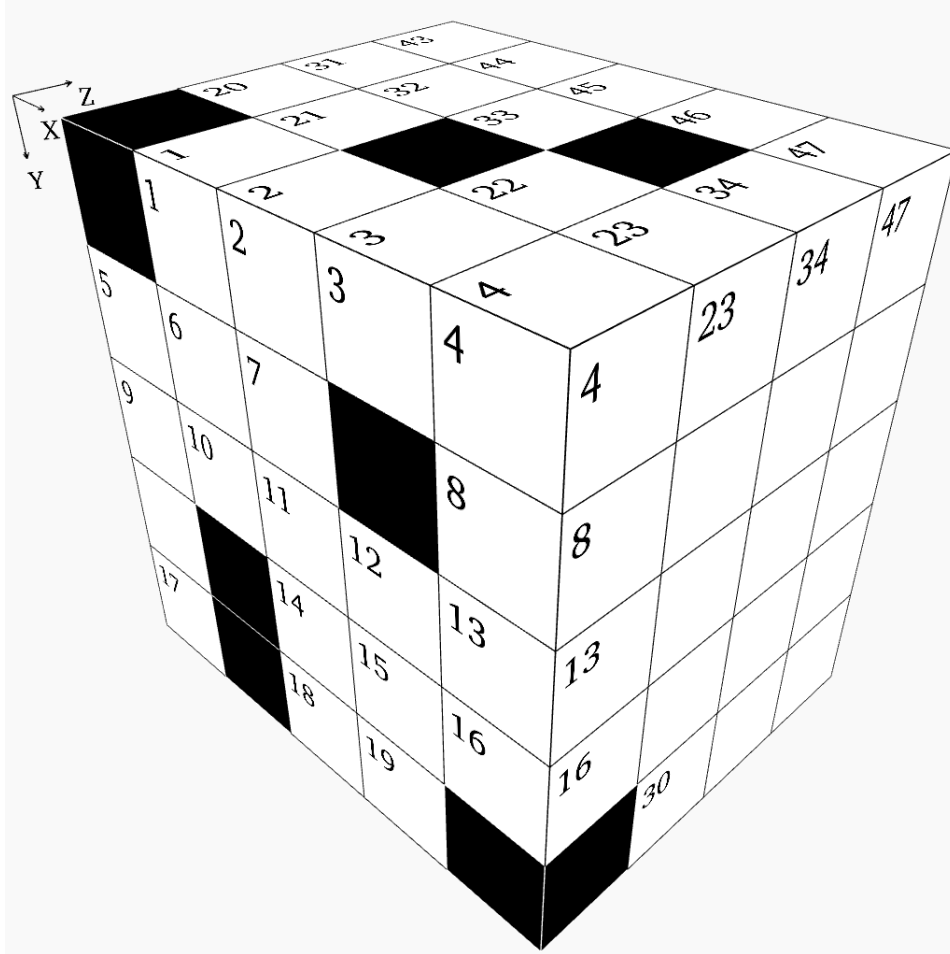# Box - Hard Puzzle #44



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** A prime number
**5** Mean of Z30 and Y12
**9** A palindrome
**14** Twice the result of Y31 minus Y23
**18** Z33 plus X35
**20** Z42 plus Z7
**22** Z39 plus Z42
**24** Eight times a prime number
**27** A prime number
**28** Thirty-eight times a prime number
**29** Z12 plus Z33
**31** Z33 plus Y38
**35** Y5 minus half of Y21
**36** Y45 minus Y34
**37** Three times a prime number
**40** Seven times a prime number
**41** Fifty-one times a prime number
**43** Z14 times Z39
**48** Eleven times a prime number
**49** Twenty-one times Z7
**50** A prime number
**52** A prime number

## Y Direction

**1** Mean of Y44 and Z3
**2** Thirteen times a prime number
**4** Z12 plus Z4
**5** X43 divided by thirty-three
**12** X31 minus Y51
**21** Twenty-eight times a prime number
**22** Mean of Y47 and Z42
**23** Four thousand two hundred twenty-one more than Y22
**25** Mean of Y51 and Z17
**31** Four times a prime number
**32** A square
**34** Y45 minus Z35
**36** One thousand six hundred forty-two less than Z13
**38** Mean of X5 and Z12
**43** A prime number
**44** Z20 plus Z39
**45** Twenty-two thousand one hundred ninety-seven more than X37
**46** A square
**47** Seventy-three times a prime number
**51** X31 minus Y1

## Z Direction

**1** Thirteen times a square
**3** Z7 reversed
**4** Fourteen times a prime number
**6** Four times a prime number
**7** Z3 reversed
**8** Seven times a prime number
**9** Z17 plus Z3
**10** Ten times a prime number
**11** Mean of Z8 and X20
**12** Z7 plus half of Y44
**13** Twenty-six times a prime number
**14** X43 divided by Z42
**15** X48 minus half of Z18
**16** A prime number
**17** A prime number
**18** Two hundred ninety-four less than Z6
**19** Half of X24, then subtract X1
**20** Mean of Z26 and X40
**26** X29 minus X35
**30** Three times a prime number
**33** A prime number
**35** Same as X36
**39** X20 minus Z7
**42** Y44 minus Z20

**Solution:**

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ■ | 1 | 4 | 4 | 7 | 3 | 5 | ■ | 2 | 2 | 2 | 7 | 2 | ■ | 9 |
| 2 | 9 | 2 | ■ | 4 | ■ | 5 | 4 | 1 | 6 | 6 | 2 | ■ | 6 | 1 |
| 8 | 1 | 2 | 1 | 8 | 6 | 7 | 3 | 9 | 1 | 6 | 9 | 2 | 4 | 3 |
| 4 | ■ | 8 | 9 | 8 | ■ | 2 | 5 | 4 | 6 | 1 | ■ | 4 | 9 | 7 |
| 8 | ■ | 9 | 1 | ■ | 6 | ■ | 2 | 2 | 3 | 2 | 1 | 3 | 6 | 9 |

| | | | | |
|---|---|---|---|---|
| 9 | 3 | 9 | 8 | 4 |
| 1 | 4 | 1 | 1 | 3 |
| 5 | 0 | 4 | ■ | 8 |
| 1 | ■ | 4 | 8 | 7 |
| 3 | 1 | 0 | 1 | 3 |