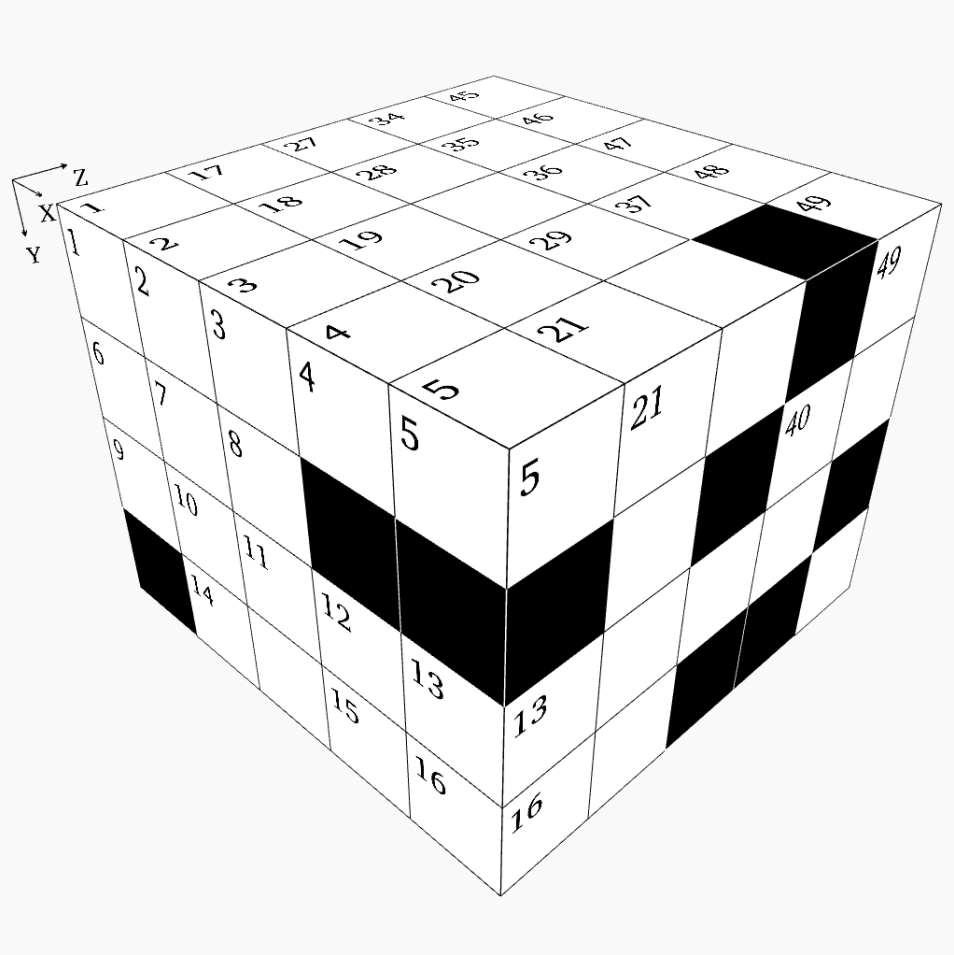
Difficulty: ★★★★☆

Box - Hard Puzzle #31

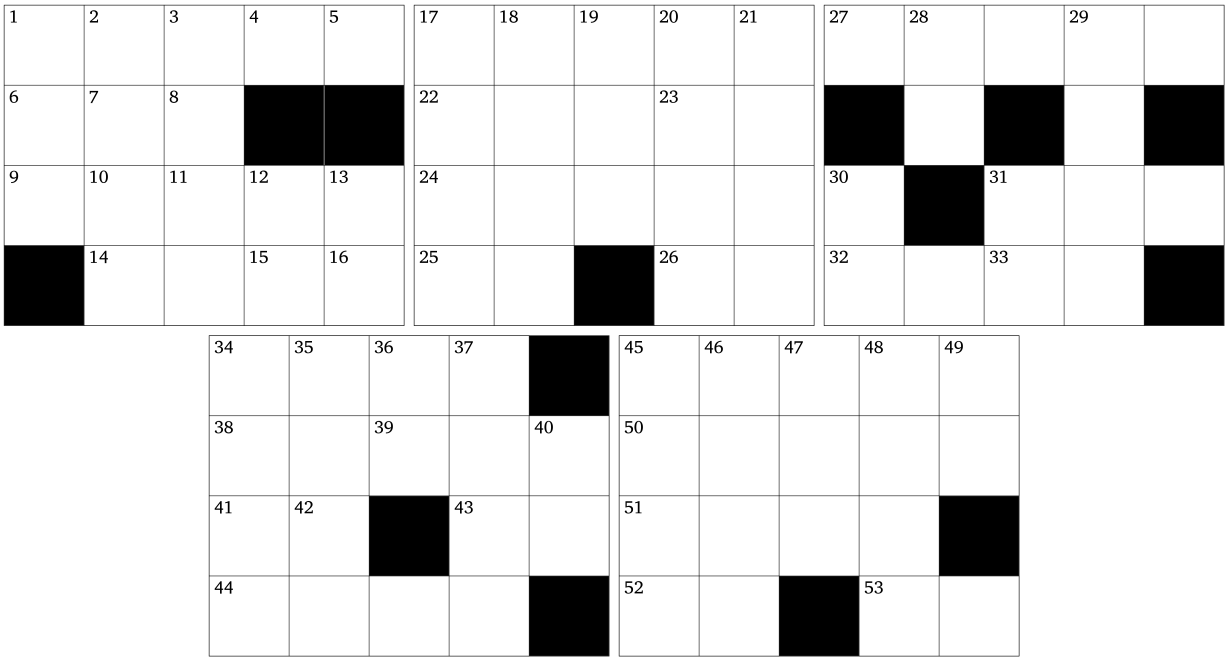


This puzzle is like a crossword, but with numbers. Each digit occupies a 3D block and can be a part of a "word" in the X,Y, and Z directions.

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:



X Direction

1 Two thousand one hundred twenty-five less than Z1
6 Mean of Y1 and Y36
9 A prime number
14 X32 plus Z38
17 Fifty-three times a prime number
22 Last two digits are the same as Z33
24 Y37 times Y49
25 Y49 plus X43
26 Twice the result of X41 plus Z40
27 Z12 plus Y29
31 X51 minus Y45
32 Mean of X34 and Z5
34 Four times a prime number
38 Five thousand nine hundred sixty more than X45
41 Mean of Z39 and Y31
43 Z38 minus Y12
44 Eleven times a prime number
45 A prime number
50 Nine times a prime number
51 Seventy-five times a prime number
52 X31 minus Y30
53 A square

Y Direction

1 Twenty-one times Z42
2 Sixty-one times Z10
3 Ten times a prime number
12 A square
13 Y28 plus X26
17 Three times a square
18 Eleven times a prime number
19 Fifty-eight times Z40
20 One thousand one hundred eighty more than Y2
21 Twice the result of X51 minus Z33
28 Mean of Z6 and X26
29 Rearranged digits of Z13
30 X53 plus Y28
31 X25 minus Y40
34 Eighteen times a prime number
35 Y1 plus Y13
36 Half of Y3, then subtract Y48
37 X24 divided by Y31
40 Same as X43
45 Sixty-three times a prime number
46 A prime number
47 X9 minus X17
48 Twice a prime number
49 Y19 divided by fifty-eight

Z Direction

1 A prime number
2 Twice the result of X22 minus X44
3 Seven thousand seven hundred sixty-nine less than X45
4 A prime number
5 Twice a prime number
6 Mean of Y36 and Z38
7 Thirty-eight times a prime number
8 X26 minus Z39
9 Nine hundred two more than Z14
10 Consecutive digits in descending order
11 Y35 minus Z16
12 Thirty-five times a prime number
13 Y34 minus Y28
14 A prime number
15 Three thousand six hundred seventy-seven less than Z14
16 Z33 plus X26
23 X32 divided by three
25 Z23 plus Z5
33 Z38 minus Z8
38 Y40 plus Y12
39 X6 divided by X25
40 Z16 minus X53
42 Y30 minus X26

Solution: