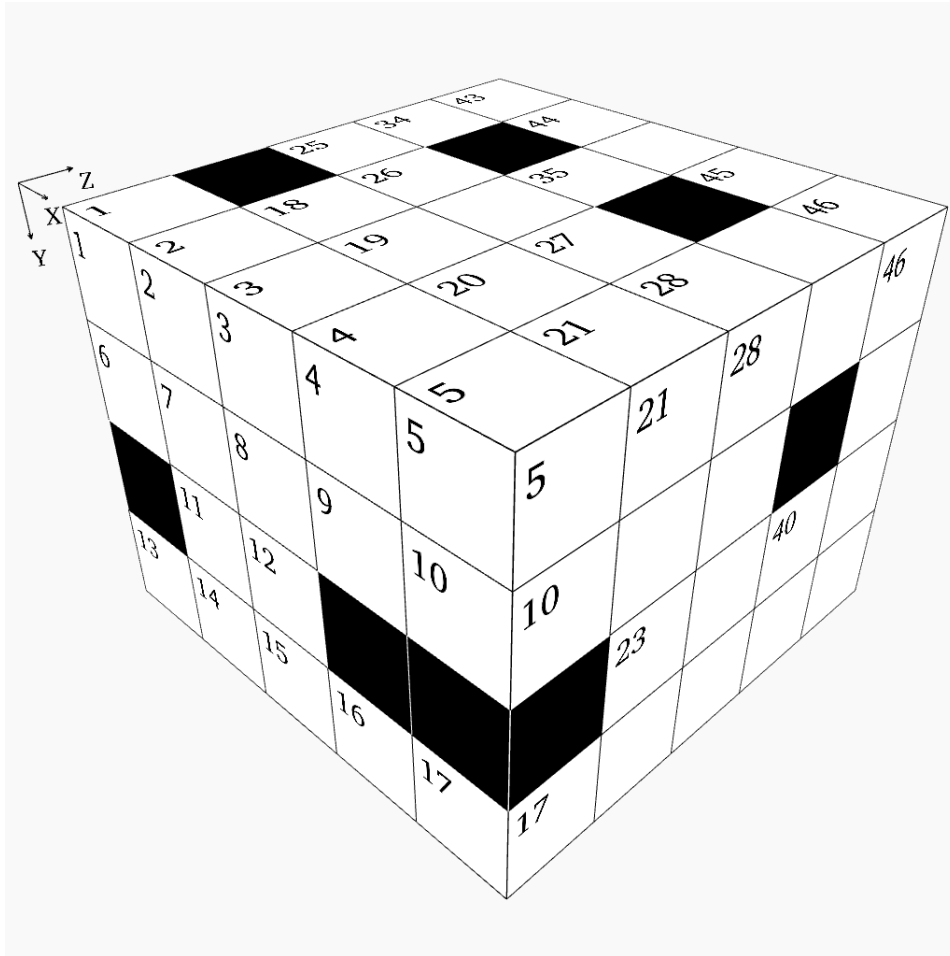# Box - Challenging Puzzle #30

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 Nine times a prime number
6 Consecutive digits unordered
11 X29 plus Y48
13 Mean of Z13 and Y28
18 Z12 minus X22
22 A prime number
24 Twice a prime number
25 Fifty-five times a prime number
29 X47 plus Y40
30 Y18 times X47
33 Three times a prime number
36 Four times a prime number
39 Seven thousand two hundred eighty-nine more than Z9
41 X11 minus Y49
42 Mean of Y49 and Y48
43 One thousand nine hundred seventy-seven more than Z14
47 Four-fifths of Y49
48 Mean of X43 and Y38
50 Eleven thousand six hundred three more than Z7

Y Direction

1 Y40 plus Z6
2 Twenty-seven times a prime number
3 Y19 plus Z25
4 Mean of X42 and Y5
5 Y1 minus X42
18 Z8 plus X47
19 Sixteen times a prime number
20 X41 reversed
21 Nine hundred eighty-five more than Y27
22 Seven times a prime number
26 Nineteen times a prime number
27 Eighty-one times a prime number
28 A prime number
31 Mean of Y1 and X47
34 Eight times a prime number
35 Mean of Y22 and Y45
37 Mean of Y35 and Z30
38 Y37 plus Y31
40 Y20 minus X42
44 Ninety-nine times Z39
45 Five times a prime number
46 A prime number
48 Mean of X41 and Y40
49 A square

Z Direction

2 Three-fifths of Y45
3 Mean of X1 and X39
4 Z32 minus X47
5 X50 plus X41
6 Consecutive digits in descending order
7 X24 minus Y21
8 Mean of X41 and Z39
9 Twice a prime number
10 Y22 plus half of X11
12 Thirteen thousand two hundred thirty-seven less than Z3
13 Seventeen times a prime number
14 X36 plus Y27
15 Seven times a prime number
16 Seventy-seven times a square
17 A prime number
23 Y26 plus half of Z30
25 Three times a prime number
30 Ten times a prime number
32 Twice a prime number
39 Y31 plus Y20

Solution:

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

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