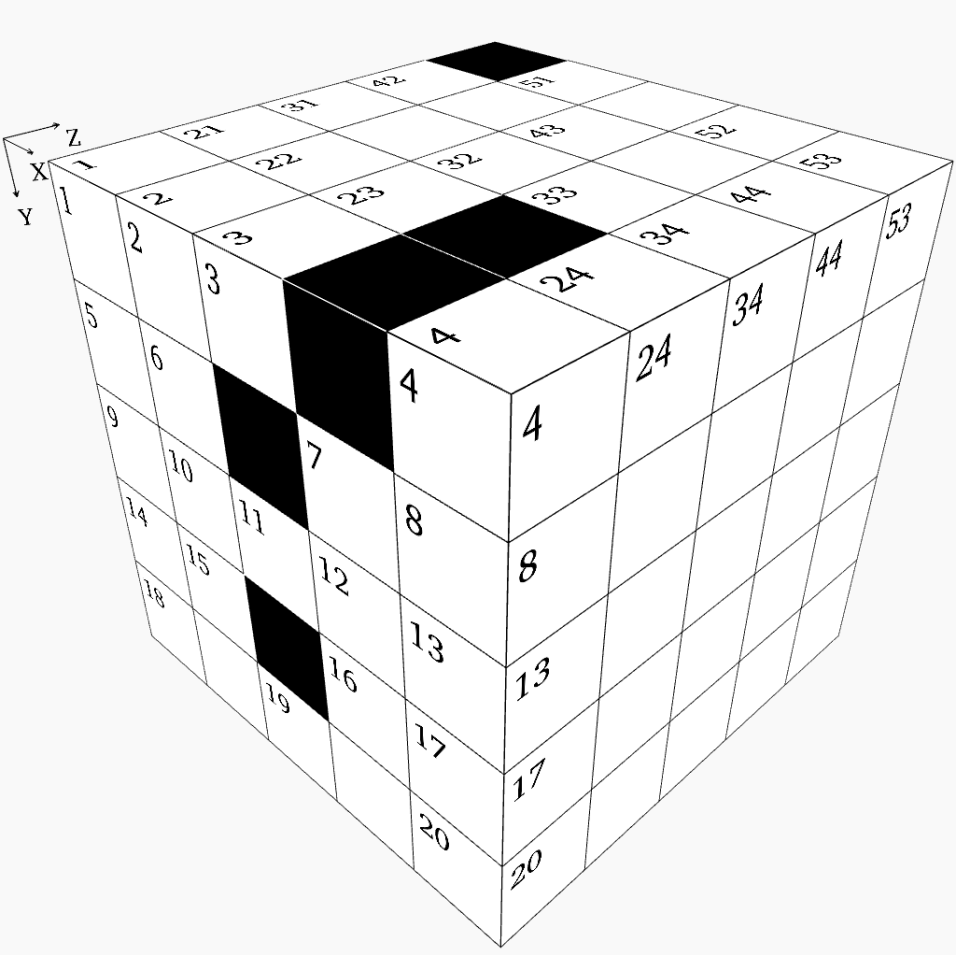
Difficulty: ★★★★☆

Cube - Hard Puzzle #38

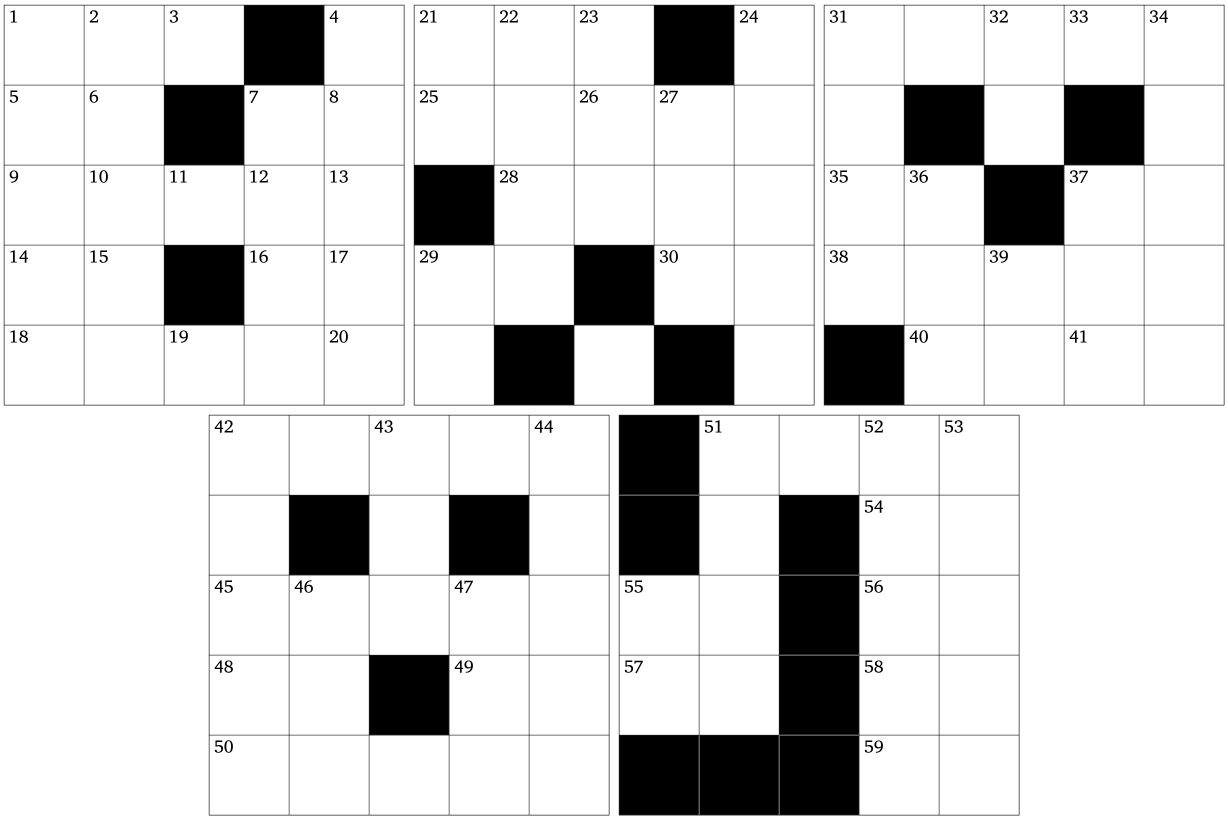


This puzzle is like a crossword, but with numbers. Each digit occupies a 3D block and can be a part of a "word" in the X,Y, and Z directions.

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 cube pictured above and divide it into individual X-Y layers, we will get these planes:



X Direction

1 Y23 plus Y36
5 Same as X35
7 X55 minus Z7
9 Seventy-eight times a prime number
14 Twice the result of X50 minus Z12
16 Y21 minus Z7
18 Six times a prime number
21 Fifty-five times a prime number
25 Five thousand eleven less than Z20
28 One hundred seven more than Y31
29 X57 reversed
30 A square
31 Sixty-three times a prime number
35 X49 plus Z18
37 Z6 minus Z7
38 Z8 plus X7
40 X42 minus Y31
42 Forty-nine times a prime number
45 Z33 times X59
48 Y46 divided by ten
49 X54 minus Z11
50 Fifteen times a prime number
51 Y32 times X30
54 X45 divided by Y43
55 Y47 minus Y23
56 Y29 minus X58
57 Mean of Z6 and Y37
58 X37 plus Z11
59 Y55 minus Z7

Y Direction

1 X51 times Y32
2 Sixteen thousand two hundred forty-nine less than Y4
4 X31 plus half of Z6
7 Three times a prime number
21 Y39 plus X59
22 Twenty-eight times a prime number
23 Mean of X21 and Y21
24 A prime number
27 Thirteen times a prime number
29 Mean of Y37 and Y55
31 Ninety-four times a prime number
32 X54 minus Z11
34 Rearranged digits of X42
36 Z5 divided by X56
37 Eight times a prime number
39 Mean of X54 and X49
42 Three times a prime number
43 A cube
44 Four thousand five hundred twenty-two more than Z12
46 Z26 plus Z33
47 Z7 times X56
51 A prime number
52 Two thousand three hundred seventy-six more than Z17
53 Nineteen times a square
55 Z6 plus X37

Z Direction

1 Nineteen times a prime number
2 A prime number
3 Consecutive digits unordered
4 Six thousand three hundred fifty-three less than Z16
5 Z14 minus half of Z20
6 Z11 minus X7
7 Y22 divided by Z41
8 A prime number
10 Mean of X9 and Z40
11 X37 plus X55
12 X50 minus X37
13 X18 plus Y29
14 Three thousand six hundred six more than Z10
15 Half of Z17, then subtract X57
16 Y24 minus half of X55
17 Thirteen thousand three hundred thirty-five more than Z8
18 Y43 minus Z26
19 Mean of Y51 and X1
20 Five thousand seven hundred twenty-eight more than Z3
26 Z41 minus X54
33 Twenty-one times X56
35 Eleven times a prime number
40 Twice Z18
41 Twice a prime number

Solution: