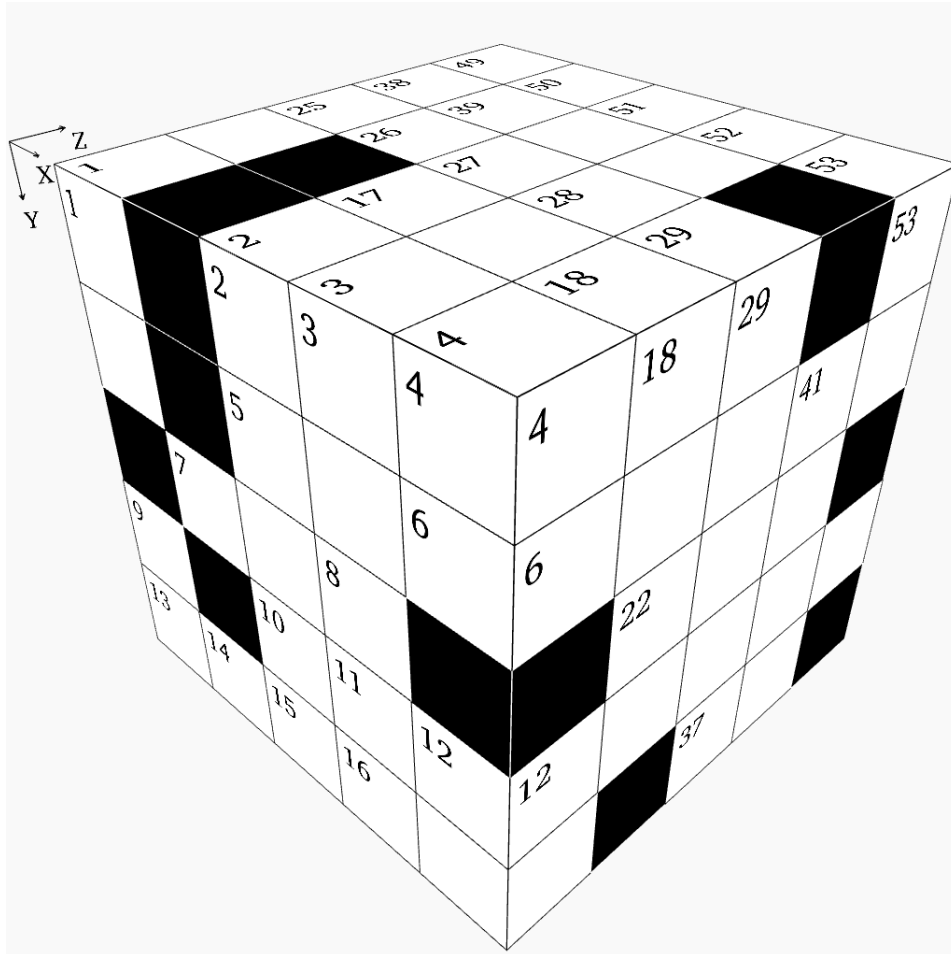


Difficulty: ★★☆☆☆

## Cube - Challenging Puzzle #51

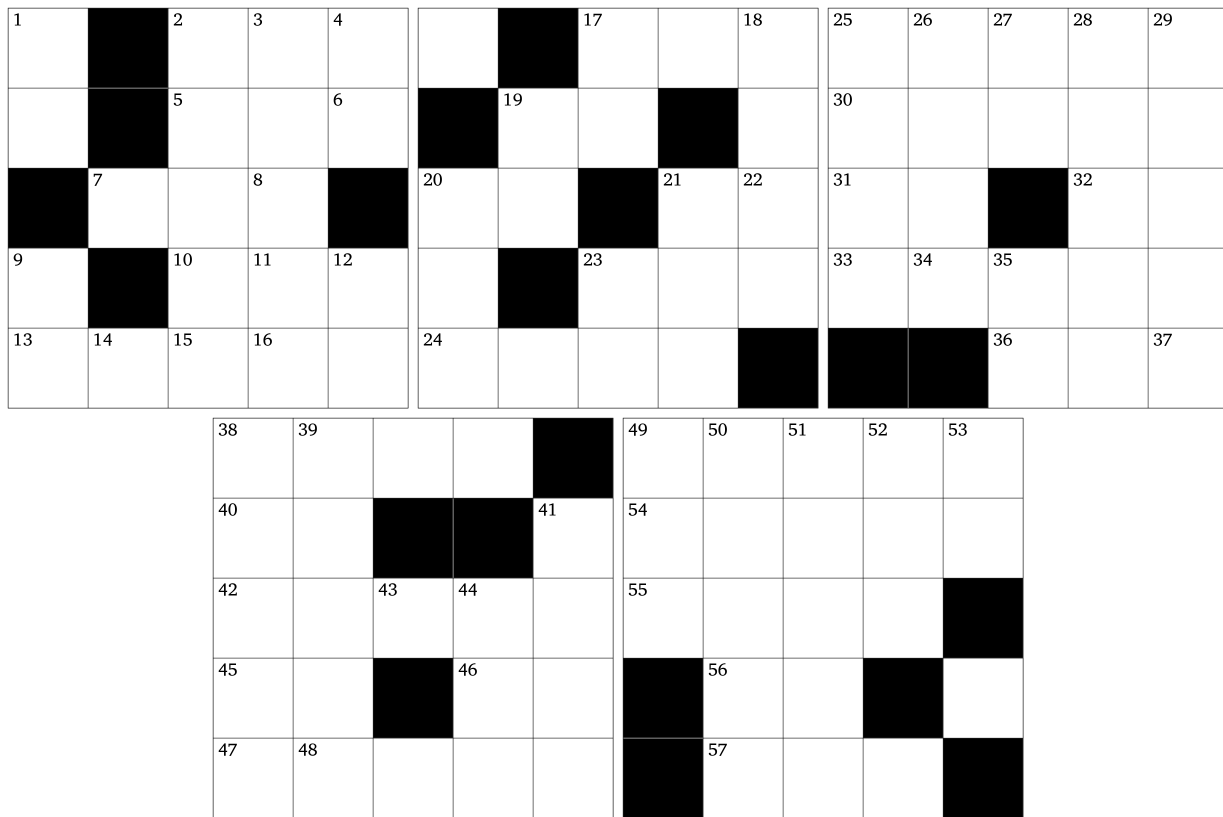


This puzzle is like a crossword, but with numbers. Each digit occupies a 3D block and can be a part of a "word" in the X,Y, and Z directions.

### Rules:

1. "Words" may not start with a zero.
2. "Words" in the X direction read from left to right.
3. "Words" in the Y direction read from top to bottom.
4. "Words" in the Z direction read from front to back.
5. There is one unique solution which satisfies all the clues given below.
6. Some "words" may not have clues. They will be determined by the "words" which intersect them.

If we take the cube pictured above and divide it into individual X-Y layers, we will get these planes:



**X Direction**

- 2 X45 plus Y9
- 5 X38 minus Y41
- 7 Twelve times Z48
- 10 Z34 minus X46
- 13 Seven times a prime number
- 17 X5 plus Y1
- 19 Three times X20
- 20 X21 minus Z37
- 21 Z16 divided by Z20
- 23 Twice the result of Z22 minus Z14
- 24 Fifteen times a prime number
- 25 Four times a prime number
- 30 Six times a prime number
- 31 Mean of Y1 and X20
- 32 Mean of Z37 and Y23
- 33 Sixty-seven times a square
- 36 Mean of X21 and X17
- 38 Y3 minus X49
- 40 Mean of X21 and Z14
- 42 Mean of Z15 and Z12
- 45 X32 minus Y35
- 46 Z43 minus Y19
- 47 Fifty-seven times a prime number
- 49 Rearranged digits of Y51
- 54 Eighty-four times Z26
- 55 Three hundred ninety-four more than Y25
- 56 Z14 divided by three
- 57 Z4 plus X31

**Y Direction**

- 1 A square
- 2 Z2 plus half of Z26
- 3 Its digits total Y19
- 4 A square
- 9 Y23 plus Y12
- 12 A prime number
- 17 Y20 minus Z13
- 18 X17 plus half of Y17
- 19 Y27 minus Y53
- 20 X40 plus Y17
- 21 Y51 minus Z7
- 23 Z13 minus Y12
- 25 Seventy-seven times a square
- 26 Three times a prime number
- 27 Mean of Y35 and X46
- 28 Seven times a prime number
- 29 Eleven thousand one hundred twenty-one less than Y39
- 35 Mean of Y23 and Y4
- 38 X33 minus half of Y39
- 39 Sixty-four times a prime number
- 41 A prime number
- 44 One hundred ninety-three less than Z20
- 49 Y20 minus half of Y53
- 50 Mean of Y29 and X36
- 51 Fifty-six times a prime number
- 52 Y9 plus Z37
- 53 Y27 minus X19

**Z Direction**

- 1 Mean of X30 and Y1
- 2 A prime number
- 3 A square
- 4 Y35 plus Y49
- 5 Y44 minus Y27
- 6 Fourteen times a prime number
- 7 First two digits are the same as Y17
- 8 Half of X25, then subtract X46
- 9 Mean of Y35 and Y3
- 10 Z26 minus Y9
- 11 Five times a prime number
- 12 Ten times a prime number
- 13 Same as X40
- 14 X20 plus X21
- 15 Twice a prime number
- 16 Six thousand five hundred four more than X47
- 19 X38 minus Y21
- 20 Three times a prime number
- 22 X57 plus Y49
- 26 X40 plus Z10
- 30 Z22 minus X20
- 34 A prime number
- 37 Y52 minus X40
- 43 A square
- 48 X2 minus X19

**Solution:**

1		1	1	2	8		9	9	1	9	7	4	8	4
6		9	7	5		3	0		0	3	7	8	6	6
	9	8	4		1	0		8	3	1	3		6	9
8		6	9	2	7		6	0	6	7	7	4	5	2
8	9	5	9	3	8	3	5	5				5	3	7

4	5	8	8		1	2	9	1	1
8	8			3	6	3	1	6	8
4	0	8	9	6	9	7	1	1	
2	4		5	1		3	1		0
8	8	8	6	3		2	2	7	