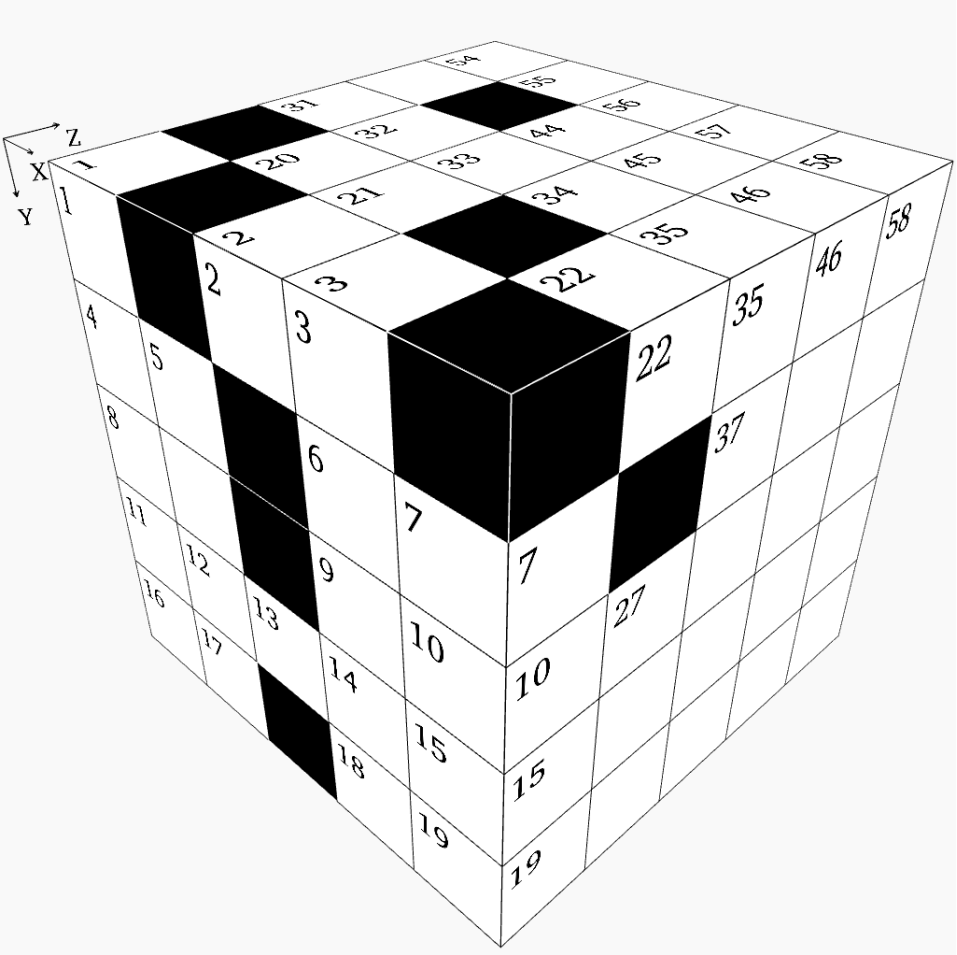
Difficulty: ★★★★☆

Cube - Hard Puzzle #2

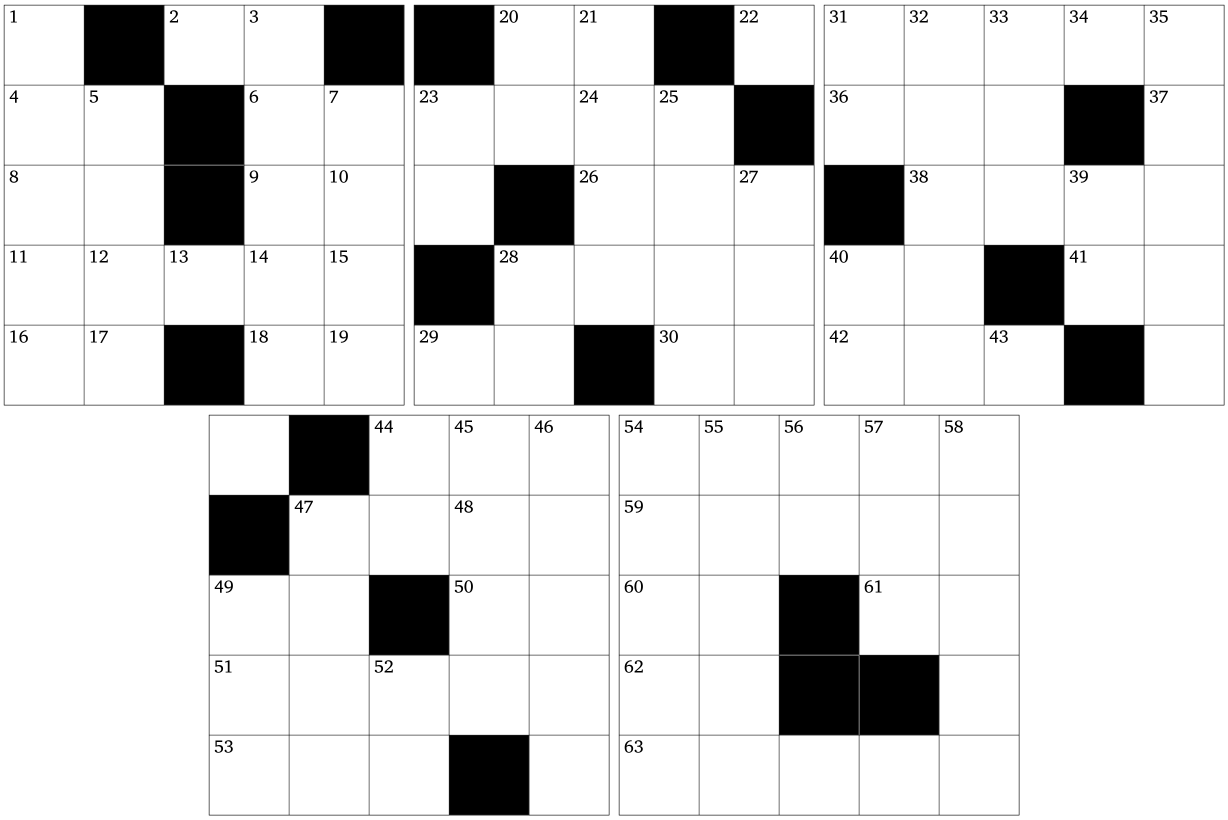


This puzzle is like a crossword, but with numbers. Each digit occupies a 3D block and can be a part of a "word" in the X,Y, and Z directions.

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

2 X61 minus X49
4 A square
6 Twice the result of X62 minus Z49
8 Y23 plus Z18
9 X4 minus Z6
11 Half of X63, then subtract Y7
16 Z6 plus X41
18 X30 minus X2
20 X50 plus X8
23 Mean of Y25 and X20
26 Half of Z16, then subtract Z19
28 Y27 times Y31
29 X16 plus Z26
30 A square
31 Six hundred seventy-eight less than Z19
36 Twice the result of X42 minus X4
38 Y5 plus Z20
40 Mean of X6 and X18
41 Mean of Y31 and Y56
42 Mean of Y39 and X36
44 Y33 plus Z40
47 A prime number
49 Y39 minus half of Z8
50 Mean of X16 and X2
51 A prime number
53 X26 plus Z26
54 Thirty-seven times a prime number
59 A prime number
60 Mean of Y57 and X62
61 Z26 plus X4
62 X6 plus X4
63 Seven thousand eighty-four less than Y54

Y Direction

1 Last two digits are the same as last two digits of Z17
3 First two digits are the same as Y40
5 Thirty-four times a prime number
7 Thirty-two times a prime number
20 Y57 minus Y56
21 Twice a prime number
23 X16 minus X18
