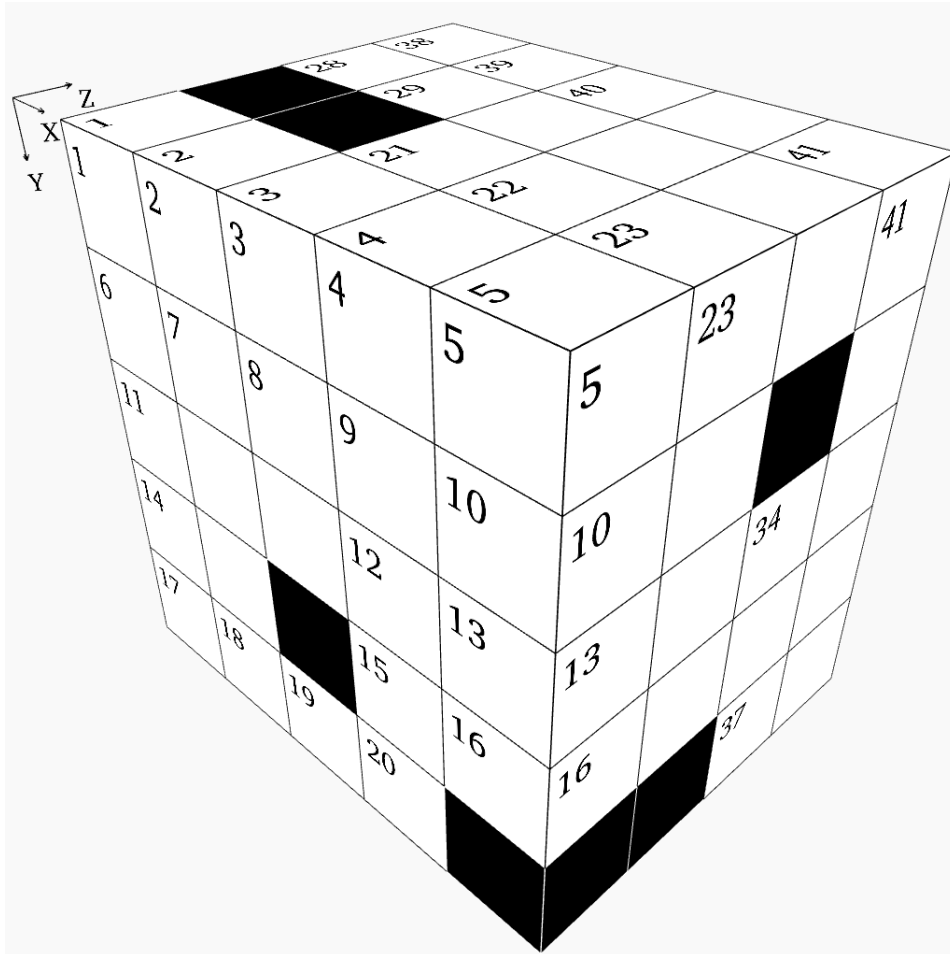


Difficulty: ★★★★★

Box - Hard Puzzle #48



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

X Direction

- 1 Y40 plus Y44
- 6 Eight times a prime number
- 11 A prime number
- 14 Sum of digits in Z11
- 15 Sum of digits in Z12
- 17 Z3 plus Z29
- 21 Twice a prime number
- 24 A palindrome
- 25 X6 minus Y22
- 26 A prime number
- 27 Twice a prime number
- 28 First two digits are the same as first two digits of Z17
- 30 X25 minus X14
- 31 A prime number
- 36 Nine times a prime number
- 38 Mean of X24 and X15
- 42 Six times a prime number
- 43 Mean of Y41 and Z6
- 45 Twice a prime number
- 46 Last two digits are the same as Z28

Y Direction

- 1 Fourteen thousand fifty-five more than X36
- 2 Sixty-five times a prime number
- 3 Y28 plus Z14
- 4 Eighty-six times a prime number
- 5 Twenty-seven times a prime number
- 21 Y38 divided by Y28
- 22 Four hundred thirteen more than X24
- 23 Z3 plus half of Z14
- 24 Thirteen times a prime number
- 26 Y5 minus X17
- 28 A prime number
- 29 Y34 times Z33
- 34 Fifty-one times a prime number
- 38 Fifty-three times a prime number
- 39 Thirty-nine times a prime number
- 40 Ten times a prime number
- 41 Z5 times Z33
- 44 Y3 minus X15

Z Direction

- 3 X17 minus Z33
- 4 One thousand two hundred eighty-four less than Z20
- 5 Mean of Z11 and Z16
- 6 Z4 minus Z35
- 7 Z17 plus Z18
- 8 Z9 minus Z35
- 9 Z14 plus Y26
- 10 Mean of X25 and Z28
- 11 Twice a prime number
- 12 Six times a prime number
- 13 Nine times a prime number
- 14 Z37 minus X30
- 15 Mean of X15 and Z29
- 16 Eighteen times a prime number
- 17 Y23 minus X42
- 18 Two hundred fifty-five more than Z6
- 19 Fifty times a prime number
- 20 Seventy-eight times X25
- 28 Mean of Z10 and Z33
- 29 Y29 divided by Y34
- 32 Twice the result of X36 minus X11
- 33 Same as Z29
- 35 A square
- 37 Four times a prime number

Solution:

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