Difficulty: ★★☆☆☆
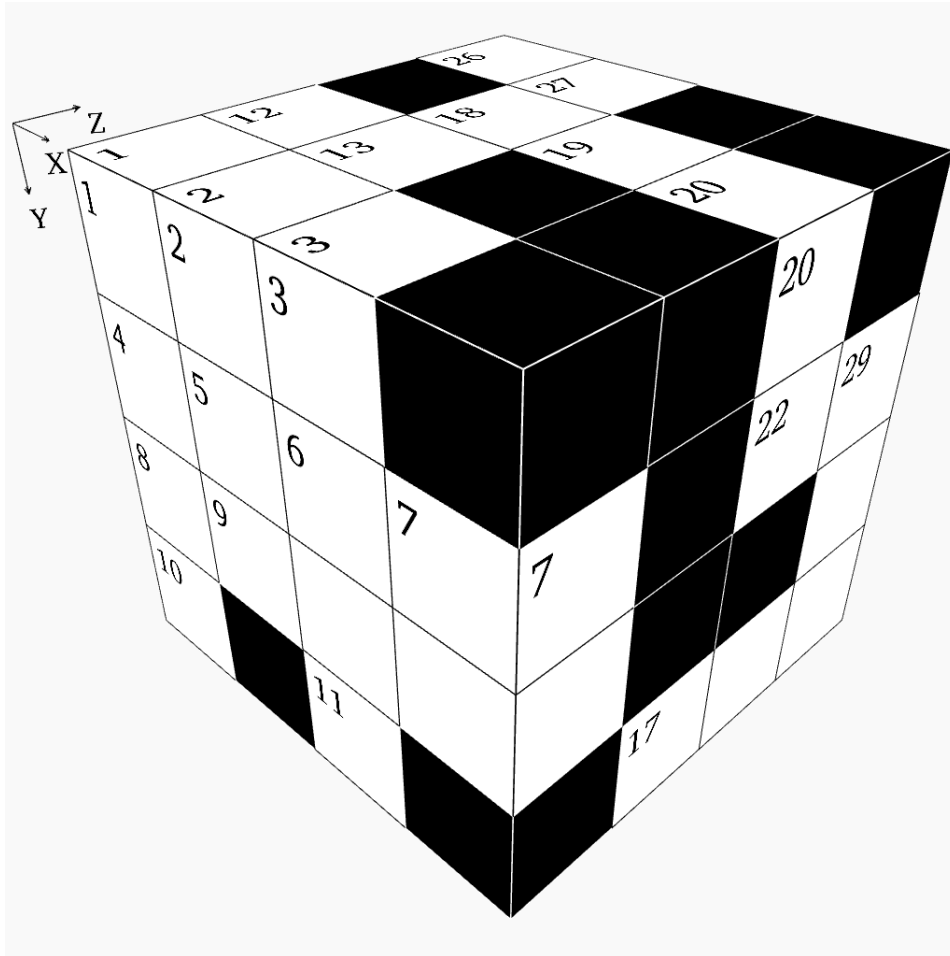
Cube - Challenging Puzzle #38

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	■		12	13	■	■		■	18	19	20		26	27	■	■
4	5	6	7		14			■		21			22		28			29
8	9				15		■	■		23			■		■		■	
10	■	11	■			■	16	17		24	25				■	30		

X Direction

1 A square
4 Sixty-nine times a prime number
8 Six times a prime number
12 Half of Z22
14 Consecutive digits unordered
15 X30 minus Y21
16 Z10 minus Z1
18 Y29 minus half of X14
21 Three hundred eighty-four more than X24
23 Nineteen times a prime number
24 Forty times a prime number
26 Mean of Y26 and Z1
28 Half of Y19, then subtract X26
30 Y21 plus half of Y7

Y Direction

1 X8 plus X15
2 Mean of X14 and Y20
3 Mean of X15 and Y27
7 Twice X15
12 Seventeen times a prime number
13 Y18 minus X1
18 Eighty-seven times Y20
19 Twice a prime number
20 Y26 divided by six
21 Twenty-one times X12
26 Mean of X26 and Z25
27 Half of Z5, then subtract Y3
29 Ten times a prime number

Z Direction

1 X21 divided by fifty-two
2 Nineteen times a prime number
4 Y2 times Y20
5 Twice a prime number
6 Five times a prime number
8 X23 plus X16
9 Eight times a prime number
10 A prime number
11 Thirteen times a prime number
17 A square
22 Twice a prime number
25 Five times a prime number

Solution:

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