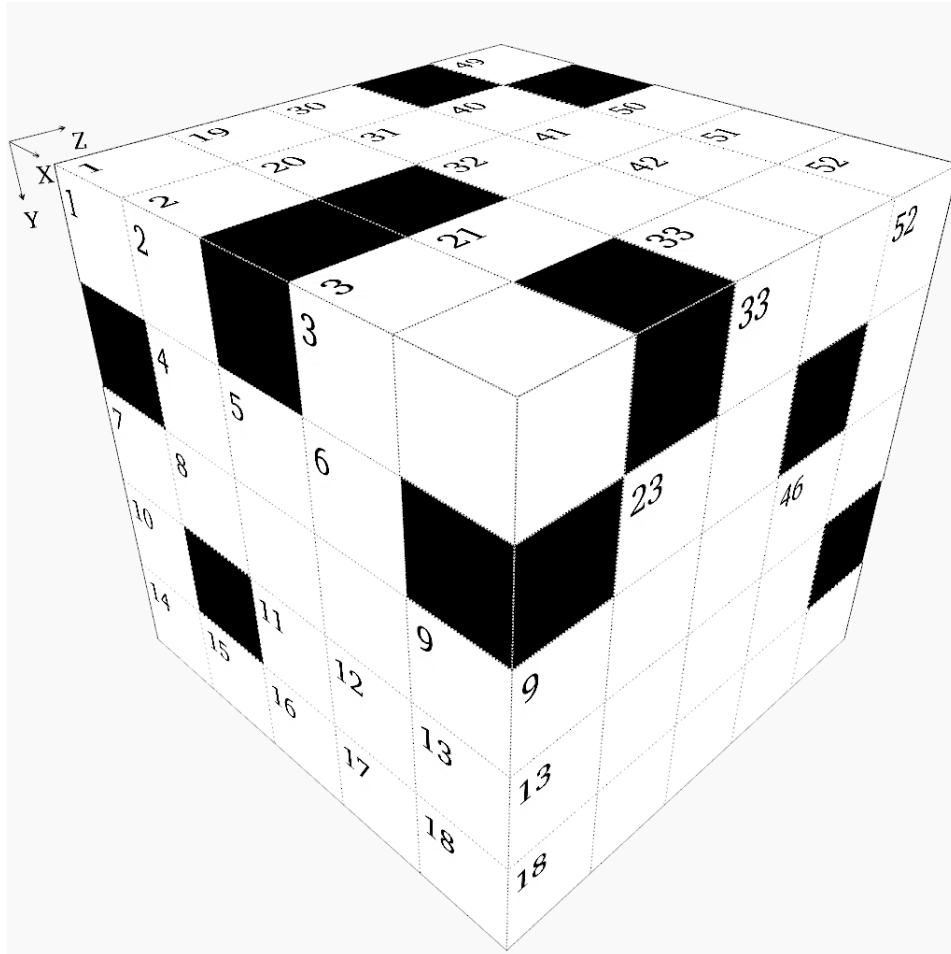


Difficulty: ★★★★★

Cube - Challenging Puzzle #31



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		19	20		21		30	31	32		33
	4	5	6		22				23	34				
7	8			9	24					35		36		
10					25	26	27	28		37			38	
14	15	16	17	18	29					39				

	40	41	42		49		50	51	52
43			44		53	54			
45				46	55				
47									
48					56				

X Direction

- 1 A prime number
- 3 Y49 minus half of X37
- 4 A square
- 7 Z5 minus X14
- 11 X50 minus Y49
- 14 Two thousand three hundred seventy more than Z14
- 19 Z2 divided by Y42
- 22 Z36 times Y21
- 24 Y49 minus Y27
- 25 Last two digits are the same as last two digits of Z33
- 29 Fifteen times a prime number
- 30 Fourteen times a prime number
- 34 Y32 minus X24
- 35 Y50 plus X11
- 37 Mean of X1 and X3
- 38 Y23 divided by Y51
- 39 Nine times Y21
- 40 Y5 plus X56
- 43 Three hundred thirty-six more than Z26
- 45 Last two digits are the same as last two digits of X4
- 47 Mean of Y46 and X3
- 48 Twice the result of Y50 minus X47
- 50 Y50 minus Z11
- 53 Thirty-three times Z12
- 55 Mean of Y9 and X3
- 56 Mean of Y46 and Y51

Y Direction

- 2 Y46 plus Z17
- 3 Eighteen thousand fifty-five more than Y30
- 5 Three times a prime number
- 7 X56 plus X55
- 9 X3 plus Y50
- 19 Fifty-three times a prime number
- 20 Three thousand one hundred sixty-one more than X29
- 21 X55 divided by six
- 23 Z44 times X38
- 27 X25 minus half of Y30
- 28 Mean of X38 and X3
- 30 Eighty-four times a prime number
- 31 X30 minus Y20
- 32 Y46 plus Z33
- 33 Thirty-seven times a prime number
- 40 Twenty-two thousand one hundred eighty-three more than Z3
- 41 Four thousand seven hundred twelve more than X30
- 42 Eleven times a prime number
- 43 Four times a prime number
- 46 X48 plus X47
- 49 X4 minus Y28
- 50 Mean of Y46 and X47
- 51 X38 minus Y21
- 52 Z15 minus Z18
- 54 Mean of Z10 and Y28

Z Direction

- 1 Fifteen times a prime number
- 2 Fifty-nine times a square
- 3 Eight times a prime number
- 4 Sixteen times a prime number
- 5 Eight times a prime number
- 6 Mean of X19 and Y49
- 7 A prime number
- 8 First two digits are the same as first two digits of X48
- 9 Six thousand two hundred twenty-eight less than X45
- 10 A prime number
- 11 Y51 reversed
- 12 X47 plus Z23
- 13 Z4 minus Y19
- 14 Seven times a square
- 15 Seven thousand one hundred eighty-five more than X25
- 16 Y3 minus half of X4
- 17 Y50 minus Z12
- 18 Five times a prime number
- 22 Half of X45, then subtract Y33
- 23 Four times X19
- 26 Y43 minus X37
- 32 Y46 plus X11
- 33 Y46 minus X56
- 36 Y42 plus Y49
- 44 X56 minus Z33

Solution:

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

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