25 Four times a prime number
27 X28 divided by X40
28 A cube
31 X50 minus X41
32 One thousand one hundred forty less than Y58
33 Mean of Y31 and Z38
35 Twice the result of Y55 minus Y45
39 X49 plus Y28
40 X16 minus Y23
44 Y58 minus half of Y46
45 Nine times a prime number
46 Twenty-eight times a prime number
47 Z22 plus half of Y57
49 Z20 plus Z4
52 X50 plus Z13
54 X54 minus Z31
55 One thousand seven hundred five more than X11
56 Z31 minus X42
57 Y39 plus X16
58 Four thousand five hundred seventy-nine less than Z2

Z Direction

2 A prime number
4 Y33 minus Z13
5 Seventy-seven times a prime number
6 A square
8 Mean of Y56 and X60
9 Five thousand six hundred thirty-six less than X31
10 Z34 plus half of Y3
12 Ten times a prime number
13 Y44 minus X4
14 Thirteen times a prime number
15 Twenty-two thousand two hundred ninety-eight more than Z5
16 Nine thousand four hundred ninety-four more than Y58
17 Twice the result of X59 plus X51
18 X47 minus Z22
19 First two digits are the same as first two digits of Z31
20 X2 plus Z26
22 Twenty-three times a prime number
24 Thirty-one times a prime number
26 Y39 minus X41
31 Y33 minus X20
34 Thirty-seven times Y31
37 X42 plus X26
38 A prime number
40 A cube
43 Z2 minus Y1
48 X49 plus X16
49 X18 plus Z18

Solution: