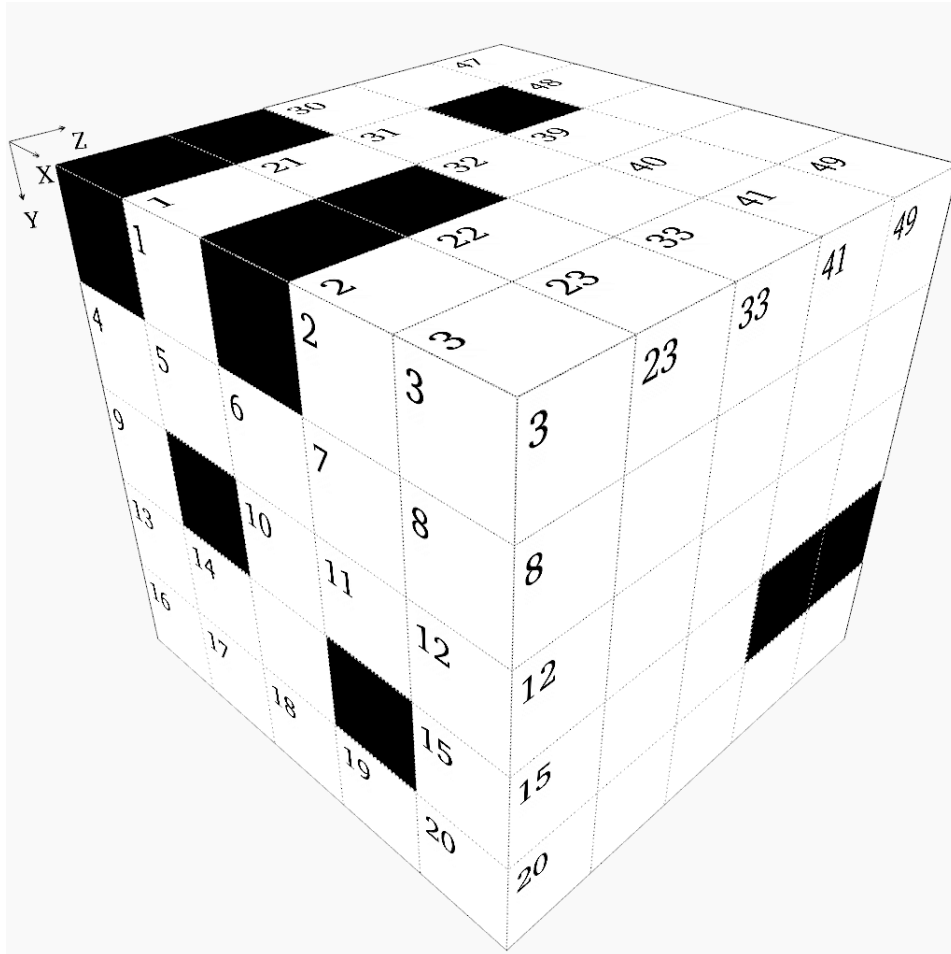


Difficulty: ★★★★★

Cube - Hard Puzzle #46



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:

	1		2	3		21		22	23	30	31	32		33
4	5	6	7	8		24		25		34				
9		10	11	12			26				35			
13	14			15		27		28		36			37	
16	17	18	19	20		29				38				

		39	40	41	47	48			49
	42				50				
43			44			51			
45					52	53			
		46			54				

X Direction

- 2 Mean of Z7 and Z9
- 4 Twenty-six times a prime number
- 10 Rearranged digits of Y2
- 13 Y27 plus Z15
- 16 Seven thousand three hundred fifty-two more than X38
- 22 Mean of Y43 and X50
- 24 Nine thousand six hundred eighty-six less than X38
- 26 A square
- 28 Y48 plus X50
- 29 Three times a prime number
- 30 A prime number
- 34 Twenty-nine times Y48
- 35 Y21 minus Y53
- 36 X38 minus Z14
- 38 Twenty-nine times a square
- 39 X22 times X43
- 42 A palindrome
- 43 Z7 minus X28
- 44 Y27 plus X28
- 45 Mean of X43 and Y39
- 46 Y42 plus X13
- 47 Z2 minus Z6
- 50 Same as Y36
- 51 Mean of Z15 and Y39
- 52 Z11 minus Y25
- 54 Eighty-nine times a prime number

Y Direction

- 1 Y42 minus Z9
- 2 Z10 minus X50
- 3 Three thousand seven hundred ninety-five more than Z18
- 4 Z12 divided by X28
- 6 Rearranged digits of Z6
- 14 Y39 minus X45
- 21 Z44 plus Z35
- 22 X35 plus Z20
- 23 Nineteen times a prime number
- 24 Mean of X52 and Y37
- 25 Same as Z9
- 27 Mean of X35 and X50
- 30 X50 plus X2
- 31 Twenty thousand nine hundred seventy-eight more than X16
- 32 Twenty thousand seven hundred eight less than Y31
- 33 Forty-four times a prime number
- 36 Y30 minus X2
- 37 Mean of X22 and X35
- 39 Z36 minus Z4
- 40 X30 plus half of Y48
- 41 Fifty-eight times Z43
- 42 Y1 plus Y25
- 43 Mean of Z36 and Y14
- 47 X47 minus Y14
- 48 Y30 minus X2
- 49 Y27 plus half of Y2
- 53 Y24 plus Z43

Z Direction

- 1 Twenty-three times a prime number
- 2 A prime number
- 3 Mean of X29 and Y6
- 4 Half of X10, then subtract Z11
- 5 Z19 plus half of Z30
- 6 First two digits are the same as first two digits of Z12
- 7 Y43 minus Y21
- 8 Five times a prime number
- 9 Z11 minus X52
- 10 X50 times Y25
- 11 X35 plus X44
- 12 One thousand nine more than Z8
- 14 X47 minus X45
- 15 Mean of Z30 and X46
- 16 Twenty-four times a prime number
- 17 Z36 plus Y43
- 18 Z16 minus Z8
- 19 A prime number
- 20 Y22 minus Z43
- 28 Mean of X46 and Y43
- 30 Twice a prime number
- 32 X2 plus X34
- 35 Y39 minus X22
- 36 A square
- 43 Z11 minus X44
- 44 Y1 minus Y27

Solution:

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

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