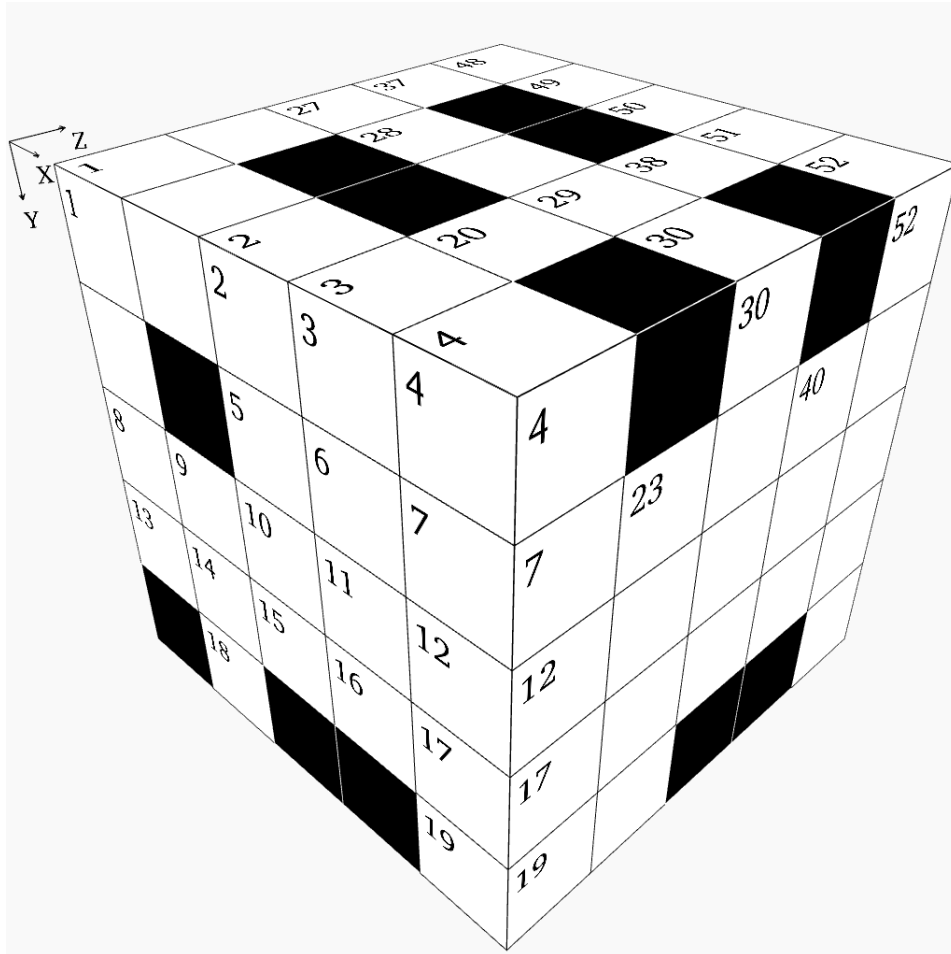


## Cube - Challenging Puzzle #19



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

37			38		48	49	50	51	52
		39		40		53			
41	42	43			54				
44			45				55		
		46	47					56	

### X Direction

- 1 Z39 times Y40
- 5 Seventy-six times Z19
- 8 Twenty-one thousand eight hundred seventy-eight less than X44
- 13 Z16 minus Z31
- 21 First two digits are the same as X56
- 24 Eleven thousand one hundred fifteen less than Y52
- 25 Eight times a prime number
- 26 A prime number
- 27 Fifty-four times a prime number
- 31 X34 minus Z47
- 32 Mean of X56 and X34
- 33 X31 plus Z19
- 34 Mean of Y42 and Z43
- 35 A prime number
- 36 Y45 minus Y42
- 39 Thirty-four times a prime number
- 41 X24 minus Z1
- 44 Three times a prime number
- 46 Y42 plus X36
- 48 Forty-one times a prime number
- 53 Mean of Y39 and X31
- 54 Eighteen times a prime number
- 55 Thirteen times a prime number
- 56 Z43 minus X36

### Y Direction

- 1 Three hundred twenty less than Y3
- 2 Eleven times a prime number
- 3 Twenty-five more than Y21
- 4 Seven thousand five hundred fifty-two less than Y52
- 9 Four times a prime number
- 20 Twice the result of X25 minus X48
- 21 A prime number
- 22 Twice a prime number
- 23 A prime number
- 24 X54 minus half of Y51
- 27 Consecutive digits in ascending order
- 28 Five times a prime number
- 29 A palindrome
- 30 Seven times a prime number
- 37 Y9 plus half of X27
- 38 Z19 plus X34
- 39 First two digits are the same as first two digits of Z11
- 40 A prime number
- 42 Twice the result of X21 minus Y21
- 45 Same as X46
- 49 Fifty-nine times Z19
- 50 Mean of Y2 and X55
- 51 Eighty-six times a prime number
- 52 Fourteen thousand twenty-seven more than X1
- 54 Twice the result of Y52 minus X8

### Z Direction

- 1 Three times a prime number
- 3 Y4 plus half of Y1
- 5 Z39 minus X36
- 6 Eighty-two times a square
- 7 Eleven thousand one hundred twenty-nine less than Z8
- 8 Thirteen thousand three hundred fifteen more than X24
- 9 Three thousand four hundred twenty-five more than X54
- 10 A prime number
- 11 Z47 times Z21
- 12 Twice the result of Z6 plus Y29
- 13 X33 reversed
- 14 X35 plus X32
- 15 A palindrome
- 16 Four thousand nine hundred seventy-five more than Y37
- 17 A prime number
- 18 Twenty-five times Z19
- 19 Sum of digits in Y22
- 21 Mean of X46 and X31
- 26 Twice a prime number
- 31 X32 minus X36
- 39 Same as Z44
- 43 X33 plus Z47
- 44 X1 divided by Y40
- 47 Half of X33, then subtract X36

**Solution:**

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

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