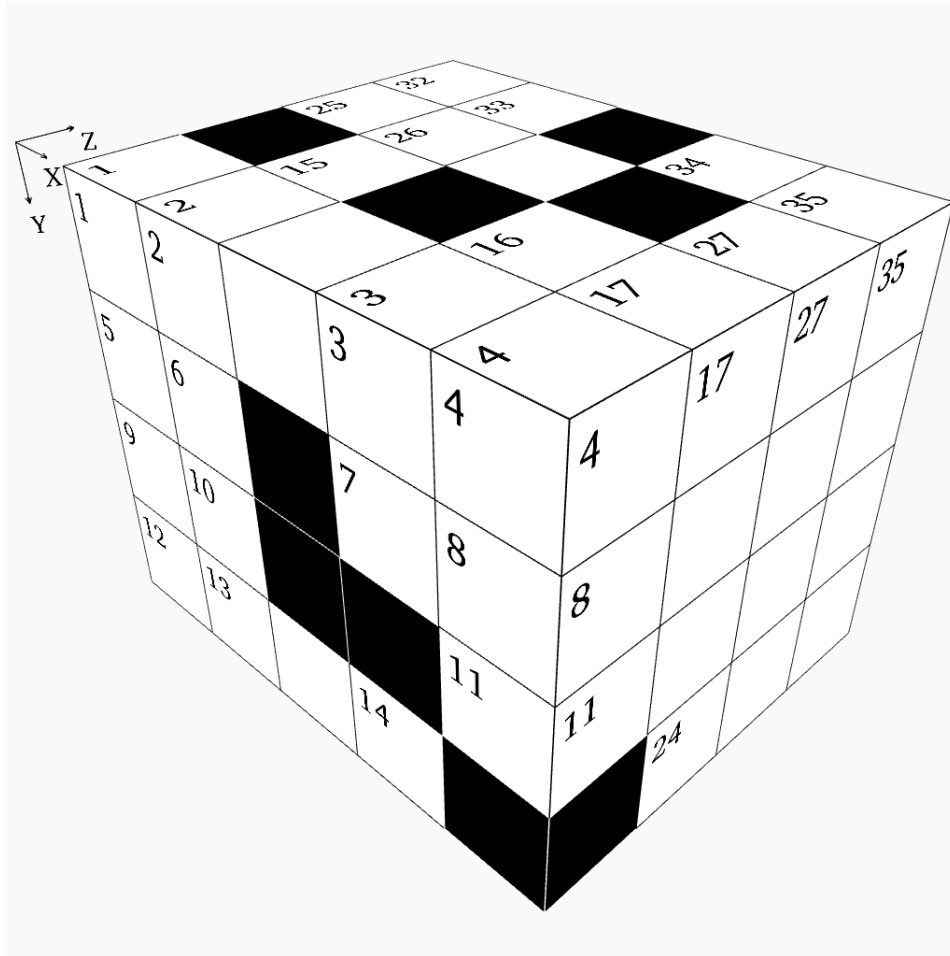# Box - Challenging Puzzle #11

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 First two digits are the same as X7
5 Z3 plus Z10
7 Y27 divided by Z25
9 Mean of X16 and Y26
12 A prime number
16 X23 minus Z31
18 Sixty-one times a prime number
20 Fifteen thousand nine hundred nineteen less than X30
22 Mean of Y26 and X23
23 Mean of Y33 and Y37
25 Thirty-nine times a prime number
28 Half of Z5, then subtract Z4
29 Twice the result of Y37 minus Y3
30 Thirteen thousand seven hundred thirty-one less than X1
32 Mean of Y33 and Z9
34 A square
36 Four thousand nine hundred seventy-four less than X1
38 Mean of Y4 and Z9
39 X12 minus X25

Y Direction

1 A prime number
2 Z11 minus Y35
3 A prime number
4 Twenty-six times Y33
15 Ninety times a prime number
16 Half of Y15, then subtract Z12
17 Fifty-three times a prime number
18 X38 plus X16
19 Sum of digits in X18
25 Mean of Y33 and Z24
26 A square
27 X7 times Z3
29 Z3 plus Z10
32 Twice the result of Z8 plus Z14
33 A square
34 Seven times a prime number
35 Mean of X7 and Y1
37 X16 plus X7

Z Direction

2 Mean of Y19 and Y32
3 Same as Z25
4 Fifty-five times a prime number
5 Twenty-eight times a prime number
6 Thirty-four times a square
7 Z10 plus X23
8 Forty times a prime number
9 Mean of Y33 and Y25
10 X38 divided by eleven
11 Two hundred two less than Y27
12 Twice a prime number
13 Y34 times X34
14 First two digits are the same as first two digits of X30
21 A prime number
24 Z6 divided by Z31
25 Y29 minus Z10
31 A square

Solution:

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

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