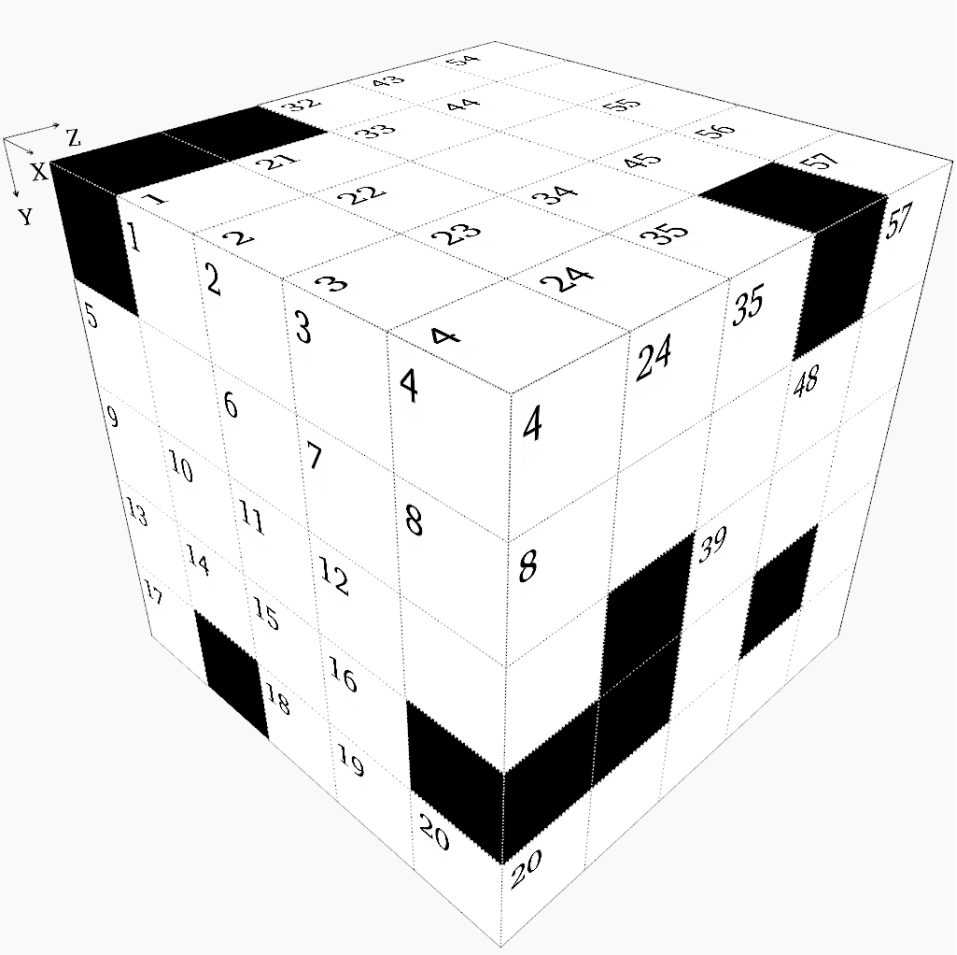
Difficulty: ★★★★☆

Cube - Hard Puzzle #9

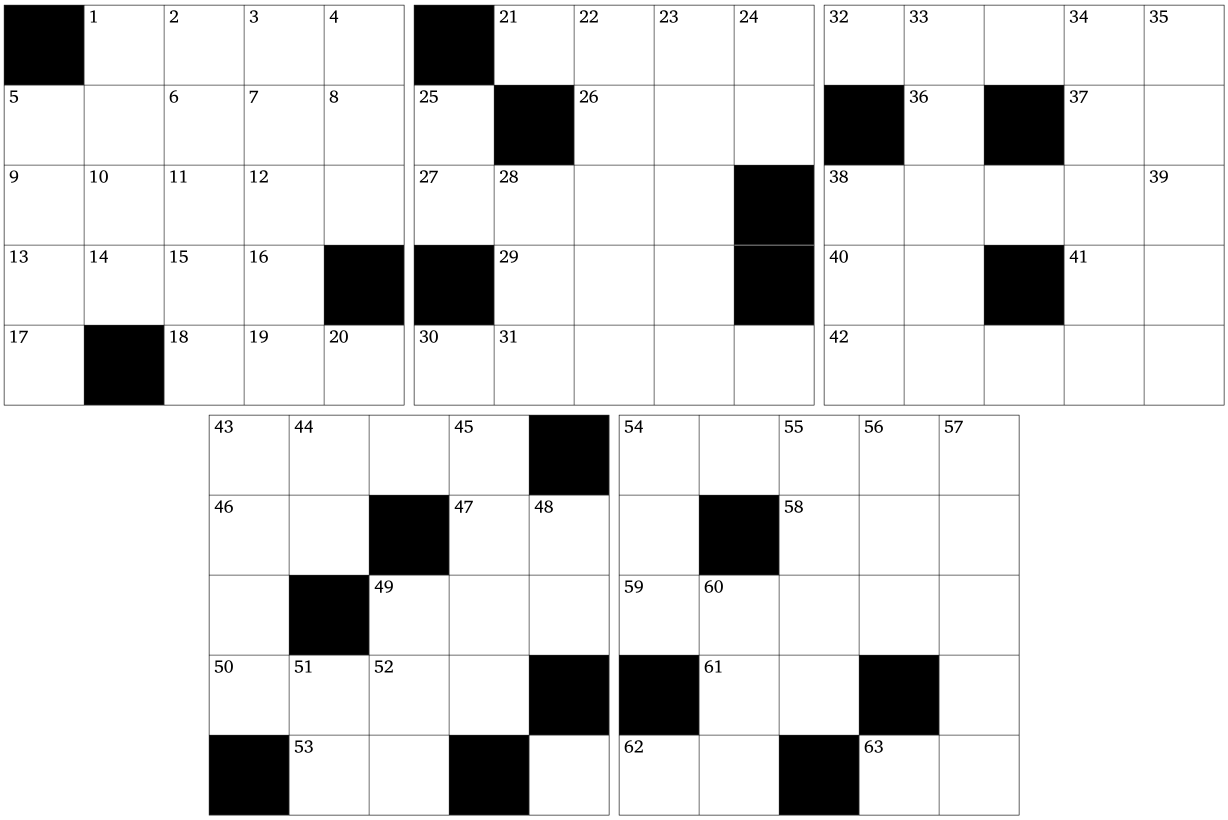


This puzzle is like a crossword, but with numbers. Each digit occupies a 3D block and can be a part of a "word" in the X,Y, and Z directions.

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



X Direction

1 Seventy-one times Z15
5 Thirty-five times a prime number
9 First two digits are the same as X61
13 Fourteen times a prime number
18 X49 plus X46
21 X26 times Z52
26 X21 divided by X40
27 A prime number
29 Rearranged digits of Z4
30 One thousand three hundred seventy-one less than Z20
32 A prime number
37 Y25 minus Z40
38 Mean of X54 and X62
40 X62 minus Z6
41 Z46 plus Z52
42 Seventeen times a prime number
43 Twenty-five times a prime number
46 A square
47 Y48 plus Z15
49 Z4 minus Y56
50 Ten times a prime number
53 Z36 plus X62
54 Eighty-five times a prime number
58 Twice the result of Z7 minus Z11
59 Y4 times Z39
61 X21 divided by X26
62 A square
63 Z46 plus Z36

Y Direction

1 Twenty-five times a prime number
2 A prime number
3 Forty-four times a prime number
4 Half of Z16, then subtract X43
5 Z20 divided by X40
22 Four thousand one hundred sixty-nine more than Z8
23 Two thousand eight hundred eighty-one more than Y34
24 Mean of X41 and X37
25 X42 minus half of Z1
28 Twice X18
33 Last two digits are the same as last two digits of Z2
34 Nine times a prime number
35 Mean of Z3 and Y43
38 X40 plus Y44
43 Nine times a prime number
44 Y38 minus X61
45 Seven hundred eight less than X13
48 Mean of Z46 and X41
49 Y56 minus X61
51 Twice the result of X61 plus Z40
54 Fifteen times a square
55 Ninety-three times a square
56 Z52 plus Y49
57 One thousand nine hundred nine less than Y22
60 A prime number

Z Direction

1 Ten times a prime number
2 Half of X59, then subtract Y1
3 Thirteen thousand six hundred fifty-one more than X59
4 Z10 plus Z5
5 X63 minus Y51
6 Y25 minus Z46
7 Three thousand eight hundred forty-two less than Y33
8 Two thousand two hundred sixty less than Y57
9 Two thousand seven hundred twelve less than Y34
10 Z14 minus Y57
11 Thirty-five times a prime number
12 Ten times a prime number
14 Thirteen times a prime number
15 Y44 minus X37
16 Rearranged digits of Y45
17 X63 plus Z10
18 Twice the result of X30 minus Y2
19 X42 divided by Z40
20 X61 times Y5
31 Thirteen times a prime number
32 Z4 minus Y56
36 X53 minus X46
39 Mean of X47 and Y54
40 X46 minus Z15
46 X41 minus X61
52 Z20 divided by Y5

Solution: