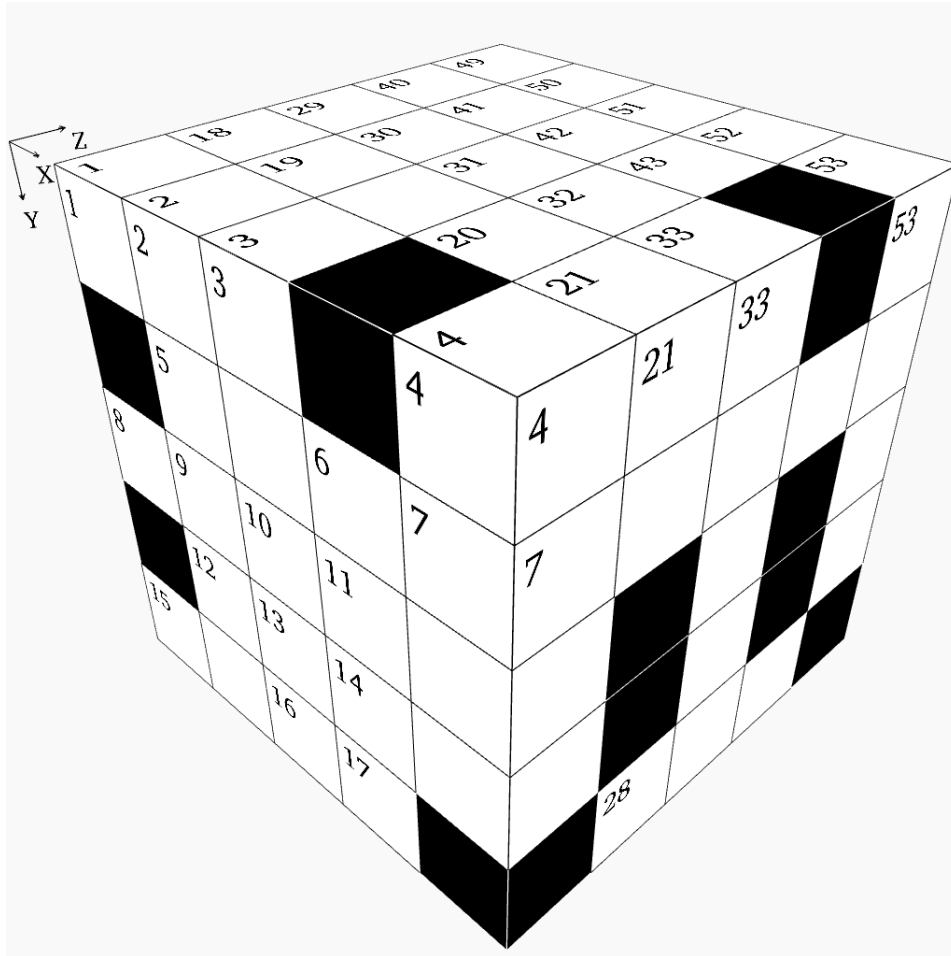


Cube - Hard Puzzle #39



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	18	19	20	21	29	30	31	32	33
5	6	7	22	23	34	35						
8	9	10	11	24	25	28	36	38				
12	13	14	26	27	28	37						
15	16	17	27	28	39							

40	41	42	43	49	50	51	52	53
44				54				
45				55				
46		47						
	48				56			

X Direction

- 1 A prime number
- 5 X_{46} minus X_{56}
- 8 Mean of Z_7 and Y_{43}
- 12 One hundred four more than X_5
- 15 X_{24} plus Y_{32}
- 18 Thirty-one times a prime number
- 22 Y_{21} plus X_{56}
- 23 Twice a prime number
- 24 X_{15} minus Y_{41}
- 26 Y_{51} minus Y_{47}
- 27 Y_{38} plus Y_{52}
- 29 One thousand five hundred eighty-six less than Y_{29}
- 34 Three thousand three hundred eighty-three less than Y_{33}
- 36 Forty times a prime number
- 37 Twenty-eight times a prime number
- 39 Eight hundred seventy-seven less than X_{18}
- 40 Y_6 plus half of Z_{14}
- 44 Twenty thousand five hundred seventy-one more than Y_2
- 46 Four-fifths of Z_{20}
- 48 A square
- 49 Mean of X_{34} and X_1
- 54 A palindrome
- 55 Eighty-nine times a prime number
- 56 Twice a prime number

Y Direction

- 2 Eleven thousand five hundred ninety-one more than X_{55}
- 3 Y_4 plus X_{27}
- 4 Four times a prime number
- 6 One thousand four hundred fifty more than X_{15}
- 18 X_{27} minus Y_{49}
- 19 Z_{28} plus Z_{37}
- 20 Z_{12} minus Y_{52}
- 21 Half of X_{39} , then subtract Y_3
- 25 Five times a prime number
- 29 Twice a prime number
- 30 Mean of X_{29} and Y_{33}
- 31 Z_3 minus Y_{41}
- 32 Same as Y_{41}
- 33 Twelve thousand six hundred thirty-five more than X_8
- 38 Y_{47} minus Y_{21}
- 40 X_{48} minus Z_{11}
- 41 Ten more than Z_{45}
- 42 Y_{49} minus X_{26}
- 43 Twice a prime number
- 46 X_{26} minus X_{48}
- 47 Z_{13} divided by thirty-three
- 49 A square
- 50 A square
- 51 Eight times a prime number
- 52 Z_{13} minus X_{27}
- 53 Half of X_5 , then subtract Y_{18}

Z Direction

- 1 Twice a prime number
- 2 Eighty-nine times a prime number
- 3 Y_{31} plus Y_{32}
- 4 Y_{19} minus half of Y_{51}
- 5 One thousand eight hundred seventy-five less than Z_{12}
- 6 Twice the result of Y_{29} minus Z_{22}
- 7 Sixty less than X_{37}
- 8 Z_{16} minus half of Z_5
- 9 Z_6 minus Z_{17}
- 10 Twenty-eight times Y_{38}
- 11 A square
- 12 Last two digits are the same as last two digits of X_{15}
- 13 Rearranged digits of Y_{19}
- 14 Thirty-two times a prime number
- 15 Half of Y_4 , then subtract Y_{42}
- 16 A prime number
- 17 Twelve times a prime number
- 20 Last two digits are the same as Y_{38}
- 22 Six times a prime number
- 28 Z_{13} minus X_{56}
- 35 A prime number
- 37 A prime number
- 45 Y_{52} minus Z_{10}

Solution:

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

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