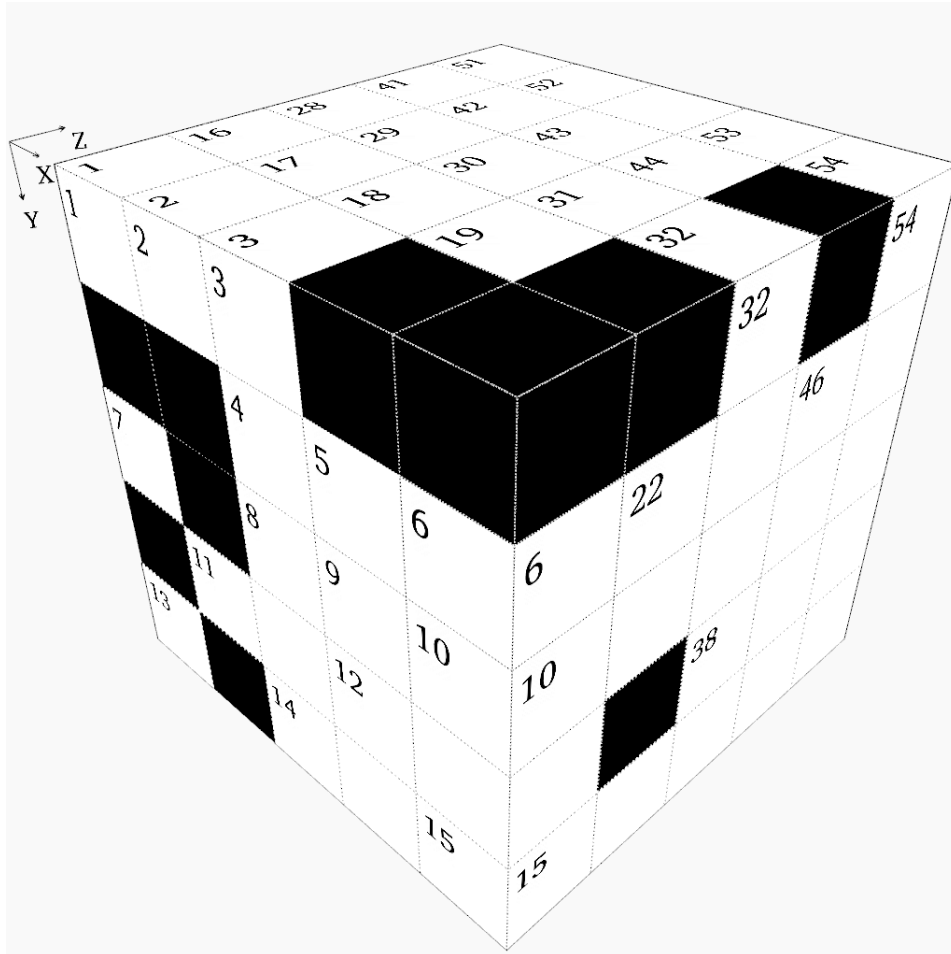


Difficulty: ★★★★★

## Cube - Challenging Puzzle #34



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 |    |    | 16 | 17 | 18 | 19 |    | 28 | 29 | 30 | 31 | 32 |
|    |    | 4 | 5  | 6  | 20 | 21 |    |    | 22 | 33 |    |    |    |    |
| 7  |    |   | 8  | 9  | 10 | 23 | 24 |    | 25 | 34 |    | 35 |    |    |
|    | 11 |   |    | 12 |    |    |    |    |    | 36 |    | 37 |    | 38 |
| 13 |    |   | 14 |    | 15 | 26 | 27 |    |    | 39 |    |    | 40 |    |

|    |    |    |    |    |    |    |  |    |    |
|----|----|----|----|----|----|----|--|----|----|
| 41 | 42 | 43 | 44 |    | 51 | 52 |  | 53 | 54 |
| 45 |    |    |    | 46 | 55 |    |  | 56 |    |
| 47 |    |    | 48 |    | 57 |    |  |    |    |
| 49 |    |    |    |    | 58 |    |  | 59 |    |
| 50 |    |    |    |    |    | 60 |  |    |    |

#### X Direction

- 1 X36 plus X49
- 4 Thirty-seven times Z9
- 8 Thirty-seven times X56
- 11 Y22 times X60
- 14 Twice a square
- 16 A prime number
- 20 Twenty-one thousand three hundred seventy-one less than Z1
- 23 Y31 plus X56
- 25 Y18 minus X56
- 26 Y19 minus X41
- 28 Forty-two times a prime number
- 33 Thirteen thousand eight hundred eighty-two more than Z3
- 34 Eight times a prime number
- 36 Z10 divided by X14
- 39 Five thousand four hundred eighty-eight more than Y54
- 41 A prime number
- 45 Sixteen thousand nine hundred eighty-eight less than Y43
- 47 Eight hundred ninety-nine more than Y3
- 49 A square
- 50 Thirteen times a prime number
- 51 Fourteen times a prime number
- 55 Half of X59
- 56 A square
- 57 Twenty-six times a prime number
- 58 Twice a prime number
- 59 Z38 divided by four
- 60 Twice a prime number

#### Y Direction

- 3 X57 plus half of X28
- 5 Eight hundred eighty-one less than Y19
- 6 Two hundred forty less than Z4
- 16 Twenty-nine times Z48
- 17 Two thousand eight hundred ninety-five less than Z14
- 18 Z40 minus X56
- 19 Y46 plus X60
- 22 Same as Z12
- 28 One thousand nine hundred seventy-seven more than Z14
- 29 Seven thousand one hundred thirty-four less than Z7
- 30 Sixteen times a prime number
- 31 Mean of Z12 and X55
- 32 Sixty-four times X26
- 41 Twelve times a prime number
- 42 Two thousand two hundred forty-eight more than X50
- 43 Seventeen times a prime number
- 44 A prime number
- 46 One thousand six hundred nineteen more than Y51
- 51 Twice a square
- 52 Fifty-eight times a square
- 53 A prime number
- 54 One thousand five hundred eighty-seven less than Z6

#### Z Direction

- 1 A prime number
- 2 Eighty-seven times a prime number
- 3 Thirty-three times a prime number
- 4 Y17 minus X16
- 5 Twice the result of Y29 plus X58
- 6 Z15 plus Y16
- 7 Mean of X39 and Z13
- 9 Z35 divided by twelve
- 10 Seven thousand three hundred thirty-seven more than Z3
- 11 Seven thousand three hundred sixty-six more than X47
- 12 X11 divided by X60
- 13 Eight times a prime number
- 14 Mean of X50 and Z48
- 15 Fourteen thousand eight hundred two more than X20
- 19 Y53 plus Z38
- 20 Y41 minus X51
- 21 X8 plus X59
- 24 Y30 minus half of X1
- 27 Forty-two times a square
- 35 Four-fifths of Z38
- 36 Four times a prime number
- 37 Y32 divided by X49
- 38 Fifteen times Z9
- 40 Three times a prime number
- 48 Half of X58

## Solution:

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

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