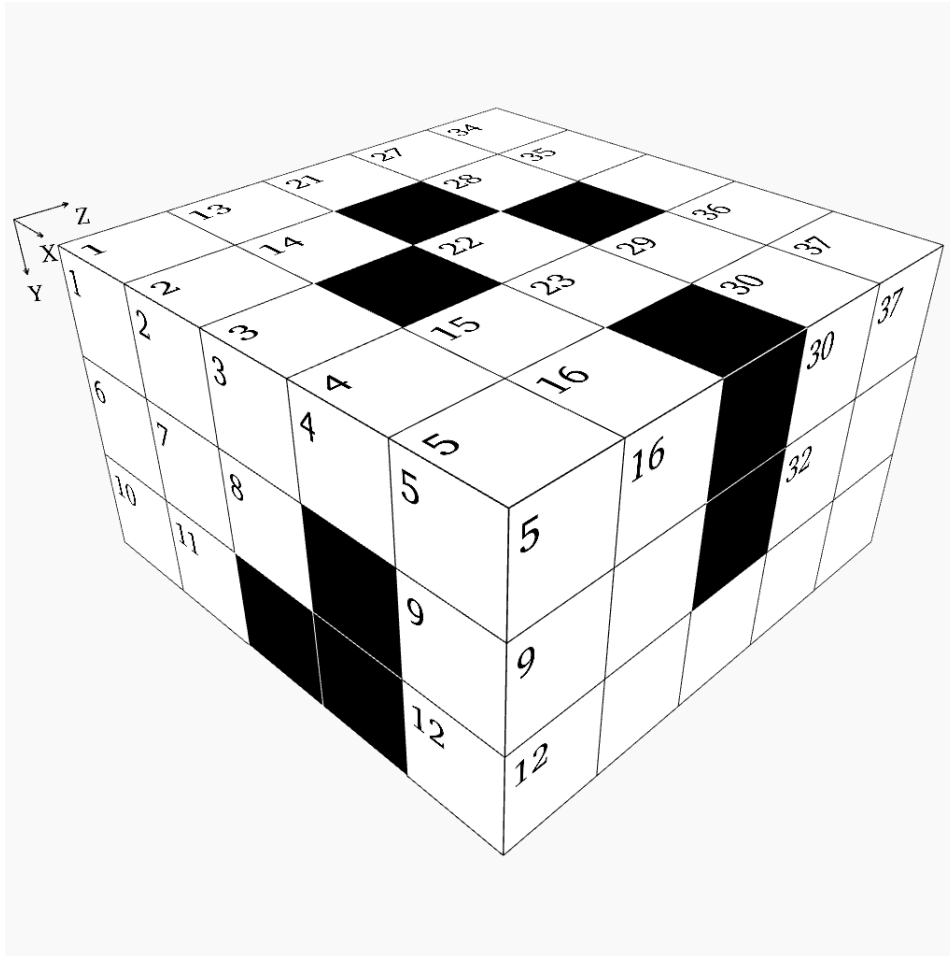# Box - Challenging Puzzle #65

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:

X Direction
1 A palindrome
6 Y2 reversed
10 Three times Z9
13 X40 divided by three
15 Y14 minus Y21
17 X24 divided by X33
19 A prime number
22 X33 plus Z30
24 Fifty-seven times a square
26 Y22 minus Z32
27 Mean of Y27 and X33
29 Same as X39
31 Twenty-five times a prime number
33 Z10 divided by thirty-nine
34 Mean of X1 and Z32
38 Y34 divided by seven
39 Y27 plus X38
40 Eleven times X33

Y Direction
1 Z10 minus Y27
2 Y29 minus Z30
3 X39 plus Y18
5 Z12 divided by Y34
13 Y21 minus X33
14 Y16 minus Z30
16 X6 minus half of X29
18 Z5 divided by three
21 Y14 minus Z5
22 X40 minus X26
23 Rearranged digits of Y34
27 Mean of X27 and Y18
28 Mean of Y37 and X22
29 Three times a prime number
30 Seventy-one times X33
34 Seventeen times Y35
35 X15 minus Z28
36 Mean of Y23 and Y3
37 Twenty-two times Z28

Z Direction
1 Twelve times a prime number
2 Y34 divided by seven
4 Last two digits are the same as X13
5 Mean of X26 and Z11
6 Consecutive digits unordered
7 Fourteen times a prime number
8 Thirty-nine times a square
9 Y3 minus X39
10 Y35 plus Y1
11 X6 divided by eleven
12 Twelve thousand six hundred twenty-eight more than Z7
20 Sixty-seven times a prime number
25 Mean of X40 and Y13
28 X10 minus Y35
30 Twice a prime number
32 Mean of Y3 and Z11

Solution:

Top-left grid:

4	3	6	3	4
5	8	3	■	1
4	5	■	■	9

Top-middle grid:

4	4	■	4	5
1	7	1	■	5
6	3	5	9	9

Top-right grid:

4	■	9	8	■
2	0	5	2	■
8	■	■	3	7

Bottom-left grid:

1	3	■	4	8
4	9	9	7	5
■	0	■	1	2

Bottom-right grid:

2	1	8	4	6
3	4	■	4	8
8	■	1	3	2