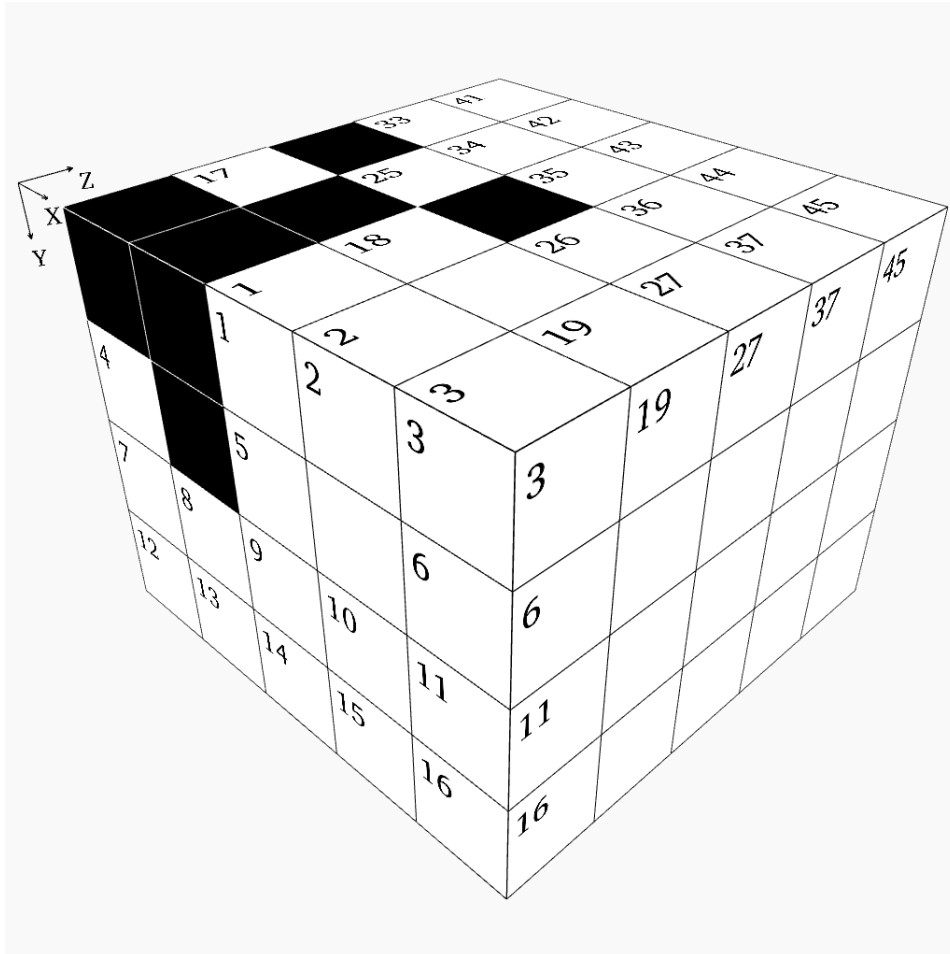# Box - Hard Puzzle #36

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 Mean of Y3 and X5
5 Seventeen times a prime number
7 Consecutive digits unordered
12 Four thousand seven hundred twenty-four more than X22
18 Y33 plus Z25
20 Fifteen times Z35
22 Mean of Z7 and Y4
24 Eight hundred ninety-three less than Z3
26 Same as Y26
28 Mean of Z15 and X31
31 Fourteen times a prime number
32 One thousand eight hundred fifty-six less than X46
33 Z8 plus half of Z5
38 A prime number
39 X48 divided by X26
40 Rearranged digits of Y29
41 Nineteen times a prime number
46 Twice a prime number
47 A prime number
48 First two digits are the same as first two digits of Y29

Y Direction

1 A prime number
2 X48 plus Z13
3 Y4 plus Z30
4 Seven times a prime number
8 Mean of Z1 and Y23
17 Y37 minus Y3
18 A prime number
19 Twice a prime number
21 Y44 plus Y34
23 X39 minus Z35
25 Three times a prime number
26 X48 divided by X39
27 Z16 minus Y45
28 Mean of X18 and Y8
29 X24 divided by Y23
33 Mean of X40 and Z33
34 Mean of X47 and Z35
35 Y29 divided by twelve
36 Mean of Y2 and X1
37 One hundred fifty-eight more than Y45
41 A prime number
42 A palindrome
43 X5 plus Y41
44 Twice the result of Y19 minus Y42
45 Twenty-two times a prime number

Z Direction

1 Two-thirds of Z13
2 Seven thousand thirty-six more than Z7
3 Sixty-one times a prime number
4 Twice a prime number
5 Fifty-four times a prime number
6 Last two digits are the same as Y26
7 Thirty-three times a prime number
8 X31 minus Y44
9 X24 divided by thirty-two
10 Mean of Y34 and Y44
11 Twenty-three times a prime number
12 Mean of Z13 and X18
13 Z25 minus Y35
14 Y1 plus half of Z4
15 First two digits are the same as first two digits of X40
16 Eight times a prime number
21 Y25 plus half of Y35
25 Five times a prime number
30 Six times a prime number
33 Z10 minus Y35
35 Mean of Y35 and Z33

Solution:

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

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

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

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

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