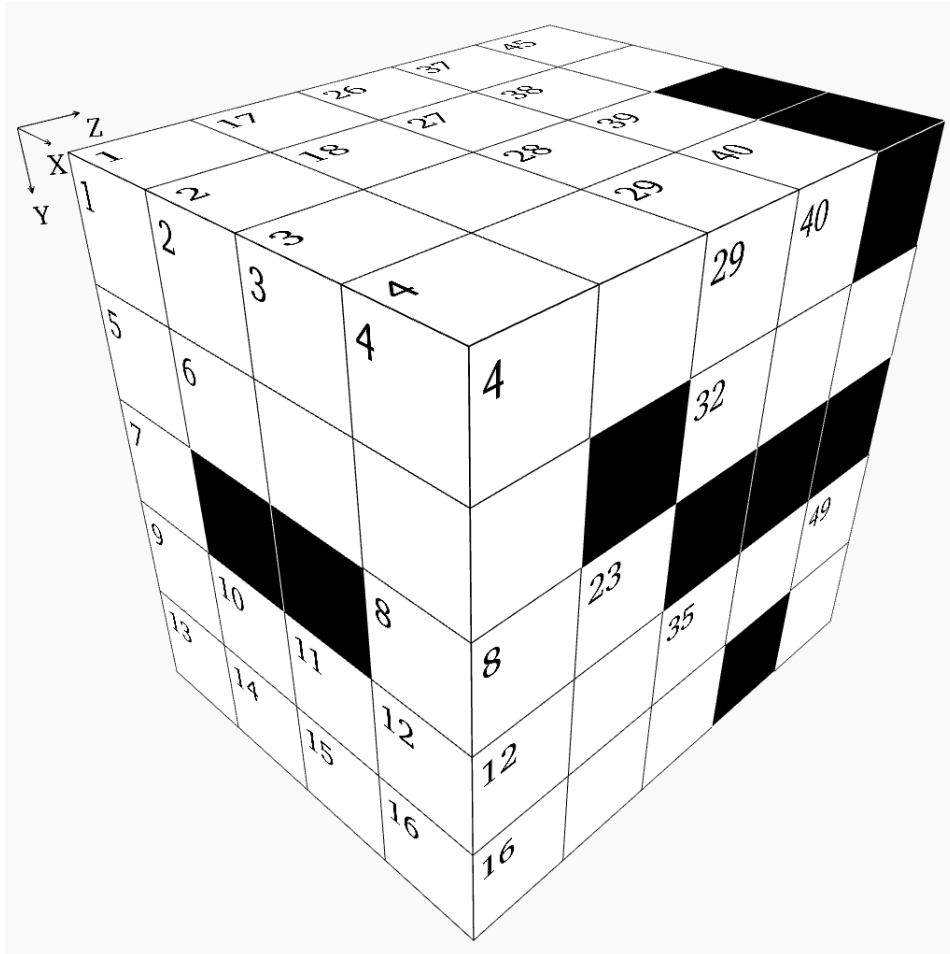


Difficulty: ★★★★★

Box - Challenging Puzzle #54



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	17	18			26	27	28	29
5	6			19					30	31	32
7			8	20	21	22	23	33			
9	10	11	12	24					34		35
13	14	15	16	25				36			

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

X Direction

- 1 Z13 minus X41
- 5 Sixty-three times a prime number
- 9 Mean of X42 and X25
- 13 Thirty-five times a prime number
- 17 Fifty-two times a prime number
- 19 Mean of X42 and Z9
- 20 Twice the result of X5 minus Y3
- 24 Twice the result of Z3 plus Z8
- 25 Twice a prime number
- 26 Y4 minus half of X9
- 30 Twice a prime number
- 33 X36 divided by Y45
- 34 Twice a prime number
- 36 X33 times X45
- 37 Fifty-three times a prime number
- 41 Five hundred sixty-nine more than X24
- 42 Six times X45
- 43 Z4 plus half of X34
- 44 Thirty-five times a prime number
- 45 Y10 minus X19
- 46 Y49 minus Z9
- 47 Four times X45
- 48 Sixty-eight times X47
- 50 Fourteen times a prime number

Y Direction

- 1 Two thousand three hundred twenty-five less than Y27
- 2 Y18 minus Y39
- 3 Mean of Y29 and X46
- 4 Two thousand eight hundred sixteen more than X37
- 10 X19 plus Y45
- 11 Z7 divided by seventeen
- 17 Mean of Y27 and X30
- 18 Twice a prime number
- 22 Thirty-four times a prime number
- 23 Six times a prime number
- 27 Eight times a prime number
- 28 Sixty-eight times a prime number
- 29 Y40 minus X19
- 35 Mean of Y49 and X47
- 37 Ninety-two more than Y28
- 38 X37 plus half of X25
- 39 Y18 minus Y40
- 40 Same as Y2
- 45 X47 divided by four
- 46 Z21 minus Z31
- 47 Four times a prime number
- 48 Twice Z5
- 49 Mean of X42 and Y48

Z Direction

- 1 Two thousand forty-five less than Y28
- 2 Nineteen times a prime number
- 3 Thirty-two times a prime number
- 4 Seventeen times a prime number
- 5 A cube
- 6 Three times a prime number
- 7 X13 minus half of X46
- 8 X42 minus Y29
- 9 A square
- 10 A prime number
- 11 Last two digits are the same as last two digits of Y22
- 12 Three thousand four hundred ninety-eight less than Z11
- 13 Last two digits are the same as Y49
- 14 Mean of Y37 and Y49
- 15 A prime number
- 16 X34 minus Y29
- 21 A prime number
- 22 Twice a prime number
- 31 Z32 minus Y49
- 32 X44 plus Y3
- 41 Y48 plus Z43
- 43 A square

Solution:

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

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