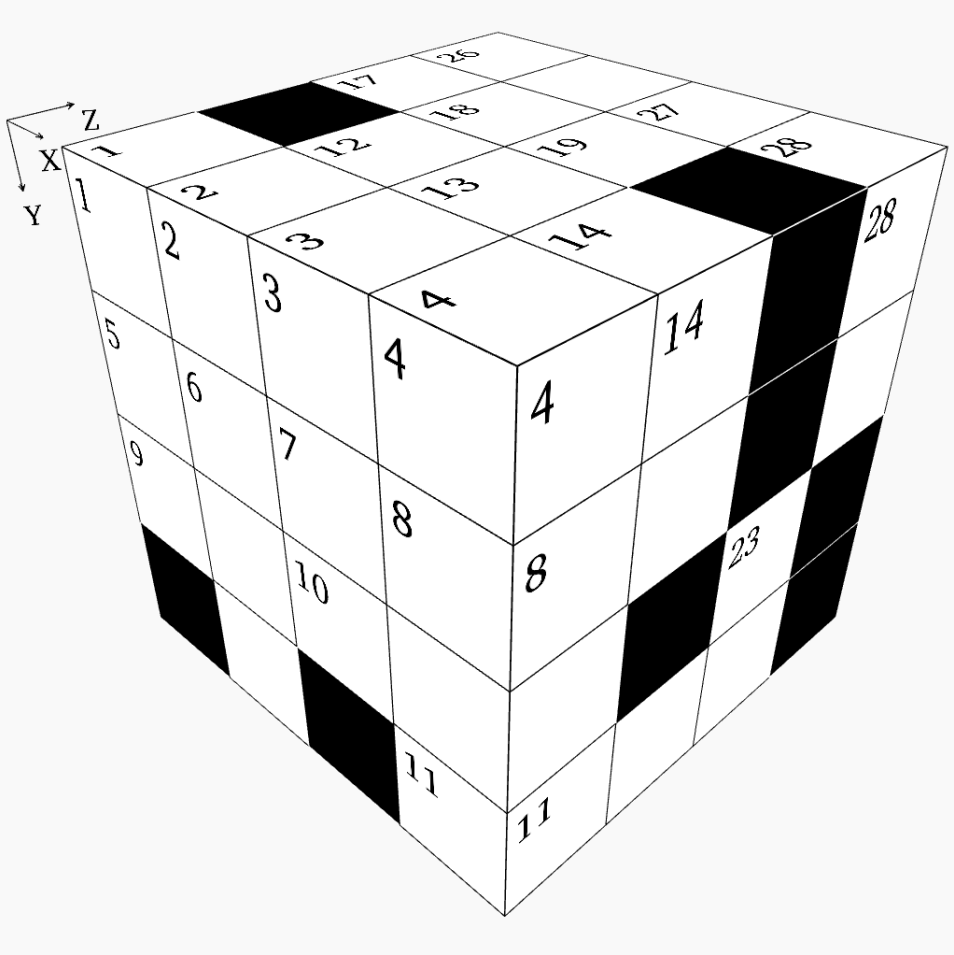
Difficulty: ★★☆☆☆

Cube - Challenging Puzzle #4

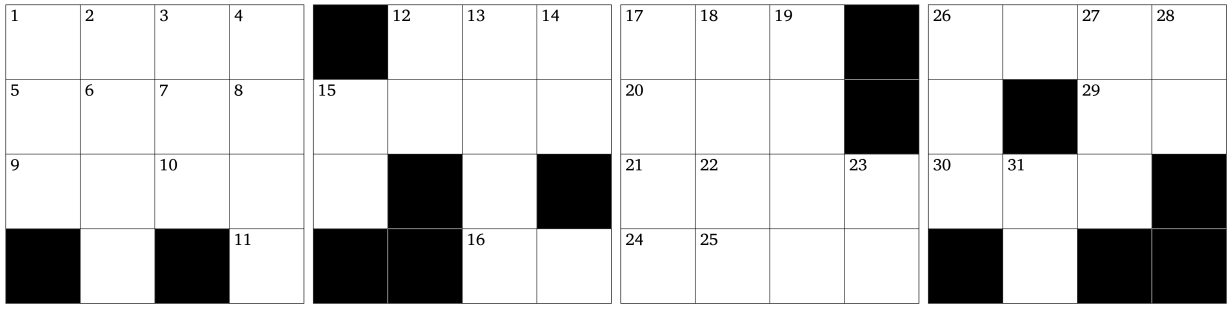


This puzzle is like a crossword, but with numbers. Each digit occupies a 3D block and can be a part of a "word" in the X,Y, and Z directions.

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 One thousand two hundred seventy-two less than Y18
5 A prime number
9 Seven times a prime number
12 Rearranged digits of Y3
15 X1 plus Y1
16 A prime number
17 Y19 minus X26
20 Z11 minus Y28
21 Eleven times a prime number
24 Fifty-seven times a square
26 Mean of X24 and Y27
29 Mean of Z4 and Y31
30 Mean of Y3 and Z25

Y Direction

1 Y18 minus Z9
2 Mean of Y18 and Z11
3 X16 plus Z11
4 Sixty-eight times Y28
12 Y26 minus Z4
13 X15 minus Z25
14 X17 divided by thirty-two
15 Same as X29
17 Eighty-four times a prime number
18 Six hundred six more than X15
19 Thirty-one times a prime number
23 Three times Z8
26 Three times a prime number
27 Y12 plus X17
28 Mean of Y15 and Y12
31 Twice the result of Y26 minus Z22

Z Direction

2 A prime number
3 Thirty-seven times a prime number
4 X5 minus Z9
5 Twice a prime number
6 Five times a prime number
7 First two digits are the same as Y12
8 Y19 divided by Y28
9 Twenty-nine times a prime number
10 Y12 times X29
11 X30 plus Z4
16 Half of Y4, then subtract Z3
17 X20 minus Y23
22 Y12 reversed
25 Mean of Z16 and Y23

Solution: