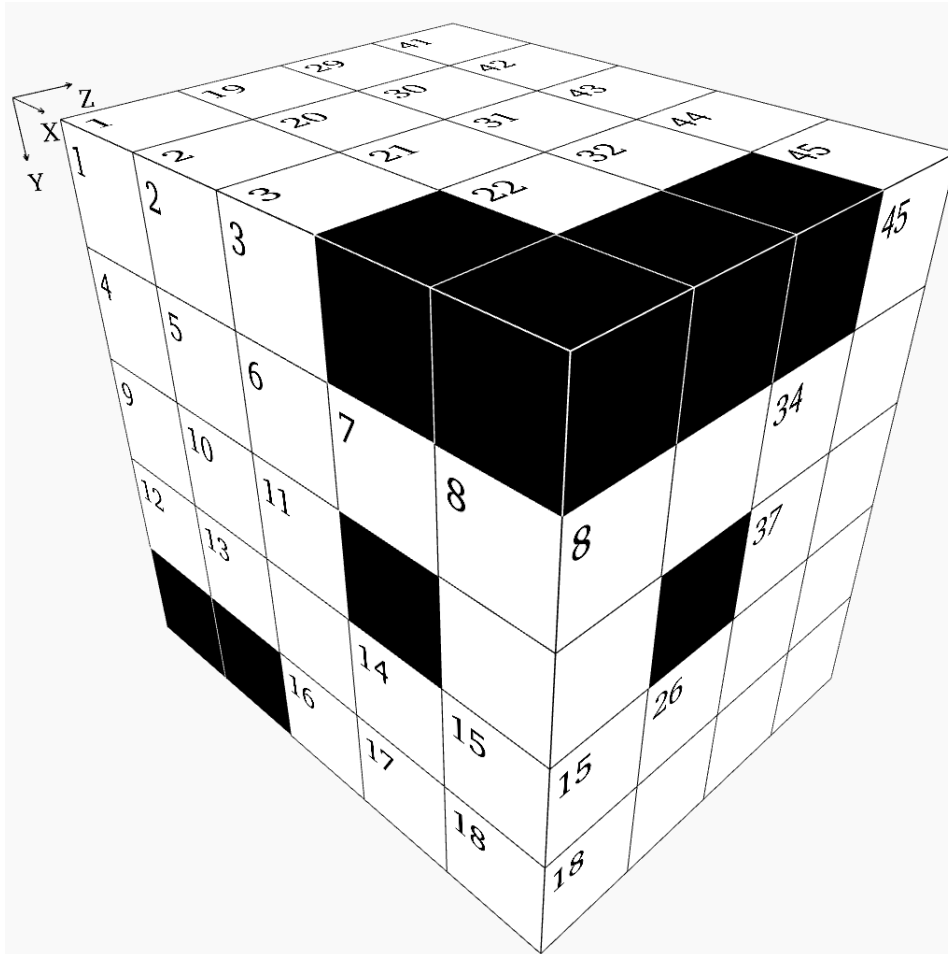


Difficulty: ★★★★★

Box - Challenging Puzzle #43



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 box pictured above and divide it into individual X-Y layers, we will get these planes:

1	2	3			19	20	21	22		29	30	31	32	
4	5	6	7	8	23					33				34
9	10	11			24					35			36	37
12	13		14	15				25	26	38		39		
		16	17	18	27	28				40				
					41	42	43	44	45					
					46									
								47						
								48						
					49									

X Direction

- 1 Twice a prime number
- 4 Y26 plus X27
- 9 A square
- 12 Mean of Y3 and X16
- 16 Twice a prime number
- 19 Mean of Z4 and Y31
- 23 Eighteen thousand one hundred eighty-four more than Y32
- 24 A square
- 25 A prime number
- 27 Rearranged digits of Y44
- 29 Y34 minus Y25
- 33 Four times a prime number
- 35 Mean of Y25 and X48
- 36 X48 minus Y31
- 38 Last three digits are the same as last three digits of Y44
- 40 Sixty-five times a prime number
- 41 A prime number
- 46 Twice a prime number
- 47 Eight times Y21
- 48 Z38 plus Y22
- 49 Consecutive digits unordered

Y Direction

- 1 Last two digits are the same as last two digits of Z16
- 2 Twenty-eight times a prime number
- 3 Two thousand nine hundred twenty less than X49
- 8 Fifty-eight times Y22
- 14 X16 minus X9
- 19 Mean of Z28 and Y42
- 20 Five thousand eight hundred ninety-four more than Y29
- 21 Z36 plus half of Z37
- 22 X19 divided by twenty-seven
- 25 Mean of Z36 and Y14
- 26 Sum of digits in Y34
- 29 Twice the result of X38 minus Y1
- 30 Three thousand six hundred sixty-four more than X46
- 31 X36 minus Z37
- 32 Twice the result of X27 minus Z9
- 34 Five times a square
- 39 Twice Y26
- 41 Fifty-nine times a prime number
- 42 Mean of Y22 and X25
- 43 A prime number
- 44 One thousand four hundred sixty-eight more than Y20
- 45 Eight times a prime number

Z Direction

- 1 Nineteen times a prime number
- 2 Z1 minus half of Z5
- 3 A prime number
- 4 Forty-eight times a prime number
- 5 Mean of Y22 and Z16
- 6 Twice a prime number
- 7 Z8 minus X19
- 8 Y8 minus Y39
- 9 Forty-two times a prime number
- 10 Y31 plus X9
- 11 Y30 divided by Z7
- 13 Z10 minus half of Y25
- 14 Twice the result of Y45 minus Y41
- 15 Mean of Y22 and Z3
- 16 Eighty-one times X25
- 17 Twenty times a prime number
- 18 One thousand six hundred ninety-four more than Z17
- 22 Y43 minus half of X49
- 27 Mean of Z28 and X24
- 28 Six times a prime number
- 36 Y42 plus Y26
- 37 X48 minus X36
- 38 Mean of Y26 and X35
- 39 X24 minus Z13

Solution:

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