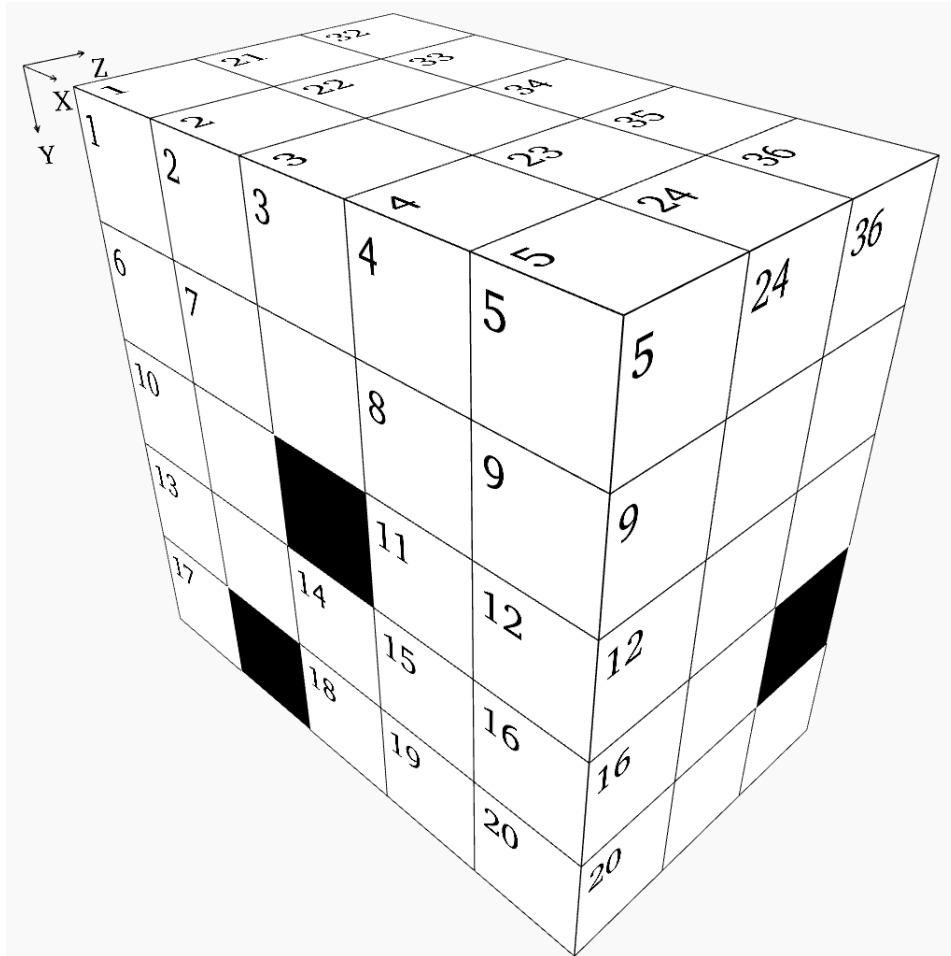# Box - Challenging Puzzle #31

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			

32	33	34	35	36
37				
■	38		■	
39		■	■	■
■	40			

X Direction
1 Fifty-eight times a prime number
6 Three thousand four hundred seventy-four less than X21
10 Y34 minus Z12
11 Sum of digits in Y4
13 Twice a prime number
18 Mean of X11 and Z20
21 Seventy-nine times a prime number
25 X37 divided by Z6
26 Its digits total Z27
29 Same as Y21
30 Y5 plus half of Z17
32 Consecutive digits unordered
37 Three thousand one hundred sixty-three less than X32
38 Y32 minus Z27
39 Z15 minus half of Z16
40 Z13 times Z27

Y Direction
1 Five times a prime number
2 X29 times Y3
3 Y2 divided by Y23
4 Fifty-seven times a prime number
5 Fifteen times a prime number
14 X29 minus Y35
21 Y14 plus Y35
22 Y14 plus Y28
23 Z27 plus Y35
24 Twice a prime number
28 A square
29 A prime number
32 X10 minus X11
33 A prime number
34 One hundred twenty-one less than Z13
35 Half of Z4, then subtract Z5
36 Sixty-two times Z27

Z Direction
1 Thirty-one more than Z13
2 Y2 divided by nine
3 Z2 minus half of Z8
4 Z6 plus Z17
5 Mean of Z19 and Z15
6 Sixteen times Z15
7 Mean of Z1 and X38
8 Z5 minus X18
9 A square
12 Rearranged digits of Y36
13 X40 divided by Y14
15 Mean of Y28 and Z17
16 Same as Y32
17 Z5 minus Z7
18 Z19 minus Z20
19 Twenty-five times a prime number
20 Mean of Z4 and Z17
27 Z16 minus X38
31 Mean of Y14 and Z8

Solution:

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