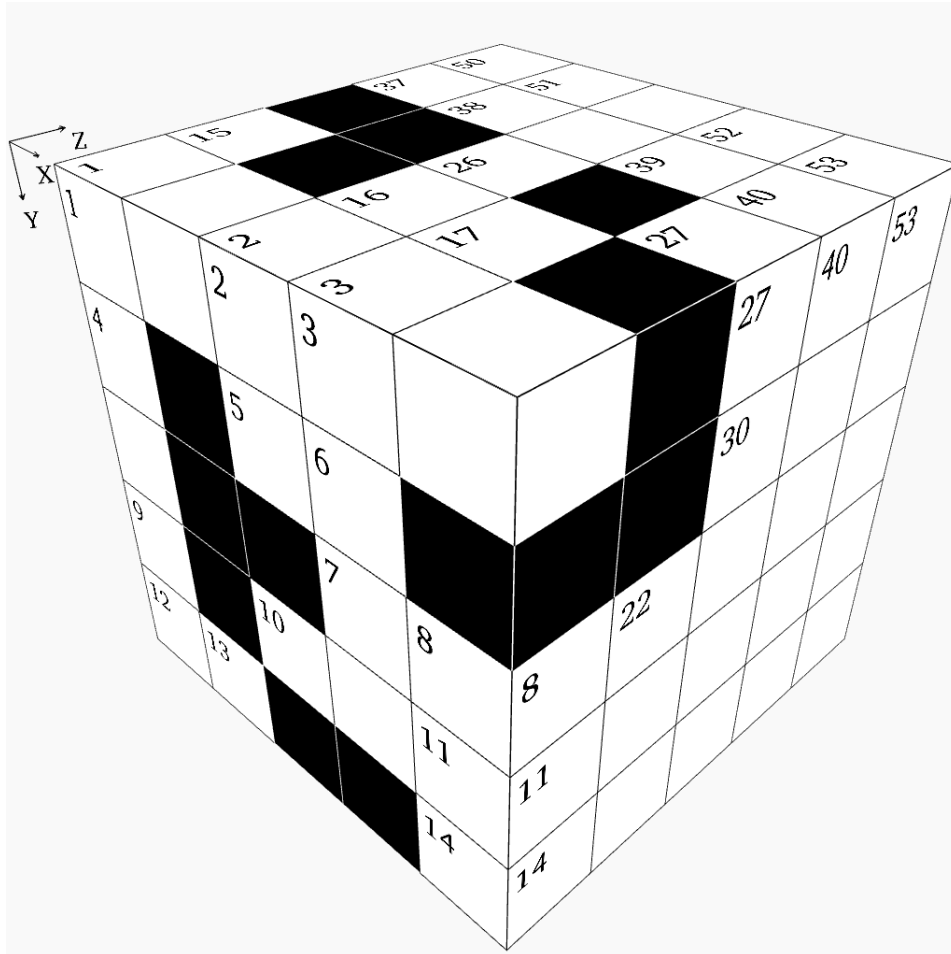# Cube - Challenging Puzzle #3

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 Thirteen thousand seven less than X58
5 Y34 minus X41
7 Y15 plus X42
10 Twice a square
12 Z30 minus Z24
16 A square
18 Twenty-two times a prime number
20 Fourteen times a prime number
23 A square
25 X32 minus Y17
28 Eight thousand five hundred sixty-one less than Z14
32 Z13 divided by Y34
33 Seventy-four times X42
35 X33 minus Y2
37 Five hundred twenty-eight more than Y37
41 Z5 divided by fifty-six
42 X46 divided by X12
43 A palindrome
46 X42 times X54
48 Nine hundred ninety-two more than Y26
50 Three thousand six hundred eighty-two less than Y51
54 Mean of Z1 and X41
55 Z24 reversed
56 Two thousand five hundred eighty less than Z2
58 Twenty-four times a prime number
59 Twelve thousand one hundred thirty-five more than X43

Y Direction

1 A prime number
2 Y34 minus Z1
3 X37 divided by X25
8 X1 minus half of Y37
15 Mean of X55 and Z47
16 Twice the result of Z19 plus Y15
17 Y57 minus X5
19 Five times a prime number
22 Twenty-six times a prime number
26 A prime number
27 Two thousand four hundred eighty-four more than Y16
28 Z6 minus Y27
29 Z39 plus Y2
34 Mean of X16 and X55
37 Thirteen thousand seven hundred five more than X50
38 X46 minus Z30
39 Five thousand one hundred thirty-seven more than X56
40 A prime number
45 Y38 minus Z36
50 X43 plus half of Y22
51 Y26 minus X18
52 Mean of Z10 and X16
53 Mean of X50 and X54
57 Mean of Y22 and X25

Z Direction

1 Z30 minus X16
2 Six thousand one hundred sixty-three less than Y1
3 X55 minus Z1
4 Consecutive digits unordered
5 A square
6 Twenty-six times a prime number
7 Seven thousand six hundred fifty-three more than Y26
8 One thousand eight hundred fifty-seven more than Z4
9 Five times a prime number
10 A prime number
11 X48 minus X35
13 One thousand one hundred sixty-three less than Z6
14 Sixteen times a prime number
19 Three times a prime number
21 Y3 minus X16
24 Z30 minus X54
27 Mean of Y57 and X7
30 Mean of Z37 and Y17
31 A prime number
35 Seventy-four times X42
36 X41 plus Z24
37 X25 plus Z47
38 Twice X41
39 X55 minus Z1
44 A square
47 X55 minus X41
49 X55 minus X42

Solution:

Top grid:

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

Bottom grid:

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