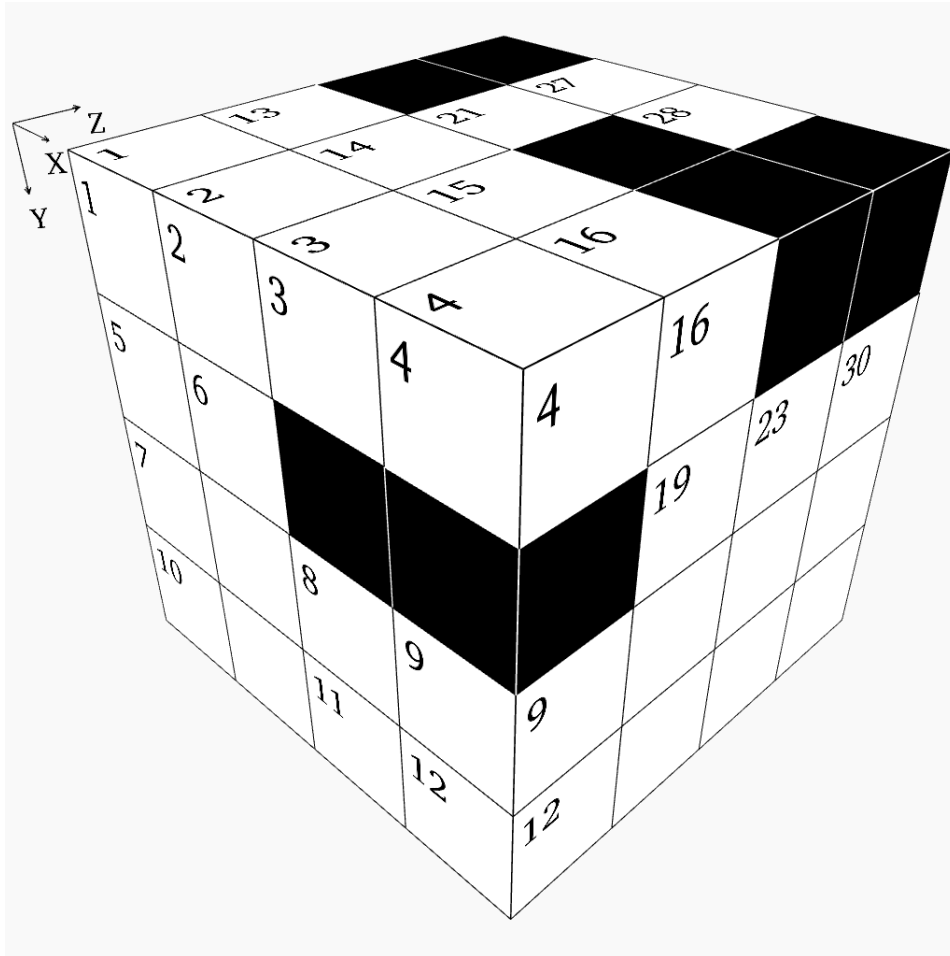# Cube - Challenging Puzzle #34

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:

1	2	3	4		13	14	15	16		■	21	■	■		■	27	28	■

(grid of three X-Y planes with numbered and black cells)

X Direction

1 Twenty-six times a prime number
5 X1 minus half of Z12
7 Four times a prime number
10 Z4 times X26
13 First two digits are the same as X5
17 Ninety-nine times X5
20 Mean of Y14 and Z3
22 Sixty-five times X5
24 Twice the result of Z6 minus Z19
26 Z4 minus X27
27 All digits are the same
29 Z18 plus Y13
31 Twenty-nine times Z3
32 Ten times a prime number

Y Direction

1 Z1 plus half of Z9
2 Rearranged digits of Z10
8 X10 divided by Z4
9 Z25 minus Y8
13 X17 divided by ninety-three
14 Y30 divided by seventy-six
15 Z4 minus X20
16 Y27 minus X31
21 Twelve times a prime number
22 Mean of X26 and Y23
23 Rearranged digits of Z19
27 A prime number
28 Nine times a prime number
30 Forty times X26

Z Direction

1 X29 minus Z18
2 Y2 minus X20
3 X22 minus Z10
4 X27 plus Y8
5 Y13 plus Y22
6 Twice a prime number
9 Four times a prime number
10 A palindrome
11 Z2 minus Z4
12 One thousand three hundred twenty-one less than Z11
18 X32 minus X31
19 Twenty-nine times Y13
25 X26 plus Y9

Solution:

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