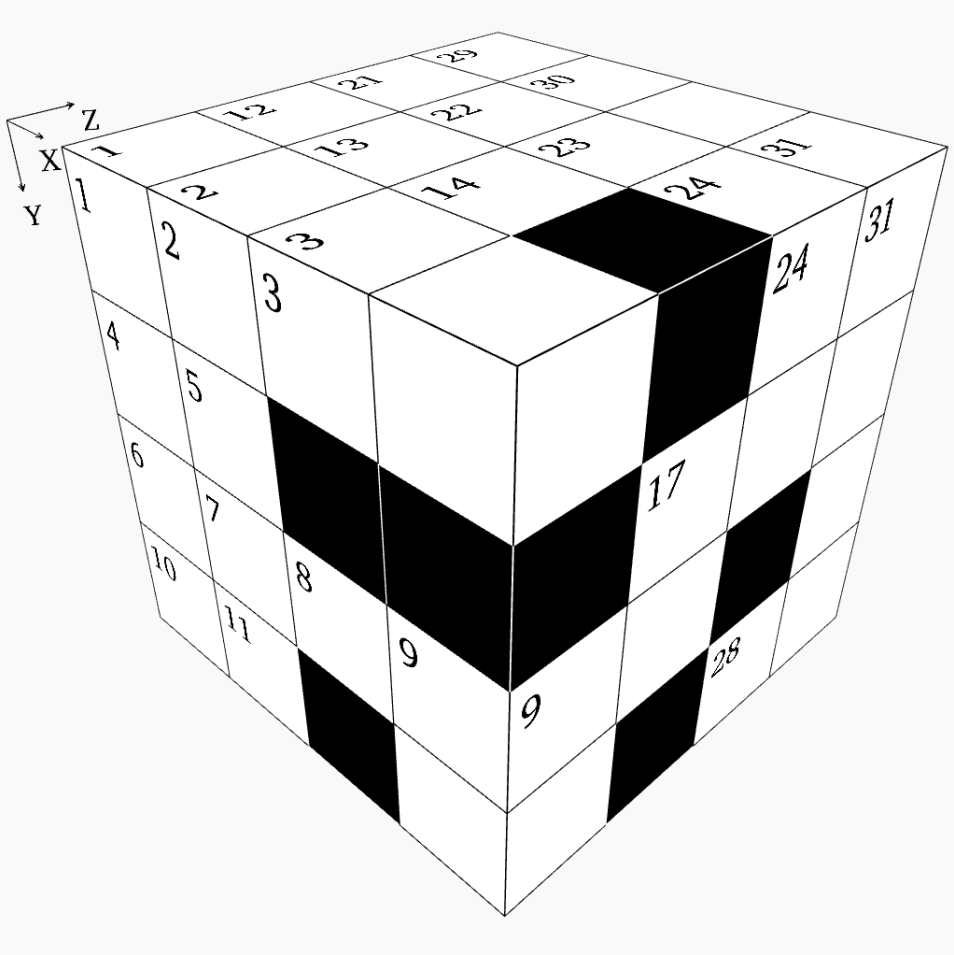
Difficulty: ★★★☆☆

Cube - Challenging Puzzle #6

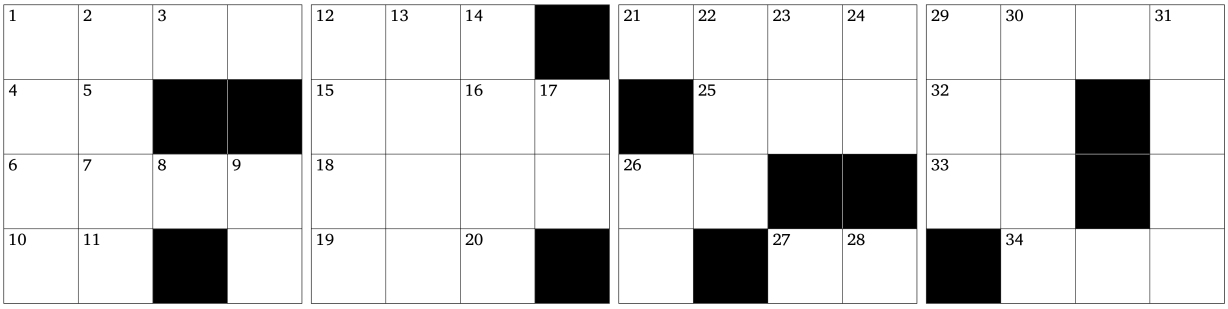


This puzzle is like a crossword, but with numbers. Each digit occupies a 3D block and can be a part of a "word" in the X,Y, and Z directions.

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 Y1 minus X26
4 Z10 minus Z28
6 Sixty-nine times Z11
10 Z24 minus Y17
12 X25 minus Y23
15 First two digits are the same as Z4
18 X29 plus half of X34
19 Z11 plus Z4
21 Mean of X1 and X32
25 X18 minus Y30
26 Mean of Y23 and X19
27 X33 minus Z24
29 Nine times a prime number
32 Y23 plus Y24
33 Z17 minus Z16
34 X25 plus Z9

Y Direction

1 A square
2 A prime number
9 Mean of X19 and Y24
12 Y13 plus Y9
13 A prime number
14 Forty-eight times Z4
17 Z11 minus Z24
22 A square
23 Mean of Y26 and Y17
24 X33 minus Y23
26 Twice the result of X4 minus X27
29 All digits are the same
30 One thousand five hundred forty-three more than Y13
31 Thirty-two times a prime number

Z Direction

1 Y30 plus X26
2 A prime number
3 Z6 plus X12
4 Z8 plus Y24
5 Four times a prime number
6 A prime number
7 Mean of Y31 and X25
8 X27 plus Y24
9 Z17 minus X33
10 Eleven times Y17
11 Y14 divided by Z17
16 Z17 minus X32
17 A square
20 A prime number
24 X6 divided by Z4
28 Y24 minus Y17

Solution: