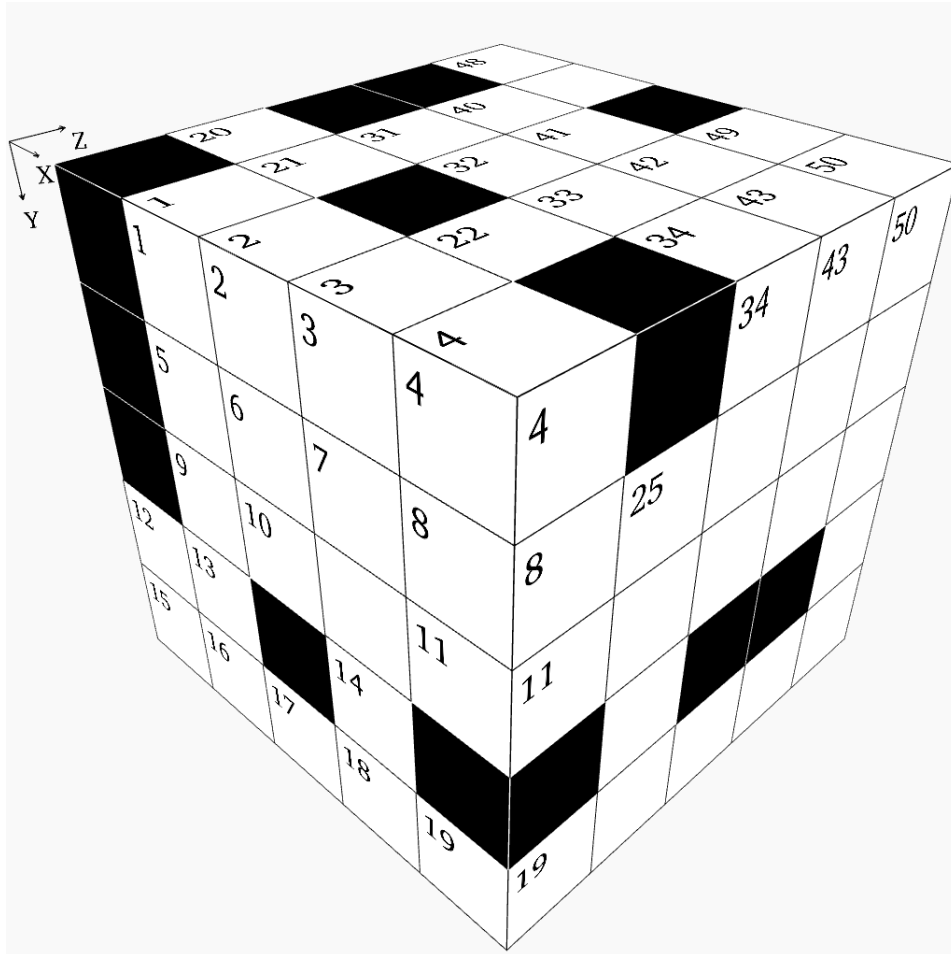# Cube - Hard Puzzle #14

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 Twice the result of Z18 plus Z26
5 Six hundred forty more than Z6
9 One thousand five hundred ninety-two less than X5
12 Z32 minus Y54
15 A prime number
20 A square
23 Rearranged digits of Y1
26 Ten times a prime number
27 A prime number
30 Six thousand eight hundred eighty-seven more than Z11
31 A prime number
35 Mean of Z19 and X31
36 X55 times Z12
38 Y2 plus Y49
39 Seven times a prime number
40 Nine hundred ninety-eight more than Y25
44 Seventeen times a prime number
45 First two digits are the same as Y53
46 Mean of X48 and Y22
47 One thousand five hundred eleven more than Y50
48 Y53 minus Y54
49 Y53 minus Y48
51 Mean of Z34 and X48
52 A square
55 Y2 plus X46

Y Direction

1 Mean of Z8 and Z23
2 Y24 minus half of Z13
3 Y34 times Z34
4 Y54 times Z46
12 Mean of X48 and Y54
20 Seven thousand sixty-one less than Y31
21 Twice the result of Y20 minus X20
22 X51 divided by five
24 Thirty times a prime number
25 Fourteen times a prime number
29 Y12 plus Y48
31 Rearranged digits of Y33
32 Thirteen thousand two hundred forty more than X27
33 Ten thousand two hundred eighty-one less than Z8
34 All digits are the same
35 Mean of X48 and Y29
40 Its digits total X49
41 Four times a prime number
42 A prime number
43 Five times a prime number
44 A prime number
48 A square
49 Twice a prime number
50 A prime number
53 Twice Y12
54 Sum of digits in Z5

Z Direction

1 A prime number
3 A prime number
5 Nine times a prime number
6 A prime number
7 Z17 minus Z37
8 Seventeen thousand one hundred fifty-seven more than X30
9 Twice a prime number
10 Half of X40, then subtract Y53
11 A prime number
12 Mean of Y22 and Y54
13 A palindrome
14 Ten times a prime number
15 X15 plus Z28
16 Z11 plus Z14
17 Eleven thousand five hundred sixty-nine more than Y21
18 Z37 plus Z26
19 A prime number
23 Sixty-six less than X31
26 Five times a prime number
28 All digits are the same
32 Y12 plus Z12
34 Seven times Z12
37 Thirty-two times X48
46 A square

Solution:

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

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