw			D2	3Dw'	3Rw'	3Dw	R2	
E2.		' U2	R'	Fw'	U'	Uw2	D	3Dw	Fw2	Uw	
		2 3Bw		Rw2	Uw2		Rw'	3Fw	3Lw	Bw2	
	3Uw			L'	Uw	Dw	3Lw2		Bw'	R	
	Lw'			Bw'	Lw	R	D'	3Fw2		Fw	
					3Uw	3Rw	3Lw	Fw	Uw	U'	
	D	3Lw	Lw	R	30w	JICW	эшw	T. AA	OW	U	

1.	в2 т	32 L2 U B2 B R'	U R F2	R2 U U' B Uw		R2 F'	
2.	L2 B2 U U2	R2 F'	L2 U' U' U	R2 R'	U'	D' L' L	
3.	R2 F2 L Rw'	R' : F : Uw'	D2 B2 U2	U2	R'	U U' B	
Ext	ra scramb	oles					
	D2	F'	U2	L2	F	U2	
E1.	F B	U2 L'	L2 U	R2 R2	D' B	L2 F'	
	U	R'	D'		Uw2	1	
	D'	F2	U	R2	U2	F2	
	U2	L	D'	B2	F	D'	
E2.	L'	U	L	F'	L	R	
	U2	Rw2	Uw2				

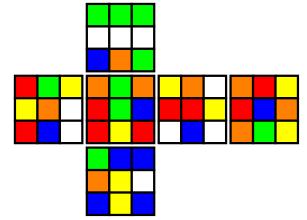
1.	U2 B'	B U	U2 B'	F L	R2 R	U2 B	B2 U2	D2 L2		D R2	
2.	B2 F	บ' บ'	B D		D D'		บ' บ	L' D2	В	L2	
3.	U2 U2	D2 B	R2 R2	U2 B'		F2 F	B' B	L' U2		R'	
4.	F2 B' U'	U L'	R2 F	D D2	F2 U'	R2 B	D' D2		F2 L	U D2	
5.	R2 F B'	F2 D	R' B2	F2 D'	R' F	D2 R'	U2 B	F2 D	D2 R'	R2 U	
Extra	a scran	nbles									
E1.	R2 R' L2	U	2 B D2	U R2			B' 2 B		2 F' 2 B2		
E2.	B' B' R2		2 F 2 L'			U2 R'	? F'		2 U2 2 U2		

Fewest Moves

- Notate your solution by writing one move per bar.
- To delete moves, clearly erase/blacken them.
- Face moves F, B, R, L, U, and D are clockwise.
- Rotations x, y, and z follow R, U, and F.
- ' inverts a move; 2 doubles a move. (e.g.: U', U2)
- w makes a face move into two layers. (e.g.: Uw)
- A [lowercase] move is a cube rotation. (e.g.: [u])
- You have 1 hour to find a solution.
- Your solution length will be counted in OBTM.
- Your solution must be at most 80 moves, including rotations.
- Your solution must not be directly derived from any part of the scrambling algorithm.

3x3x3: Fewest Moves Round 1 Scramble 1 of 3
Competitor: WCA ID:
DO NOT FILL IF YOU ARE THE COMPETITOR Graded by: Result:

NU CUBING 08-23-2015



Scramble: B R B2 U' B' R U R D F R2 F2 U2 L2 F2 D L2 D2

Fewest Moves

- Notate your solution by writing one move per bar.
- To delete moves, clearly erase/blacken them.
- Face moves F, B, R, L, U, and D are clockwise.
- Rotations x, y, and z follow R, U, and F.
- ' inverts a move; 2 doubles a move. (e.g.: U', U2)
- w makes a face move into two layers. (e.g.: Uw)
- A [lowercase] move is a cube rotation. (e.g.: [u])
- You have 1 hour to find a solution.
- Your solution length will be counted in OBTM.
- Your solution must be at most 80 moves, including rotations.
- Your solution must not be directly derived from any part of the scrambling algorithm.

NU_CUBING_08-23-2015
3x3x3: Fewest Moves Round 1
Scramble 2 of 3

Competitor:
WCA ID:
DO NOT FILL IF YOU ARE THE COMPETITOR
Graded by: Result:

Scramble: L' B2 R B' U2 R' D2 B' U2 R2 D' R2 L2 F' L2 D2 F2 U2 B

Fewest Moves

- Notate your solution by writing one move per bar.
- To delete moves, clearly erase/blacken them.
- Face moves F, B, R, L, U, and D are clockwise.
- Rotations x, y, and z follow R, U, and F.
- ' inverts a move; 2 doubles a move. (e.g.: U', U2)
- w makes a face move into two layers. (e.g.: Uw)
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- You have 1 hour to find a solution.
- Your solution length will be counted in OBTM.
- Your solution must be at most 80 moves, including rotations.
- Your solution must not be directly derived from any part of the scrambling algorithm.

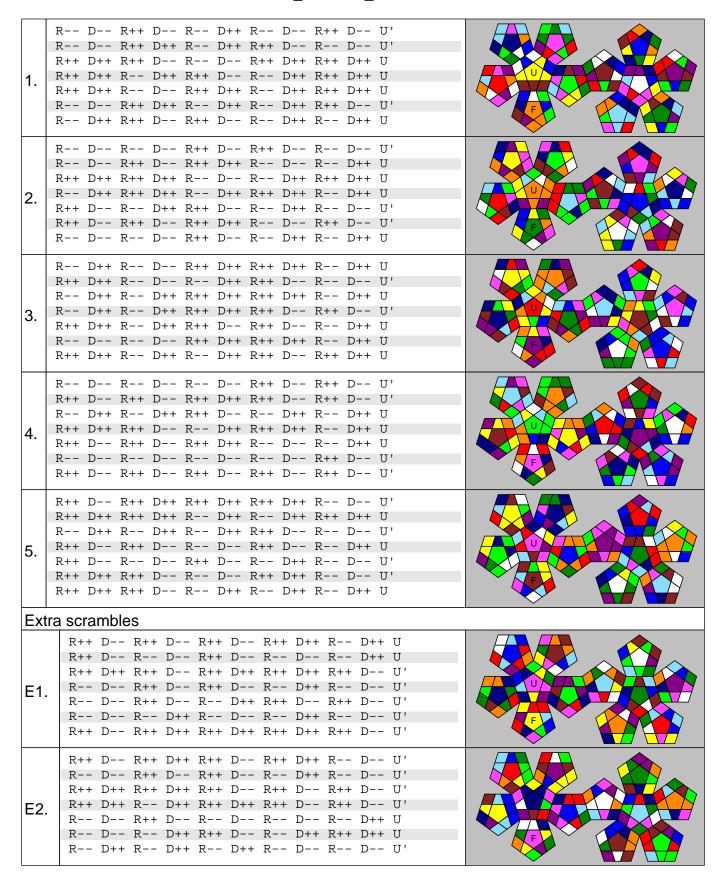
NU_CUBING_08-23-2015
3x3x3: Fewest Moves Round 1
Scramble 3 of 3

Competitor: _	
WCA ID:	
DO NOT FILL IF	YOU ARE THE COMPETITOR
Graded by:	Result:

Scramble: B' U L D B' R' F2 D R2 U2 R' D2 F R2 F2 L2 F' D2 B2 R2

1.	L2 R2 B2	D	D2 L R2	R2	B2 B'			F2 U'	
2.	L R' L2	В2	D' L2 F2	F2			L2 F2	Մ' D	
3.	F' U2	R F'	L F' D'	R2 U'			B2 R	U2 D	
Extr	a scram	nbles							
E1.	D2	U2	? B' ? F2 ? R'	2 D	L	F		? F' ? L'	
E2.	D R' B2			2 U	L			? D' L	

Megaminx Round 1 NU CUBING 08-23-2015



1.	LUR'L'B'UL'R'LU'Bub'	
2.	L'RUBL'RULUB'R'l'r'b	
3.	RULB'UR'L'R'BRL'b	
4.	LR'LR'U'BU'BR'U'L'u'l'r'b'	
5.	LR'L'U'BRLU'B'R'B'ul'rb'	
Ext	ra scrambles	
E1.	BURL'UL'R'ULB'U'lrb'	
E2.	R' U' L U' B R' U' B' L' U' R l r b'	

Square-1 Round 1 NU_CUBING_08-23-2015

1.	(3,-1) / (0,-3) / (-2,-2) / (-1,-1) / (-2,-5) / (-1,-3) / (6,0) / (0,-3) / (0,-5) / (0,-3) / (6,0)	
2.	(-5,0) / (2,2) / (6,3) / (-3,0) / (1,0) / (0,-3) / (6,-2) / (5,0) / (3,-4) / (6,-2) / (5,0) / (1,-2)	
3.	(-5,0) / $(-3,6)$ / $(3,0)$ / $(-1,-1)$ / $(6,-2)$ / $(0,-3)$ / $(3,-1)$ / $(1,0)$ / $(4,0)$ / $(-1,-4)$ / $(2,0)$ / $(-5,-4)$	
4.	(0,-4) / $(-2,1)$ / $(3,0)$ / $(5,-4)$ / $(-2,-5)$ / $(-1,0)$ / $(-3,0)$ / $(0,-1)$ / $(0,-2)$ / $(6,-4)$ / $(3,0)$ / $(4,-4)$ / $(5,0)$	
5.	(0,-1) / $(-2,-2)$ / $(5,5)$ / $(-3,0)$ / $(0,-3)$ / $(1,-5)$ / $(5,0)$ / $(-3,-3)$ / $(-3,0)$ / $(5,-3)$ / $(-4,0)$ / $(-2,0)$	
Ext	ra scrambles	
E1.	(0,-1) / $(-3,0)$ / $(4,-2)$ / $(-1,-4)$ / $(1,-5)$ / $(-3,0)$ / $(0,-1)$ / $(3,0)$ / $(-4,-5)$ / $(3,-4)$ / $(-1,0)$ / $(-4,0)$ / $(-2,0)$	
E2.	(-5,0) / (2,-4) / (6,3) / (4,-2) / (5,0) / (-3,0) / (-2,0) / (0,-1) / (4,-5) / (3,-2) / (0,-2) / (6,-5)	

1.	UR3- R4- U5+ UR	DR4+ D5+ R4+	DL1+ L3+ D5+	UL5+ ALL5+ L6+		
2.	UR3- R2- U5+ DL	DR4- D4- R3+	DL4- L2- D2+	UL5- ALL6+ L6+		
3.	UR0+ R2+ U3- DL	DR0+ D5- R4-	DL5+ L4- D1+	UL1- ALL0+ L0+	U1+ y2 ALL0+	
4.	UR5- R4- U3- UR	DR3+ D3+ R5- DR	DL2+ L5+ D1+ DL	UL1+ ALL1+ L1- UL	U4+ y2 ALL3-	
5.	UR1- R1+ U2-	DR1+ D3+ R4+	DL2+ L5- D0+	UL2- ALL3- L2-		
Extr	a scramble:	S				
E1.	UR4- R4- U6+ UR	DR3- D3+ R2- DR	DL4+ L3- D4+ DL	ALL4+		
E2.	UR1- R5- U5- UR	DR1+ D2+ R0+ DR	DL4- L3+ D6+ DL	ALL5-	U1+ y2 ALL5-	

1.	B2 F2 B	R2 L2 U2	D2 B' R'	F2 D Rw2	D' L' Uw2	L2 B2 B2	D' F2 D	R2 L R	
	U'	L'	Fw2	B2	U'	L'	D	Fw	
	D'	Rw2	F	D	F	Rw'	L2	Uw'	
	Fw2	L	D2	R'	Z	У'			
	F	D2	L'	в2	R'	L2	F'	R2	
	D	В'	D2	В'	L2	U2	F2	L2	•
	F2	L2	F'	Rw2	Fw2	В	L'	Fw2	
2.	L'	В	D2	Fw2	Uw2	R2	F2	L	
	Uw	Rw2	L'	Uw	R'	Rw'	В2	Uw	
	Fw'	В2	D	R'	Z				
	D'	В2	U'	F2	D2	В2	R2	D	
	L2	В'	L'	F	L'	U'	L2	U2	
3.	R'	В2	U	F	Uw2	L'	F2	В	
3.	R2	D2	U2	L'	Uw2	L	D2	B2	
	Uw'	L	D	L2	Fw2	Uw'	Fw2	U	
	Fw	Rw	B2	L2	Uw	x '	У'		
Exti	a scram	bles							
	В2	R'	F2	R2	L'	U2	L2	В2	
	D2	L'	В'	D2	В	U2	F2	U	
	L2	F'	D	R'	Fw2	Uw2	Rw2	R2	
E1.	U	F2	R'	Uw2	D'	Fw2	U	R	
	Fw'	D	R2	Fw	В'	D'	Rw'	U	
	Fw'	L2	Fw'	Uw	Rw	z'	У'		
	В2	U	L2	F2	U	R2	D	R2	-
	D	F2	D2	F'	В'	R	ע ' U	R	
	L2	F'	L	F'	U'	Fw2	L	Uw2	
E2.	R'	F	Rw2		Rw2	U2	L2	Uw'	
	B2	L'	D	F	D	Rw'	Uw2	B	
	D	Rw	R	в'	х'	y2	J 17 Z	_	
		2.00				<i></i>			

	L	Uw2	R2	Bw2	Dw'	Lw'	Rw	L	D'	
	Fw'	R	U2	Rw2	F2	Fw'	L'	U'	L2	
	U'	D'	В2	Rw2	Lw2	Dw2	В	Lw2	L'	
1.	U	Dw2	Rw'	Uw2	U2	Lw2	Bw	F'	Fw'	
	Rw	Fw2	Uw2	R	Dw'	Lw	Rw2	В2	Rw	
	Lw	В	Uw'	Lw	U'	В'	Dw	R2	Fw	
	Uw'	Dw2	Rw'	Bw	Uw'	3Fw				
						<u> </u>				
	Fw2	L	U'	В'	L	Lw	Rw'	В2	Dw	
	Lw'	D2	Rw	F2	Bw	Fw	Rw'	F2	D'	-
	Uw2	Lw	Bw	F'	Fw	Rw	Dw'	F'	L	
2.	В'	Dw2	U2	Uw	Bw'	Dw	В'	U'	L	
	F'	Fw	R'	Rw'	Lw	F'	L2	Uw2	Dw	
	D2	L'	В2	U	Dw	В2	Uw	F'	Rw2	
	Lw	_ U2	Dw'	Rw'	Bw2		3Rw	_		
	Lw2	В2	L2	F'	D	F'	D	F'	Fw	
	Bw	В	U'	D2	Uw	В	D2	F	D2	
	F'	R'	Rw'	U	Uw2	Rw2	В	Uw2	L	
3.	Bw'	D	Bw2	D	U'	Uw	F2	Lw2	Uw'	
.	F2	Lw'	D'	R'	Uw	Rw	В2	Fw	L	
	Uw'	F	U2	Bw'	Uw'	Rw2	Bw	Dw2	Fw'	
	Lw2	L	U	В	L'	Uw2	3Rw			
\vdash										
Exti	ra scrar	nbles								
	Uw'	D2	U	F	Ι)W	Lw'	R2	F2	
	R2	F2	L	D				Uw	D	_
	Dw'	L'	U	L				F'	U'	
E1.	Bw	В	Fw					R2	B'	
- ''	Uw	Fw	Bw					L'	B2	
	U U2	Bw Lw2	Fw 2 F2					Rw Fw2	Bw' R2	
	Bw2		z rz Fw			BFw'		T. M 77	1/4	
	2002					- W				
	Dw	Bw				' ' R			2 U2	
	В2	F					w2 Fw		Bw	
E2.	U'	Uw2				Jw' R				
	Dw2					?' U				
	Lw' F2	L Uw2			J' E Lw2 E		w2 Bw B	' Uw' Rw'		
	r Z	UWZ	U Z	. ע	LWZ [· W L	D	T/W	L W	
1										

1.	L2 U' F	B' R2 B' D2 Rw		L2 L'		F2 D2 L2 B	R2 F	B' R	
2.	F2 L' U' Uw2	L2 R' L'	D2 D' F	F2 F R	U2 L' F	R2 B' U'	D2 L2 Rw	1	
3.	L2 D B' Fw'	D' R2 U' Uw	L2 U' F	D' B' L2	F2 R' D'	L2 B2 L	R2 L U		
4.	F2 B2 U' Rw	D2 R' R Uw'	R' U2 F	F2 R2 D	L' D F2	U2 L L	L' B U2		
5.	F2 L' Rw	D' R2 F2 D	2 U L2	F2 U2		L2 F2 U' F	R2 D'	B2 B	
6.	D2 B2 R2 Uw2	L2 L2 D	U' B2 R'	B2 R B2	R2 U L2	D' F R2	R2 L' Fw		
7.	R2 F2 B' Uw'	F2 D U'	U2 B' R'	F2 D' U2	U L' B'	R2 B F2	B2 D Rw		

8.	F2 U2	L B		L' L2	B2 D'	D2 F	F2 D'		L Uw	D	
9.	R2 L Fw	D B	B2 F	U' R'	B2 F2	R2 L'	D F	Մ Մ'	B2 F'	U' D	
10.	L F' Rw	R' U Uw	B2 F'	F2 R	D2 D	L F2	F2 U'	U2 F'	L' L'	D2 B	
11.	L2 F2 U	F2 L2 B2	2 I)' :)2	F2 L R'	L2 U F2		U L2 R'	L2 R' Uw2	2	
12.	U R2 D'	L2 D2 U2	2 1	IJ . ' . 2	B2 F D2	F2 R2 L	2 :	U D2 F2	L2 L' Uw2	2	
13.	F2 R U2	R2 B' L2	Ι	32 	U R L2	F2 F2 B	2 1	U' U2 Uw2	F2 L'		
14.	F2 D2 U' Rw2	D2 B' B2 Uw	I 2 I	32 12 R'	L2 D2 F2	F R D	1	R2 U R'	F R2 F		

15.	U2 L2 F' Uw'	R2 U2 U	U R R	R2 B2 B2	D R' L'	B2 D' U'	D R Rw'	
16.	R2 B Uw'	U F'	F' U2	R' L2	B F'	R L'	U' Fw'	
17.	B2 F Rw	U R R2 D	2 D' U	R2 R'	D2 E B D		B L F U'	
18.	U2 U Uw	F2 L R B	2 U R'	L2 F2		12 F2 32 D'	D' L B2 Rw	
19.	D2 B2 B2 Uw2	F' F' L	R2 L U2	U2 D2 L	B U D'	D2 L' F'	R2 R' Rw'	
20.	F B' L	R2 F2 D2	F2 R' L2	R2 D' B2	F' F2 L	L2 D' Fw'	R2 F' Uw'	
21.	R2 U2 U Rw'	U2 B' B2 Uw'	F' D2 L'	U2 L B	B' D2 U	F2 F' L	L2 D' U	

22.	B2 D2 U Uw'	L F2 L	R2 R2 F	B2 U' R	F2 B' U	U2 D R'	R L2 Fw		
23.	U2 U	R2 D F' L2		R2 B	D' R U L	U F2	R'] Uw	В'	
24.	F' R2 F Uw2	R2 F L2	U2 L2 B'	F B R'	L2 D B	U2 R U	F U Rw2		
25.	F2 U2 U2	D F' F	R2 U2 D	D' F2 R	R2 L' U2	B2 F' Rw'	D' L2 Uw'		
26.	U2 U2 U'	B F2 L	D2 D R2	L2 R' D	F' U2 U	R2 F Rw	F' R' Uw2		
27.	L' L' B' Fw	U2 D2 L Uw2	L' R' B	D2 F D	R2 U' F	F2 B' L	U2 D2 R2		
28.	D2 R2 D' Uw	R2 F2 L'	U2 R U	B F' B'	D2 L2 D'	F B' B2	D2 F2 Rw'		

29.	F L2 U' Rw'	U2 U2 F ' Uw	F2 F R	L2 D2 B'	F U' D	R2 L2 L'	F F2 D	
30.	D' D2 L'	L2 R' B2	D' B U	B2 D F	L2 R' R	B2 B2 Fw	F2 U Uw'	
31.	B2 U Rw	D2 R B U Uw		F2 F2	L2 B.		D2 F L D'	
32.	D2 L2 Fw	F2 D B L Uw	U2 D	L2 R	U'L BF	2 F2 2 R	R U F2 L2	
33.	D2 B R2	B2 R D'	D2 F B'	R R' D'	U2 F Rw	R U2 Uw2	D2 F	
34.	L' F2 L'	B2 D' F	U2 R' D'	L' B' L2	B2 F Fw'	L' L Uw2	R' F'	
35.	F2 L' U'	R2 B' L2	B' F2 D	L2 R' F	B' F Rw2	U2 L Uw	F R'	

1.	LRLR'ULB'UL	
2.	LRBRB' U' L' U' LB' U'	
3.	LRLR'UB'LRUR'L	
4.	LRLUR' LUB' RLR	
5.	LRB'R'BRBLUR'B	
Extr	ra scrambles	
E1.	LRBU'R'UB'U'R'U'B'	
E2.	LRLR'L'URL'R'BR'	