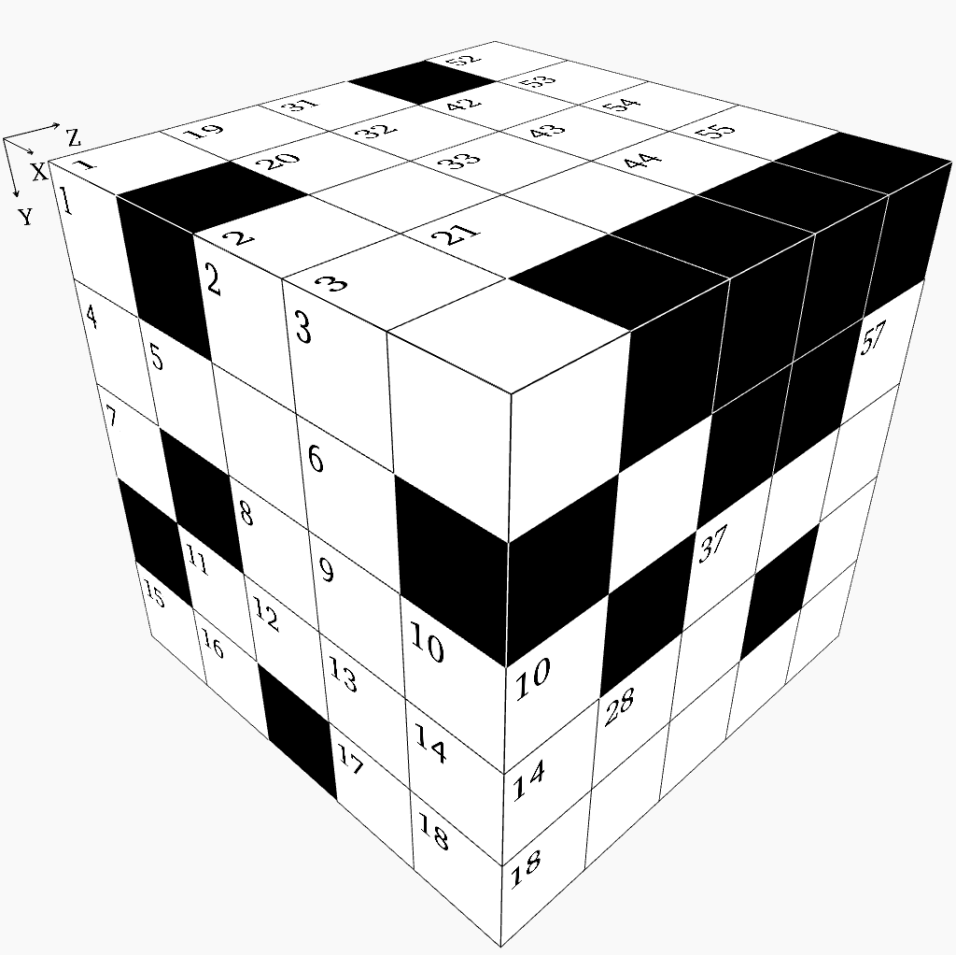
Difficulty: ★★★★☆

Cube - Hard Puzzle #24

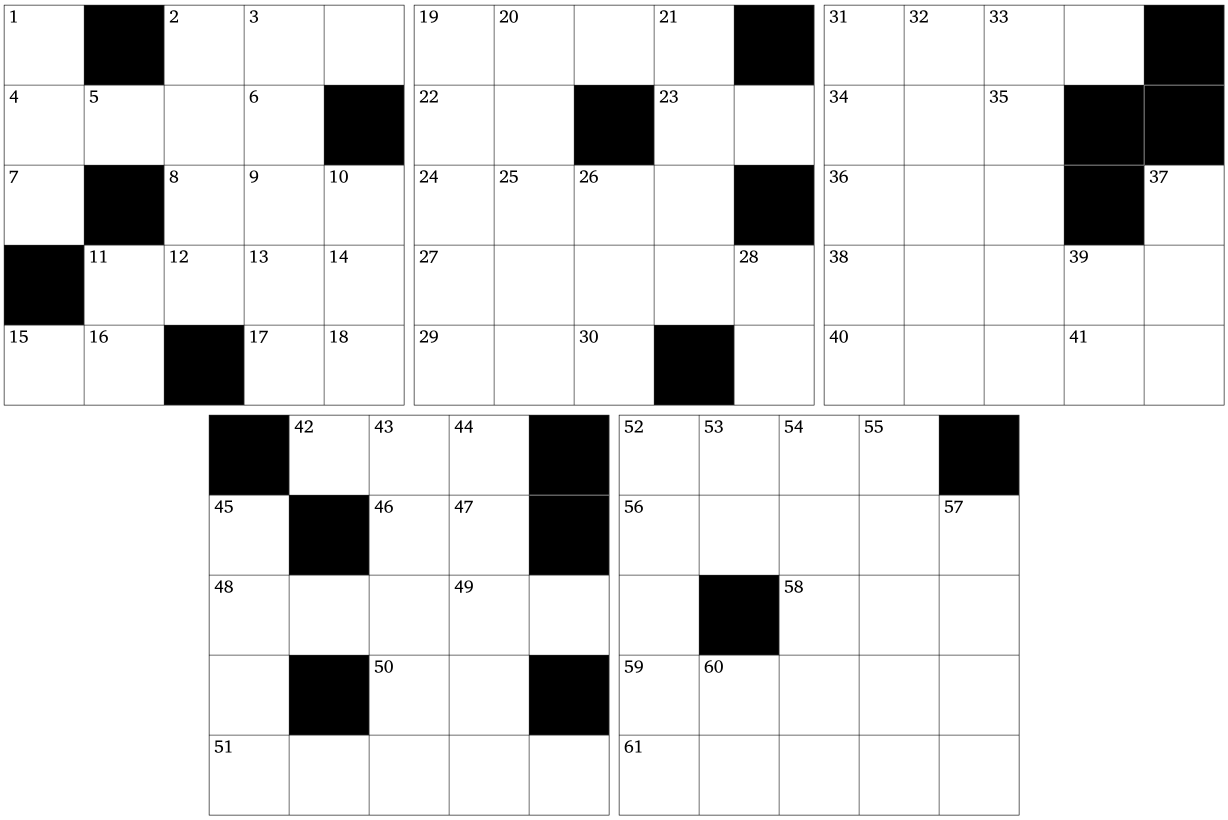


This puzzle is like a crossword, but with numbers. Each digit occupies a 3D block and can be a part of a "word" in the X,Y, and Z directions.

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 Z27 minus X31
4 Its digits total X17
8 Twice the result of X24 minus Y45
11 Seventeen times a prime number
15 Y11 plus Y60
17 Y26 minus X2
19 One thousand four hundred eighty-four more than Z20
22 Twice the result of Z11 minus Z6
23 A prime number
24 Thirty-one times a prime number
27 Y3 minus Z12
29 A prime number
31 Eleven times a prime number
34 X8 plus Z35
36 Mean of X29 and Y28
38 Last two digits are the same as last two digits of Y3
40 Y52 minus Y1
42 Mean of Z1 and X15
46 X22 minus Y39
48 A prime number
50 Y19 divided by X34
51 Nine times a prime number
52 X51 minus half of Y54
56 A prime number
58 Mean of X42 and X8
59 X36 times Z49
61 One thousand nine hundred eight more than Z20

Y Direction

1 X34 minus Z47
2 One hundred eighty-three more than Z20
3 Four times a prime number
10 Four times a prime number
11 Y53 minus Z6
19 Twenty thousand one hundred sixty-five more than Z7
20 Twice a prime number
21 Three times a prime number
26 A prime number
28 A prime number
31 Eighty-seven times a prime number
32 Rearranged digits of X38
33 Eighty times a prime number
37 X61 minus X19
39 X23 reversed
43 Twice the result of X56 minus Y2
44 Three thousand four hundred seventy less than Y33
45 Five times a prime number
52 Seventeen times a prime number
53 A prime number
54 Eighteen times a prime number
55 One thousand one hundred sixty-three less than X56
57 Twice a prime number
60 X22 plus X17

Z Direction

1 Thirty-two times a prime number
2 A palindrome
3 Twice a prime number
4 Nine thousand six hundred ninety-one more than Y32
5 Fourteen times a square
6 Z25 divided by Y11
7 Ten times a prime number
8 A palindrome
9 Z11 minus X23
11 X42 minus X8
12 Seventeen times Z14
13 Sixteen times a prime number
14 Z25 plus X22
15 Eleven thousand seven hundred three more than Z2
16 Twenty times a prime number
18 One thousand five hundred forty-six more than Y44
20 Mean of Z12 and X17
25 X38 divided by Z47
27 Four hundred twenty-nine more than Y21
30 Twice a prime number
35 A square
37 Half of Z14, then subtract Y11
41 Twice a prime number
47 Z11 minus Z49
49 Four times X17

Solution: