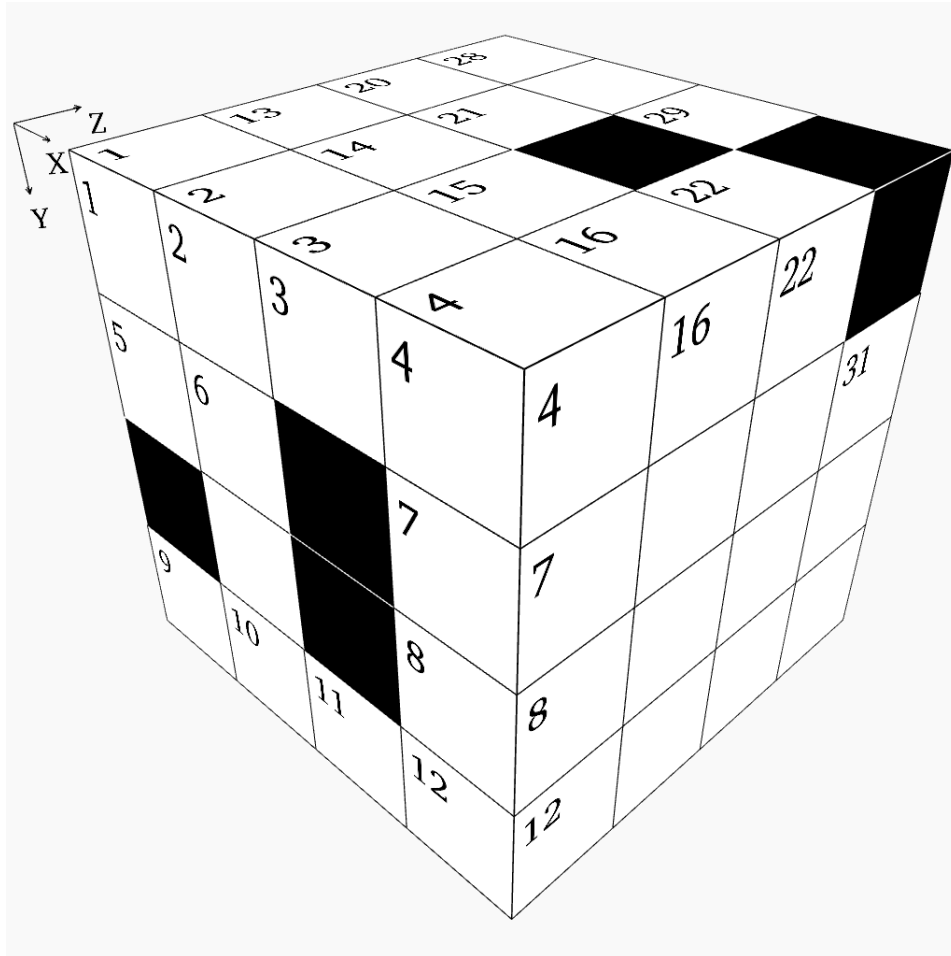Difficulty: ★★☆☆☆

Cube - Challenging Puzzle #44

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:

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
32	■	33	
	■	34	

X Direction

1 Y2 minus half of X13
5 Y1 reversed
9 Twenty-seven times a prime number
13 Four times a prime number
17 Sixteen times a prime number
19 X25 minus Z18
20 Twice Y1
23 Forty-five times a prime number
25 A prime number
27 Twenty times a prime number
28 Z8 divided by seven
30 All digits are the same
33 Twice a prime number
34 Six times a square

Y Direction

1 Z10 divided by eight
2 Three times a prime number
4 Twenty-three times a prime number
13 X9 minus half of Z12
14 Mean of Y1 and Z27
15 Six times Y1
16 A prime number
20 Z10 minus Y15
21 Five hundred seventy-two more than Y22
22 Twice the result of Z11 plus Z27
24 Y32 times Z27
29 Z7 plus X5
31 Nine times X33
32 A square

Z Direction

1 A prime number
2 Twice the result of Z1 plus X25
3 Y15 minus Z27
4 A prime number
5 Eight times a prime number
6 Z4 minus Y31
7 Twice a prime number
8 X19 times Y1
10 X34 plus Y32
11 A prime number
12 Y31 plus X27
18 X20 times Y32
26 X19 divided by nine
27 Twice a prime number

Solution:

1	4	5	9	5	2	8	4	2	8	■	7	3	4	2	■
4	1	■	2	8	0	4	8	8	1	4	5	■	■	8	8
■	0	■	2	0	■	■	3	■	6	1	9	1	■	9	4
2	1	3	3	■	1	7	1	2	2	6	0	6	■	9	6