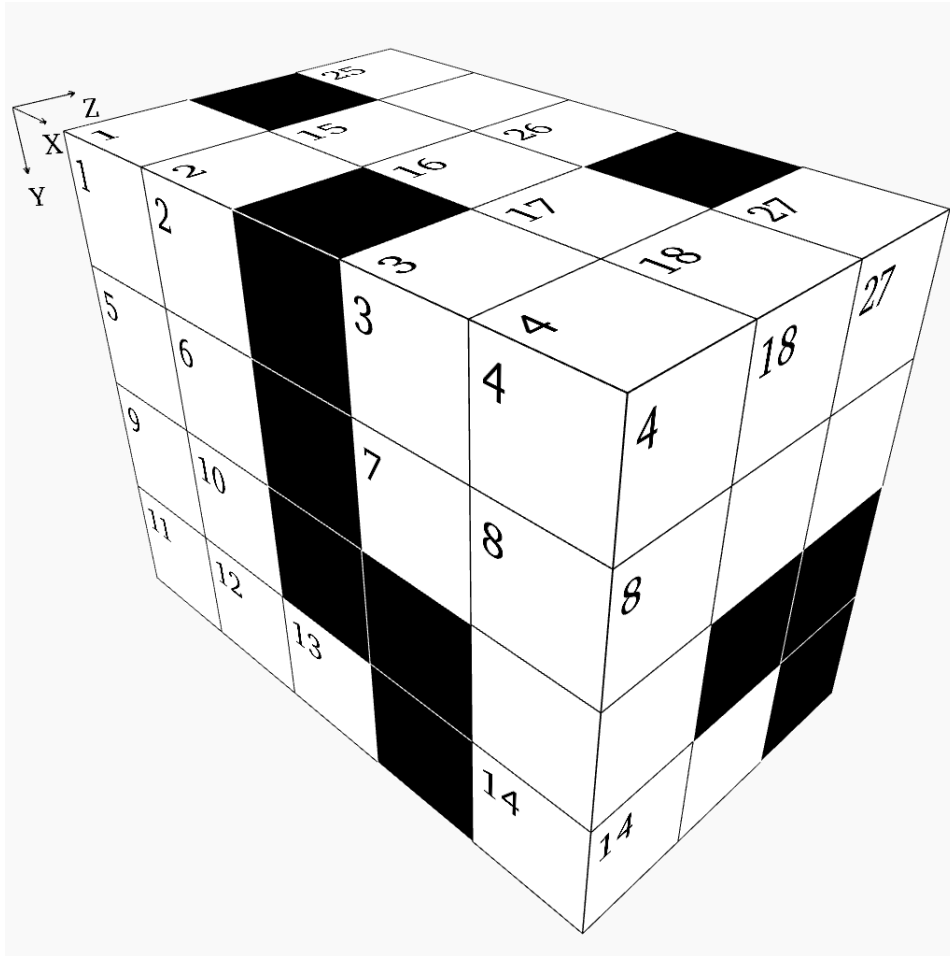Difficulty: ★★☆☆☆

Box - Challenging Puzzle #10

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 box pictured above and divide it into individual X-Y layers, we will get these planes:

1	2	■	3	4
5	6	■	7	8
9	10	■	■	
11	12	13	■	14

■	15	16	17	18
19		20		
21		22	■	■
23			24	

25		26	■	27
	■		■	
28	29		30	■
31				■

X Direction

1 Mean of Z5 and Z7
3 A square
5 A square
7 Y30 minus Z22
9 Y3 minus Y18
11 Z9 plus Z14
15 Seventy-three times a prime number
19 Seventy-one times a prime number
21 Eighty-two times Y18
23 One thousand fifty-five more than Y1
25 Z13 minus half of Z8
28 Mean of X15 and Z20
31 Mean of Y15 and Z5

Y Direction

1 Twenty-six times a prime number
2 Mean of Y1 and Y3
3 Z5 minus Z6
4 Z12 times X5
15 Y26 plus Z14
16 Z20 times Z24
17 Z14 plus X7
18 X3 minus Y17
19 Z7 plus half of X21
25 A square
26 X23 minus half of Y4
27 Six times X5
29 Z7 plus Z22
30 Mean of Z16 and Z4

Z Direction

2 Thirty-one times X5
3 Z6 plus Z14
4 Z5 minus Z16
5 Twice Y30
6 Twice the result of Z4 minus Z3
7 Z3 minus X7
8 Z13 minus Y18
9 Y29 plus Z13
10 Nine times Z24
11 Y30 times Y18
12 Z24 plus X9
13 Z11 minus Z3
14 Z4 minus Y27
16 Mean of X7 and Y18
20 Mean of Y17 and Y27
22 A cube
24 Y30 minus Z7

Solution:

9	4	■	8	1	■	9	2	7	1	3	6	9	■	9
1	6	■	4	7	4	4	8	0	1	8	■	3	■	6
7	3	■	■	1	9	0	2	■	■	4	6	7	7	■
8	1	7	■	2	1	0	2	3	3	4	7	7	4	■