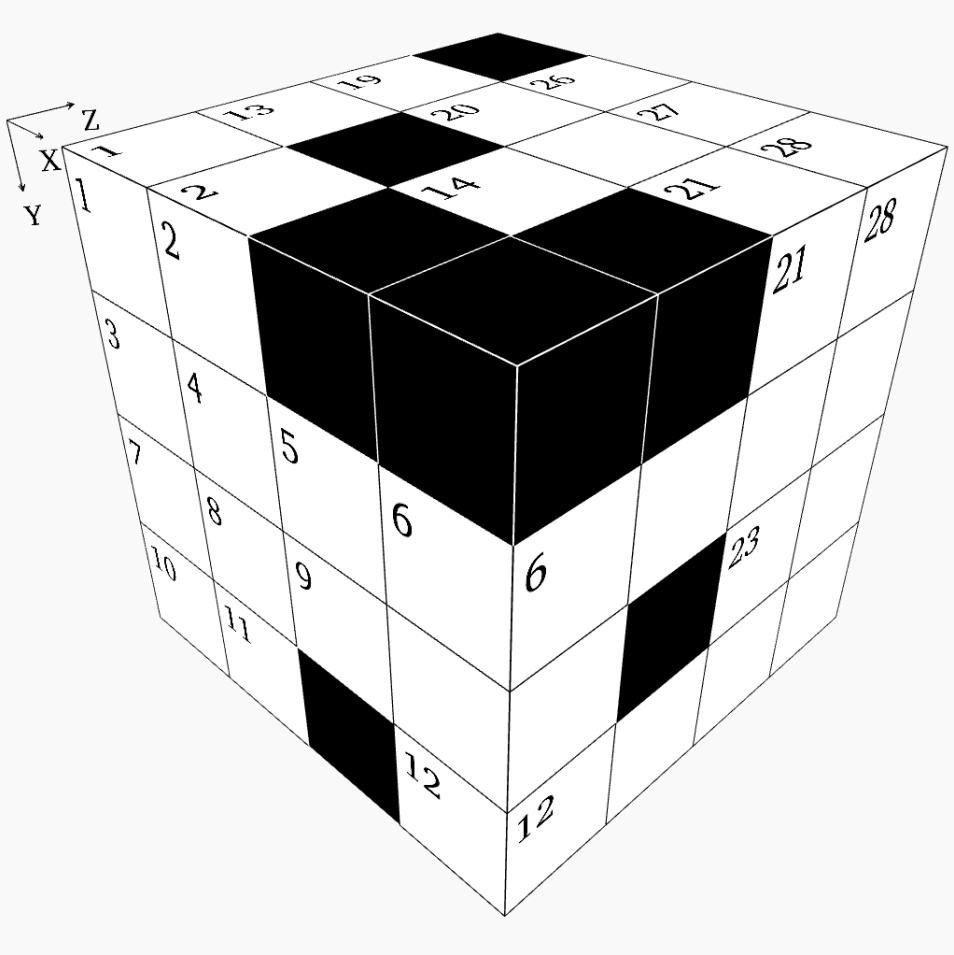
Difficulty: ★★☆☆☆

Cube - Challenging Puzzle #46

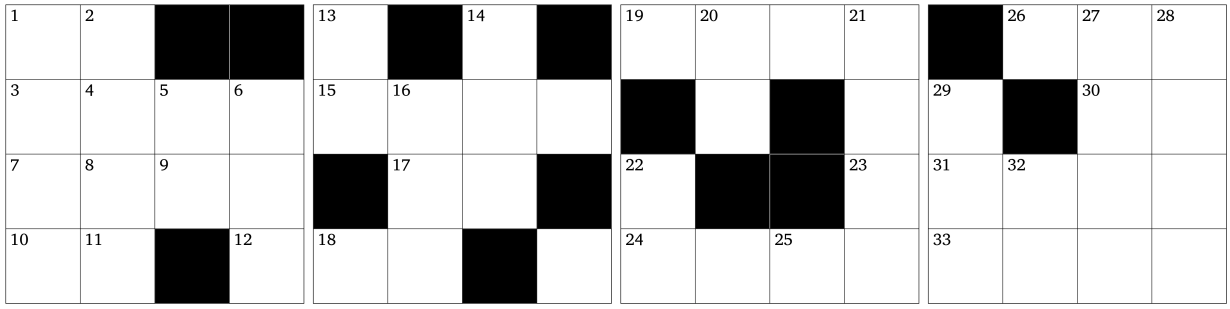


This puzzle is like a crossword, but with numbers. Each digit occupies a 3D block and can be a part of a "word" in the X,Y, and Z directions.

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 Z4 and Z20
3 Twice a prime number
7 Half of X33, then subtract Y16
10 Z9 plus Z5
15 Z12 minus Y27
17 Five times Y5
18 Mean of Z4 and X10
19 Thirty-eight times a prime number
24 X1 times Z23
26 Mean of Z14 and X17
30 X17 minus Z3
31 Half of X19, then subtract X26
33 Twenty times a prime number

Y Direction

1 One hundred twenty-eight less than Z12
2 Z22 times Y20
5 Z22 minus Z5
6 Z1 minus Z3
13 Y32 minus Z22
14 Z12 divided by Y13
16 X26 plus Z23
20 A square
21 Five times a prime number
22 Y32 minus Y13
27 Four times a prime number
28 Fourteen times a square
29 Half of X3, then subtract Y27
32 Mean of X17 and X10

Z Direction

1 Seven times a prime number
3 Mean of Z23 and Y32
4 X17 plus Z25
5 Z25 divided by seven
6 Y28 minus X18
8 A square
9 Z3 minus Z22
10 Eighty-one times Z23
11 Three times a prime number
12 Eighteen times Y14
14 Mean of Z3 and Y27
20 Mean of Z21 and Y13
21 X18 minus Z9
22 Z23 minus Z5
23 Y14 divided by Z9
25 Y32 plus Z20

Solution: