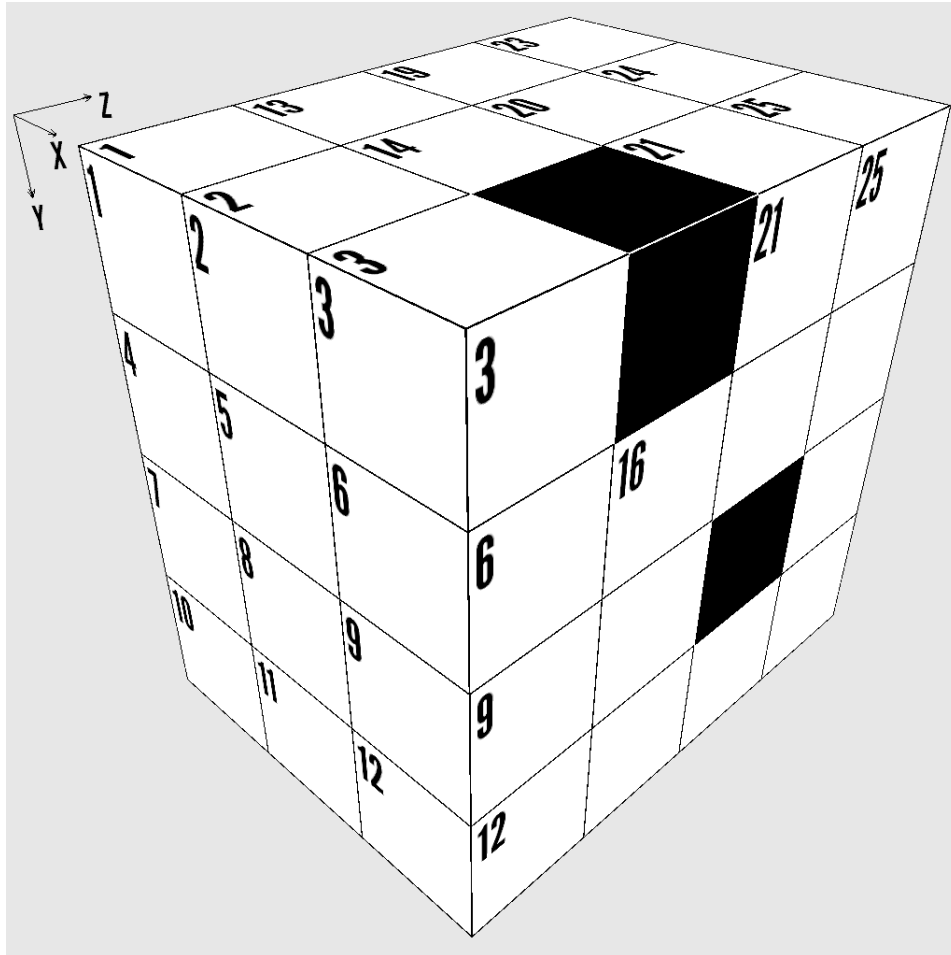


Difficulty: ★★☆☆☆

## 3D Math Puzzle - 3x4x4 Box 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" read from:
  - a. X Direction: Left to right
  - b. Y Direction: Top to bottom
  - c. Z Direction: Front to back
3. There is one unique solution which satisfies all the clues given below.
4. 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  | 13 | 14 |    | 19 | 20 | 21 | 23 | 24 | 25 |
| 4  | 5  | 6  | 15 |    | 16 | 22 |    |    | 26 |    |    |
| 7  | 8  | 9  | 17 |    |    |    |    |    | 27 |    |    |
| 10 | 11 | 12 | 18 |    |    |    |    |    | 28 |    |    |

**Clues:**

**X Direction**

- 1 Sixty-four times Z8
- 4 Last two digits are the same as last two digits of Y16
- 7 Forty-four times Z8
- 10 Last two digits are the same as last two digits of Z5
- 13 Digits are in consecutive order
- 15 Eleven times a prime number
- 17 Last two digits are the same as last two digits of Y23
- 18  $X_{13} + X_{17}$
- 19 Average of Z4 and Z7
- 22 Twice a prime number
- 23 First two digits are the same as X13
- 26  $Y_{20} + Y_{21}$
- 27 Last two digits are the same as last two digits of Z6
- 28 First two digits are the same as first two digits of Z5

**Y Direction**

- 1 Is a prime number
- 2 Is a prime number
- 3 Last two digits are the same as last two digits of Y1
- 13 First two digits are the same as first two digits of Y23
- 14 Five times a prime number
- 16 Twice a prime number
- 19 Is a prime number
- 20  $X_4 - Y_{19}$
- 21 Seven times X13
- 23 First two digits are the same as first two digits of Z4
- 24 Twelve times a prime number
- 25 First two digits are the same as first two digits of Z6

**Z Direction**

- 1 First two digits are the same as first two digits of Y1
- 2 Ninety-two times a prime number
- 4 First two digits are the same as first two digits of Y13
- 5 Seven times a prime number
- 6 Thirty-nine times a prime number
- 7 Digits are in consecutive descending order
- 8 Digits are the same as first two digits of X4
- 9 Is a square
- 10 Digits are the same as last two digits of Y25
- 11 Y19 reversed
- 12 Last two digits are the same as Z7
- 21 Twice a prime number

**Solution is on next page**

Solution:

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