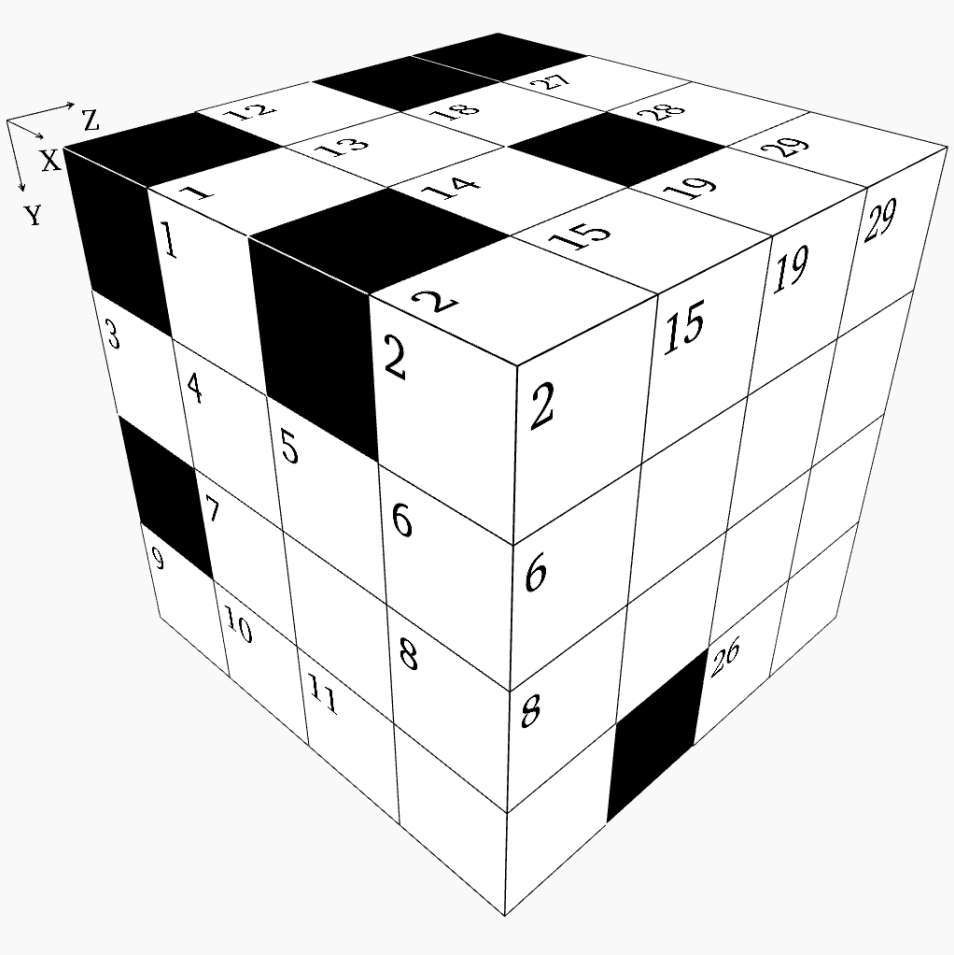
Difficulty: ★★☆☆☆

Cube - Challenging Puzzle #48

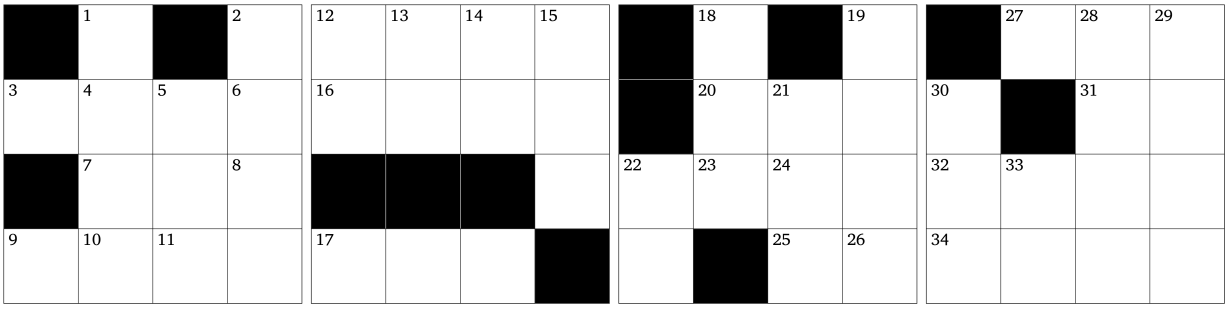


This puzzle is like a crossword, but with numbers. Each digit occupies a 3D block and can be a part of a "word" in the X,Y, and Z directions.

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

3 Fifty-six times Z23
7 Y21 reversed
9 A prime number
12 A prime number
16 Forty-two times a prime number
17 Ten times X25
20 Twice a prime number
22 Seven hundred thirty more than Z8
25 Z3 minus Z26
27 Thirty-five times a square
31 Y33 divided by three
32 Six times a prime number
34 One thousand four hundred fifty-one more than Z1

Y Direction

1 Eight more than X12
2 Y12 times Z10
5 Half of X22, then subtract Y1
12 Z23 minus Z24
13 Z6 divided by Y33
14 A square
15 Six times a prime number
18 Thirteen times Z10
19 One hundred twenty-nine less than X22
21 X7 reversed
22 Mean of Z22 and Y33
28 A prime number
29 Mean of Z8 and Y30
30 Fourteen times a prime number
33 Ten times a square

Z Direction

1 X12 plus half of Z22
2 X25 plus half of X3
3 Y22 minus Z26
4 Twice the result of Z9 minus Y21
5 X34 minus Y28
6 Y33 times Z24
8 Rearranged digits of X32
9 Seventy-six times Y14
10 Mean of Y14 and Y33
11 X7 plus Y15
22 Two-fifths of X17
23 Y13 plus Y12
24 Mean of Z3 and Y12
26 Y21 divided by twenty-eight

Solution: