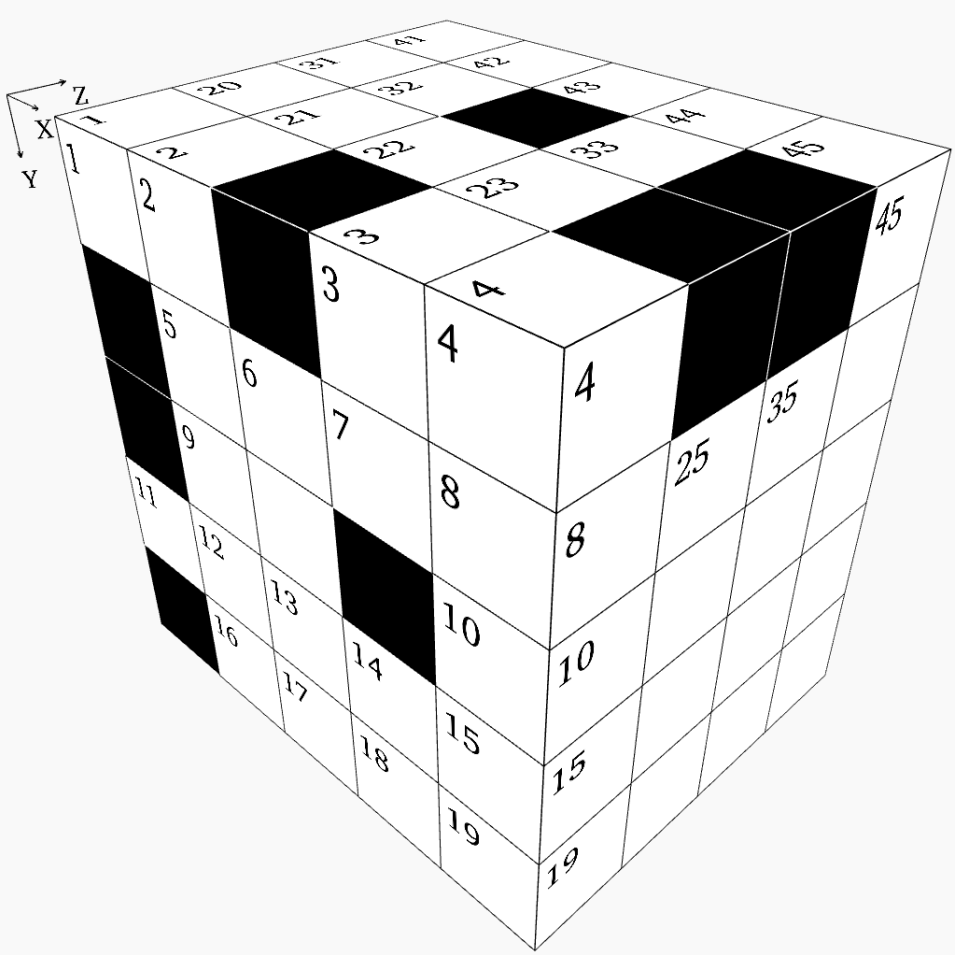
Difficulty: ★★★★☆

Box - Hard Puzzle #9

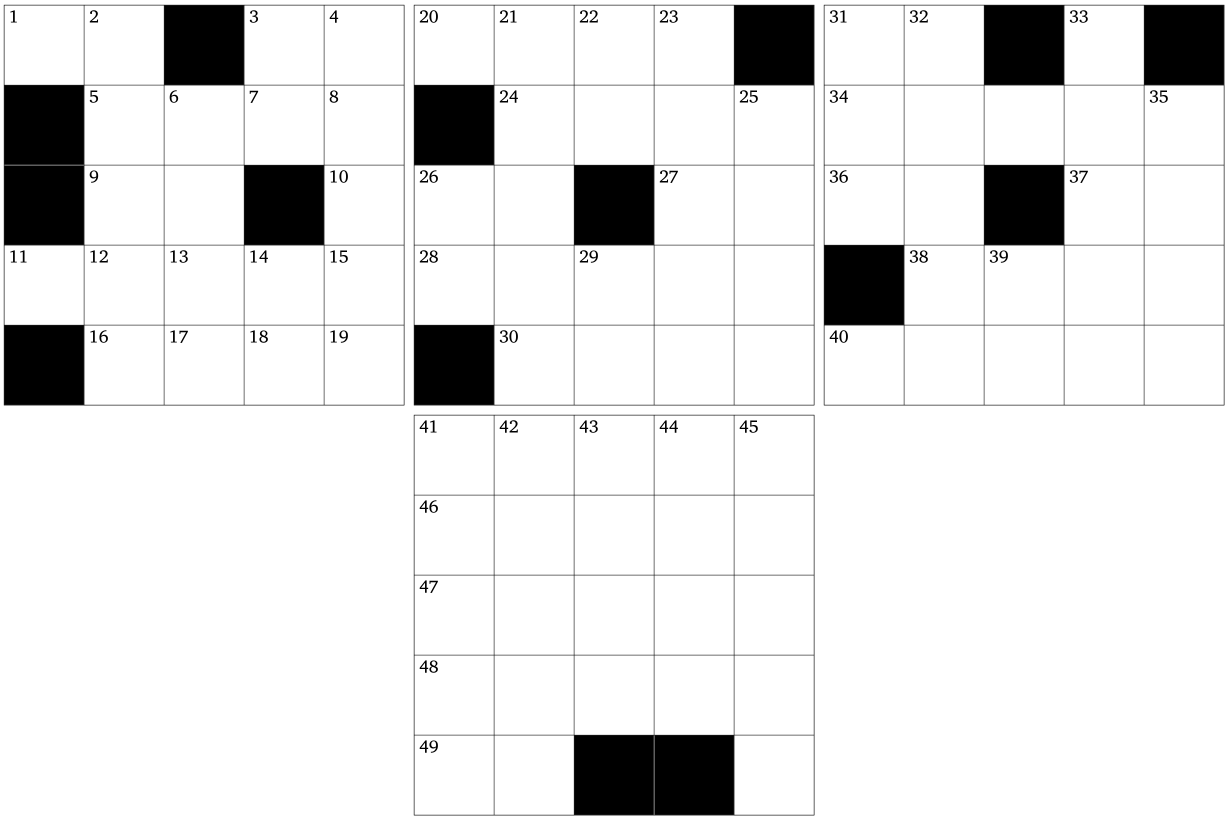


This puzzle is like a crossword, but with numbers. Each digit occupies a 3D block and can be a part of a "word" in the X,Y, and Z directions.

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 X5 minus half of Z7
3 Z40 plus Y22
5 Five times a prime number
9 X30 minus half of Z16
11 Mean of X41 and Z3
16 A prime number
20 A prime number
24 One thousand seven hundred two less than Z2
26 Mean of X31 and X9
27 Y3 plus X9
28 Z19 plus Z9
30 Mean of Y3 and Z16
31 X3 plus half of X26
34 Thirty-six times a prime number
36 Mean of Z40 and Y26
37 Mean of Y29 and X3
38 Y39 times X36
40 Last two digits are the same as last two digits of Y44
41 A prime number
46 Y23 minus Y6
47 Y43 plus X20
48 Half of Y32, then subtract Z18
49 Mean of X27 and Y22

Y Direction

2 Y33 plus Z15
3 A square
4 Seventeen times a prime number
6 Seventeen times a prime number
14 X38 divided by X36
21 Z8 plus Z10
22 Y26 minus Z40
23 Three times a prime number
25 Six times a prime number
26 Same as X3
29 Y14 minus Z40
31 A prime number
32 First two digits are the same as first two digits of Z6
33 Twenty thousand six hundred fifty-two less than Y45
35 Seven times a prime number
39 Mean of X36 and X1
41 Y33 minus Z6
42 Fifteen thousand eight hundred fourteen more than X34
43 One thousand eight hundred one less than Z1
44 Twenty-one times a prime number
45 Nineteen thousand nine hundred ninety-six more than Y42

Z Direction

1 Four times a prime number
2 A prime number
3 One thousand one hundred sixteen more than Y44
5 Twenty times a prime number
6 Z19 minus Z14
7 Eight hundred fifty-one less than X20
8 Forty times a prime number
9 Four times a prime number
10 Rearranged digits of Y35
11 Half of X26
12 Rearranged digits of X30
13 Forty-five times Z34
14 A cube
15 Sixty times a prime number
16 Forty times a prime number
17 Twice a prime number
18 Thirty-eight times a prime number
19 Last two digits are the same as X27
26 A prime number
27 Eighteen times a prime number
34 X27 minus X36
40 Sum of digits in Y31

Solution: