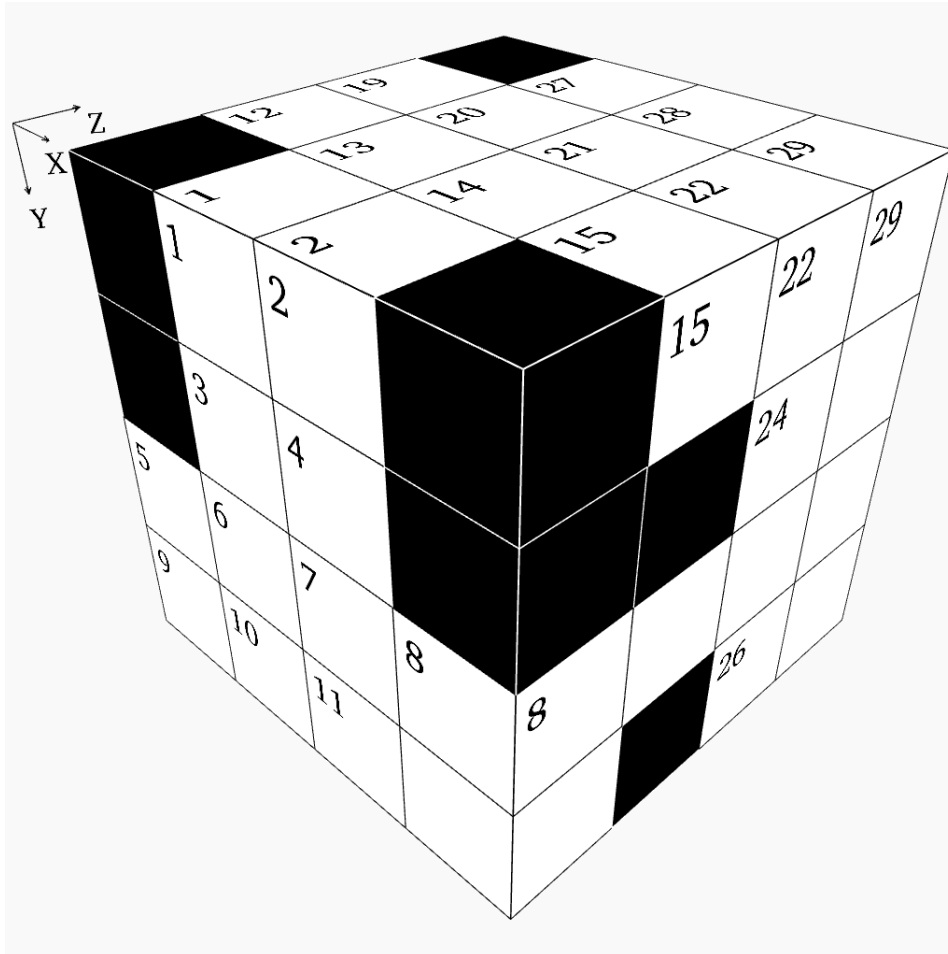# Cube - Challenging Puzzle #1

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			12	13	14	15		19	20	21	22			27	28	29
	3	4			16			■		23			24			■	30	
5	6	7	8		■	17			■	25			■			31	■	
9	10	11			18			■	■		■	26		32			■	

X Direction

1 Four times Y31
3 A square
5 Z4 minus X25
9 Mean of Z12 and Y14
12 Thirty-eight times a prime number
16 All digits are the same
17 Z8 divided by Y19
18 Twice a prime number
19 A prime number
23 Fifteen times a prime number
25 Same as Z7
27 Seven times Z11
30 Mean of Y28 and X3
32 Mean of Y12 and Z9

Y Direction

1 Twice the result of Z6 minus X1
2 Three times a prime number
5 Z6 divided by eighty-one
8 X27 minus Y31
12 Five times a prime number
13 Twice a prime number
14 Eighteen times a prime number
19 X3 plus Z11
20 Mean of Z2 and Z16
21 Y28 times Y31
22 Mean of Y14 and Y13
28 Y5 minus Y19
29 Seven hundred nineteen less than Y22
31 Y21 minus X17

Z Direction

1 Seven times a prime number
2 A prime number
3 Y29 divided by Y28
4 Rearranged digits of X23
6 Thirteen times a square
7 Z4 minus X5
8 Five hundred nine more than Y2
9 Z26 minus Z11
10 Twelve times a prime number
11 Z15 divided by Y5
12 X27 minus X30
15 X18 minus Z12
16 Forty-seven times Y28
24 Twice Z9
26 Half of Y8

Solution:

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