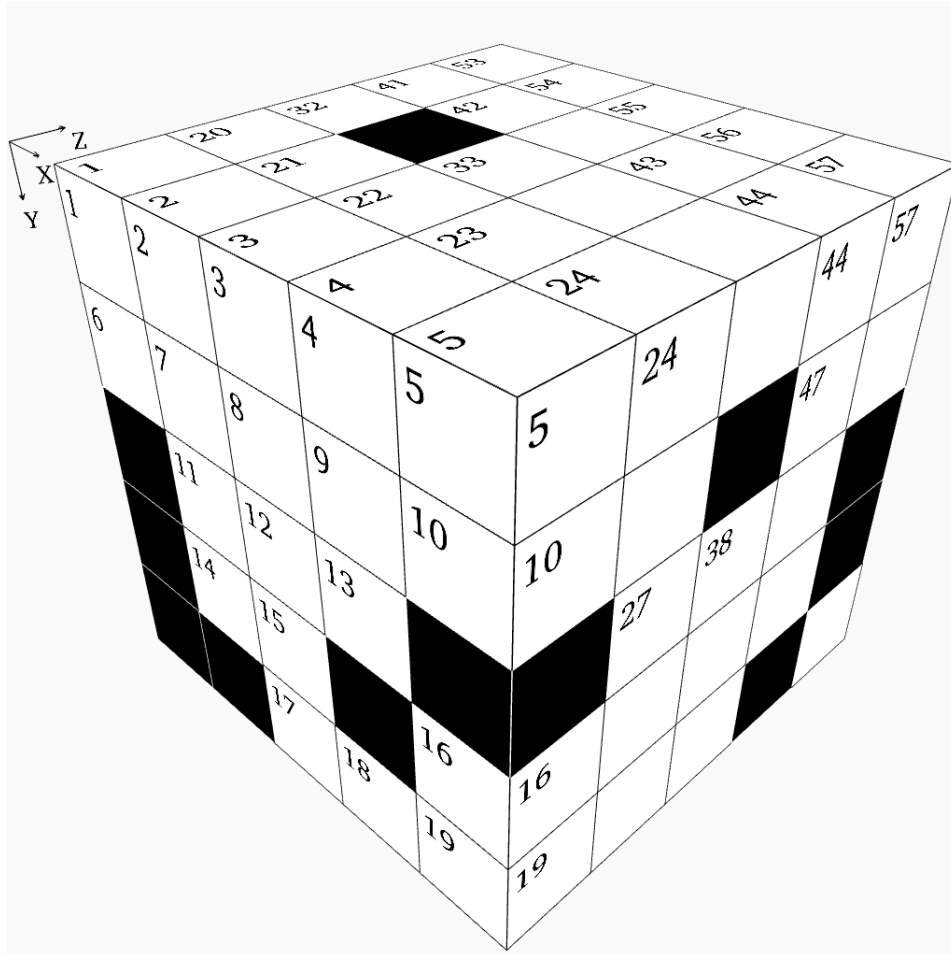# Cube - Challenging Puzzle #43

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:

X Direction

1 Twelve times a prime number
6 Thirteen thousand one hundred ninety-one less than X36
11 Mean of Z46 and X39
14 Mean of Y57 and X46
17 Y42 minus Y38
20 X17 times Z14
25 A prime number
26 Thirty-nine times a prime number
28 Nineteen times a prime number
31 Z12 minus X40
33 Forty-three times Y57
34 X39 minus Z42
36 Twice a prime number
39 Four times a prime number
40 Five times Z42
41 A prime number
45 Y38 divided by Z47
46 Y5 plus Y16
48 X62 plus Y56
49 Z9 divided by five
50 Fifty-three times a prime number
53 Nineteen times a prime number
58 Twice a prime number
59 Fifty-eight times Z51
60 Forty-six times a prime number
62 Y16 plus Z14
63 Y55 divided by Z9

Y Direction

1 X48 minus Y16
2 X25 plus X33
3 Two thousand seven hundred seventy-four more than Z15
4 Z34 minus X49
5 Y61 plus X62
16 Z3 divided by Y22
21 Twice a square
22 Four times a prime number
23 Nine times a prime number
24 Four thousand six hundred forty-eight less than Y32
26 Nineteen times a prime number
32 Thirty-five times a prime number
33 Fifty-seven times a prime number
35 X45 plus X49
37 Y3 divided by X14
38 Twenty times a prime number
41 Y23 minus Y54
42 Mean of Y61 and Y55
43 Eight hundred thirty-eight more than Y33
44 A prime number
52 Z34 divided by four
53 X41 minus Z28
54 Thirteen times a prime number
55 Forty times X14
56 Twice the result of Z46 minus Y52
57 X39 minus X34
61 Sum of digits in Y26

Z Direction

1 Sixteen thousand four hundred twenty-one less than X36
2 X40 plus X63
3 Forty-four times a prime number
4 Y24 minus half of Z27
5 Fifty-one times a prime number
7 Twice the result of Y32 minus Z13
8 Fifty times X45
9 Y57 plus Y52
10 Mean of X46 and Y61
11 Mean of X50 and Y5
12 X17 divided by three
13 Rearranged digits of Z28
14 Z47 minus X45
15 Six hundred fifty-nine more than X50
16 Rearranged digits of Z29
18 Z29 minus X33
19 Z51 times X45
26 Y43 plus Y1
27 Y56 plus X39
28 Twenty-one times a prime number
29 Thirty-two times a prime number
30 Twice a prime number
34 Thirteen times X63
42 Z34 divided by twenty-six
46 Y57 plus Z2
47 Z9 minus Y35
51 Mean of Y57 and Y61

Solution:

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

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

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

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

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