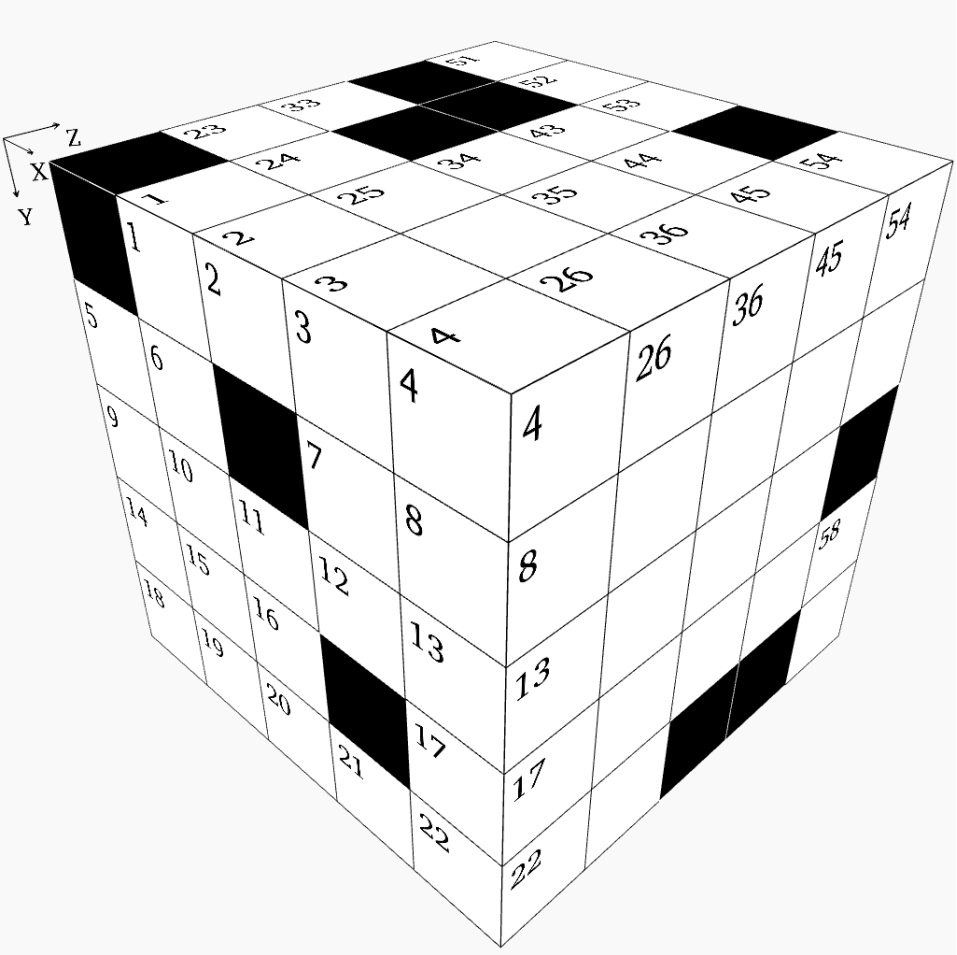
Difficulty: ★★★★☆

Cube - Hard Puzzle #1

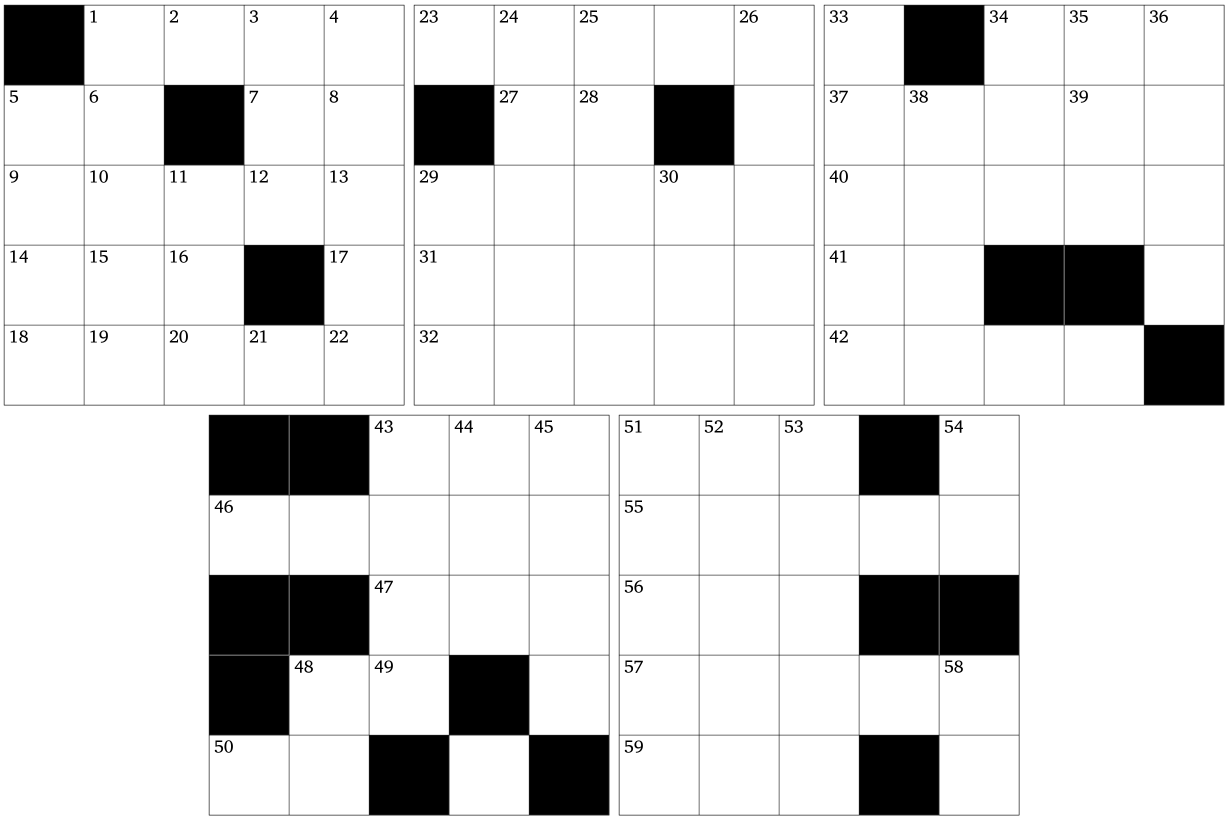


This puzzle is like a crossword, but with numbers. Each digit occupies a 3D block and can be a part of a "word" in the X,Y, and Z directions.

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 Mean of Y11 and Z28
5 Half of Z20, then subtract Y3
7 Z14 minus X34
9 Fourteen times a prime number
14 Mean of Y34 and X34
18 First two digits are the same as first two digits of Z39
23 Rearranged digits of Y25
27 X51 divided by X7
29 One hundred seventy-seven less than Y53
31 Five thousand eight hundred seventy-five less than Z11
32 Eighteen thousand two hundred ninety-three less than X40
34 Z11 divided by Z9
37 First two digits are the same as first two digits of Y36
40 Nineteen times a prime number
41 A square
42 Z21 plus X14
43 Mean of X56 and Y54
46 X51 times X50
47 Six times a prime number
48 Four times a prime number
50 Same as Y48
51 Twenty-one times a prime number
55 One thousand forty-one more than X31
56 X29 minus Y26
57 Nine thousand two hundred twenty-seven more than Y33
59 X37 minus X31

Y Direction

1 Fifteen times a prime number
3 Twenty-three times Z23
4 Sixteen times a prime number
5 Y43 minus X5
11 Twenty-seven times Z16
24 Fourteen thousand one hundred forty-eight more than Z19
25 Ninety-two times a prime number
26 Thirty-six times a prime number
29 X34 minus Y54
30 X51 minus Z39
33 Thirty-seven times a prime number
34 X59 minus Y54
35 Z1 plus X43
36 Ten times a prime number
38 Thirty times a prime number
43 First two digits are the same as first two digits of Y35
44 Z8 divided by X27
45 X48 plus half of Z13
48 X46 divided by X51
51 Eleven thousand eight hundred forty-five more than X31
52 Eighty-eight times a prime number
53 Thirty-two times Z39
54 A prime number
58 X57 divided by X47

Z Direction

1 A square
2 Thirteen times a prime number
3 Sixteen times a prime number
4 X23 plus half of Z19
6 A prime number
8 Seven hundred nine less than Y53
9 Z14 plus X27
10 Twice the result of Y43 minus Y5
11 Ten thousand eight hundred sixty-seven more than Y25
12 Y4 divided by Z1
13 Fourteen times a prime number
14 Y35 minus Y44
15 A prime number
16 Y54 minus Z22
17 Nineteen thousand eight hundred fifty-seven less than Y51
18 Mean of X55 and Y11
19 Four times a prime number
20 First two digits are the same as first two digits of X37
21 Mean of X23 and Y11
22 Y58 minus Z1
23 X1 divided by X41
28 Y35 plus X47
37 Three times Y44
39 Three times Z10
49 X41 minus X5

Solution: