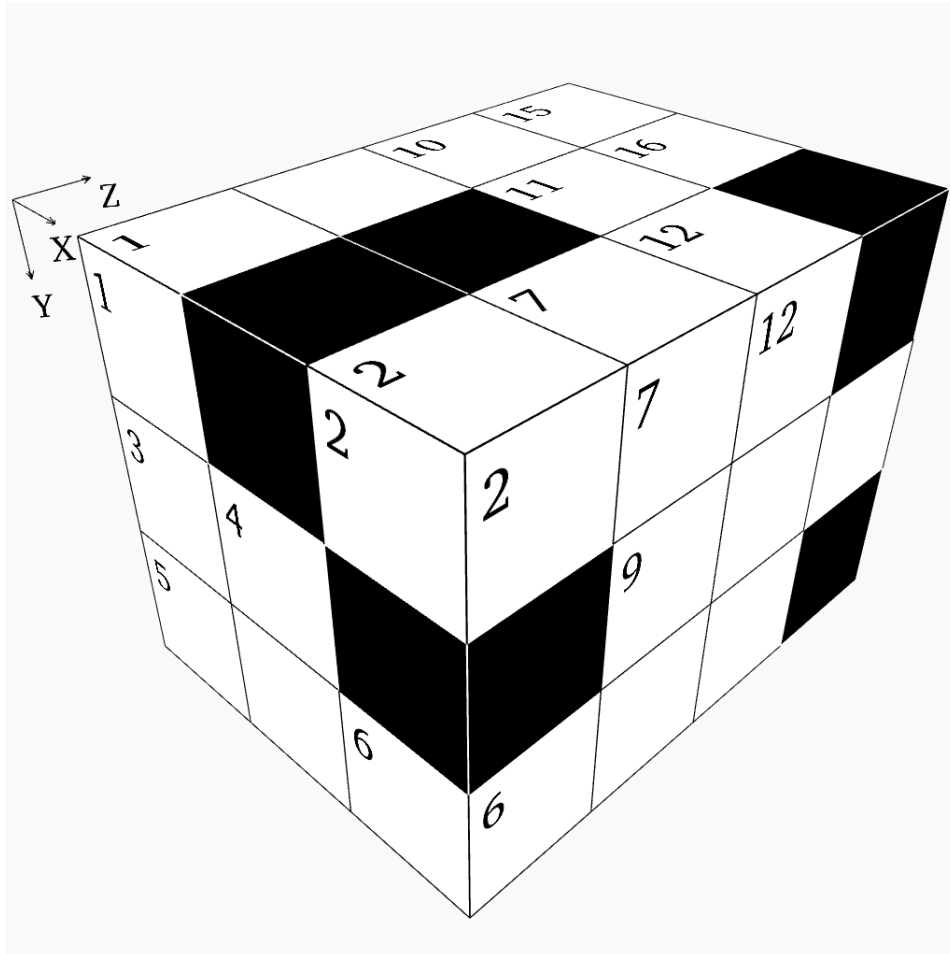# Box - Intermediate Puzzle #12



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:

|  |  |  |
|---|---|---|
| 1 | ■ | 2 |
| 3 | 4 | ■ |
| 5 | | 6 |

|  |  |  |
|---|---|---|
| | ■ | 7 |
| ■ | 8 | 9 |
| | ■ | |

|  |  |  |
|---|---|---|
| 10 | 11 | 12 |
| 13 | | |
| ■ | 14 | |

|  |  |  |
|---|---|---|
| 15 | 16 | ■ |
| 17 | | |
| 18 | | ■ |

## X Direction

**3** X17 divided by Y4
**5** Z9 minus X8
**8** Z5 minus Z13
**10** Seven times Z14
**13** Z2 minus X14
**14** Mean of X3 and Z14
**15** All digits are the same
**17** Six times a square
**18** A prime number

## Y Direction

**1** Its digits total Y10
**4** Z5 minus X18
**7** X15 plus X17
**10** X3 reversed
**11** X13 minus X15
**12** Five more than Z9
**15** X5 plus Z5
**16** A prime number

## Z Direction

**1** A prime number
**2** A prime number
**4** Mean of Z1 and Z2
**5** A square
**6** Mean of Y16 and Z5
**9** Twice the result of Y7 plus X8
**11** Y1 divided by Y10
**13** Y11 minus X15
**14** Y15 minus Y12

**Solution:**

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