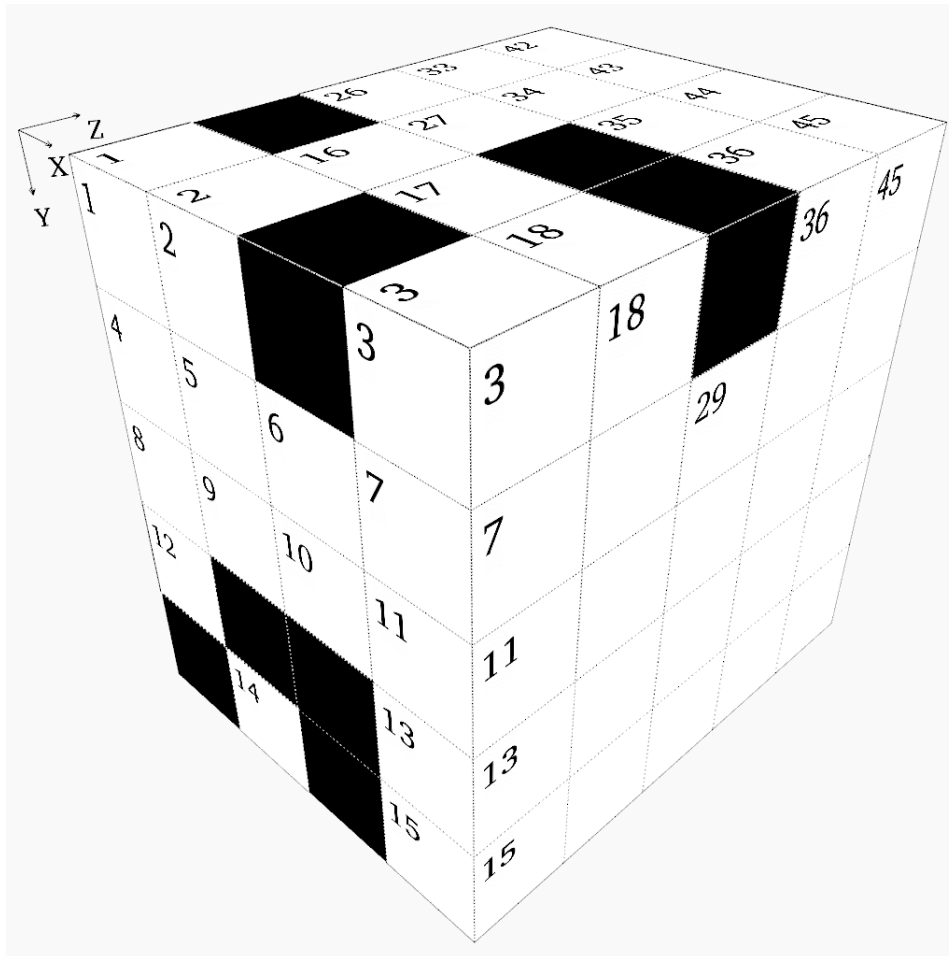


Difficulty: ★★★★★

Box - Hard Puzzle #39



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		16	17	18	26	27		
4	5	6	7	19				28			29
8	9	10	11	20							
12			13	21	22	23		30		31	
	14		15	24		25				32	

33	34	35	36	42	43	44	45
37				46			
38		39		47			
40						48	
	41			49			

X Direction

- 1 X49 minus X26
- 4 Mean of X8 and Y43
- 8 Z14 plus X42
- 16 Nine times X49
- 19 Six times a prime number
- 20 X40 plus half of Z36
- 21 Mean of X42 and Z23
- 24 Four hundred sixty-one less than X38
- 26 A square
- 28 A prime number
- 30 Three times a prime number
- 32 X37 minus Z8
- 33 Mean of X8 and X37
- 37 Y19 divided by eighteen
- 38 Ten times a prime number
- 40 A square
- 41 X38 minus Y27
- 42 Four times a prime number
- 46 Consecutive digits in descending order
- 47 Mean of X4 and Z24
- 48 Twice the result of X26 minus Z3
- 49 X26 plus Z10

Y Direction

- 1 Twice a prime number
- 2 A prime number
- 3 Seventeen times a prime number
- 6 Z39 minus Z36
- 16 Fourteen thousand nine hundred fifty-four more than Y45
- 17 Twice a prime number
- 18 Forty-nine times a prime number
- 19 Y44 plus X1
- 26 Z10 minus X26
- 27 Twelve times a prime number
- 29 X46 minus Y31
- 30 Z41 minus X26
- 31 X37 minus X26
- 33 Z41 plus half of Y29
- 34 Four thousand four hundred fifty-one less than Z4
- 36 First two digits are the same as X26
- 39 A prime number
- 42 Twelve thousand one hundred twenty less than Z15
- 43 Z7 divided by Y31
- 44 Y19 minus Z10
- 45 Sixty-seven times a square

Z Direction

- 2 Seven thousand six hundred forty-seven more than Z5
- 3 Y6 minus X1
- 4 Twenty-nine times a prime number
- 5 Twelve times a prime number
- 6 Y17 minus X28
- 7 Sixty-two times a prime number
- 8 Mean of Z38 and Z41
- 9 Seventy-seven times a square
- 10 Y16 minus Z15
- 11 A prime number
- 12 Y42 minus X16
- 13 Its digits total Z14
- 14 Z41 minus X48
- 15 Y16 minus X1
- 22 Consecutive digits unordered
- 23 Last two digits are the same as last two digits of X33
- 24 A square
- 25 Mean of Y43 and Z39
- 26 Four times a prime number
- 35 Y6 minus Y30
- 36 Mean of Z14 and Z3
- 38 X37 minus Z36
- 39 Z8 plus Z36
- 41 Z39 minus X32

Solution:

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

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