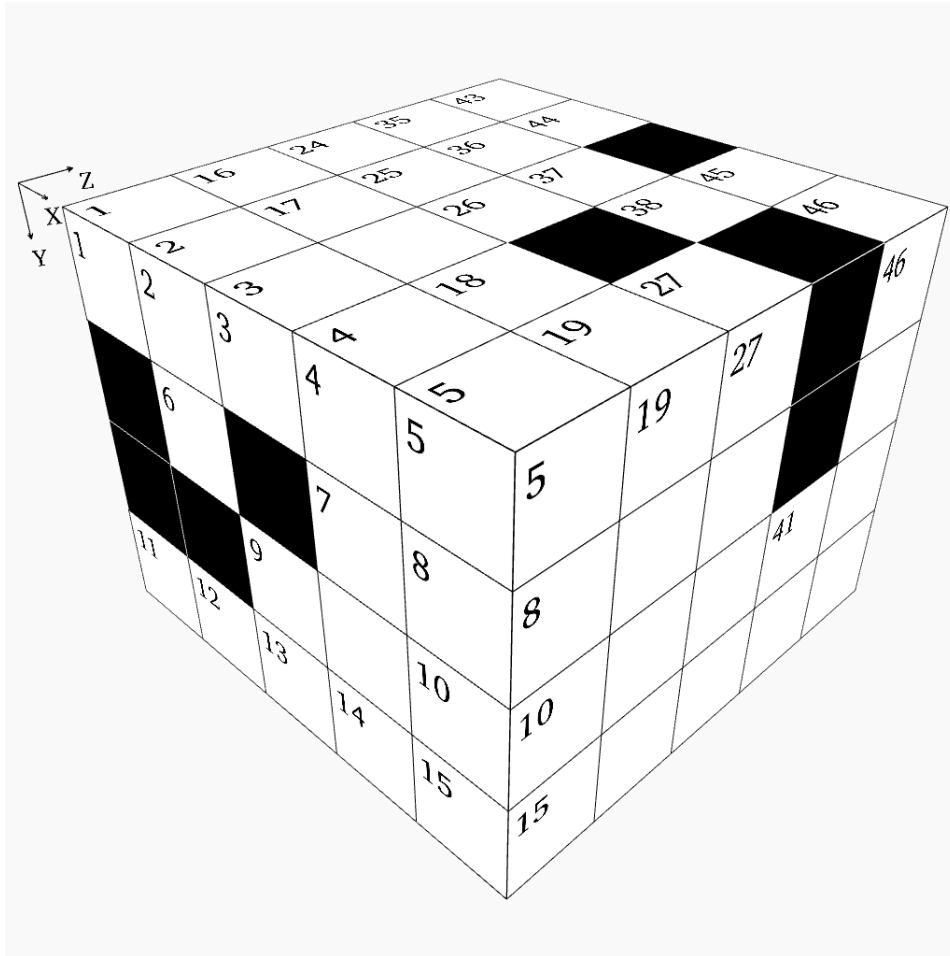


## Box - Challenging Puzzle #12



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	16	17		18	19	24	25	26	27
6	6	7	7	8	17		19	20		28		29	30
8	9	9		10	21	22	23			31	32		33
11	12	13	14	15	23					34			

35	36	37	38	39	43	44	45	46
39				41	47		48	49
40				41	49			50
42		43	44		51			

**X Direction**

- 1 Four thousand eight hundred twenty-nine less than X49
- 7 Half of X23, then subtract X31
- 9 Z13 minus half of X42
- 11 A prime number
- 16 Fifty-eight times a prime number
- 20 Y21 plus Y18
- 23 Sixty-six times a square
- 24 Three times X20
- 28 Y44 plus half of Z12
- 31 A prime number
- 34 Thirty-one times a prime number
- 35 A prime number
- 39 Last two digits are the same as X45
- 40 Last two digits are the same as last two digits of Y4
- 42 Y50 plus Y22
- 43 A square
- 45 Twice Z4
- 47 Y50 plus Y48
- 49 Mean of Z2 and Y27
- 51 Mean of X40 and Y17

**Y Direction**

- 2 Y21 minus Y18
- 4 Y35 plus Y9
- 5 Its digits total X45
- 9 Consecutive digits in ascending order
- 17 Four times Y18
- 18 Y41 minus X7
- 19 A square
- 21 X24 minus X47
- 22 Y24 divided by Y50
- 24 Y22 times Y41
- 25 Two hundred ninety-one more than Z21
- 26 Twenty-one times Y48
- 27 Thirty-one times a prime number
- 30 X34 minus Z1
- 35 A prime number
- 36 Eighteen times a prime number
- 37 Mean of X24 and Y30
- 38 Seven times a prime number
- 41 X47 minus Y48
- 43 Seven hundred ninety-eight more than Y25
- 44 Six times a prime number
- 46 Five times a prime number
- 48 Y21 plus X43
- 50 Two-thirds of Y21

**Z Direction**

- 1 Twice a prime number
- 2 Last two digits are the same as last two digits of Y5
- 3 Twice the result of X39 plus Y4
- 4 Z5 divided by Y2
- 5 Eleven times a prime number
- 6 Twice a square
- 7 Z38 times X20
- 8 Eighty-three times Z4
- 9 First two digits are the same as Y22
- 10 Last two digits are the same as Y22
- 11 First two digits are the same as first two digits of Y35
- 12 X45 plus X23
- 13 Consecutive digits in descending order
- 14 Y46 divided by five
- 15 Fifteen times a prime number
- 21 Three times a prime number
- 28 Mean of X20 and Y48
- 29 Z28 reversed
- 32 Y38 plus Z4
- 33 X9 reversed
- 38 Y17 minus Y22

**Solution:**

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

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