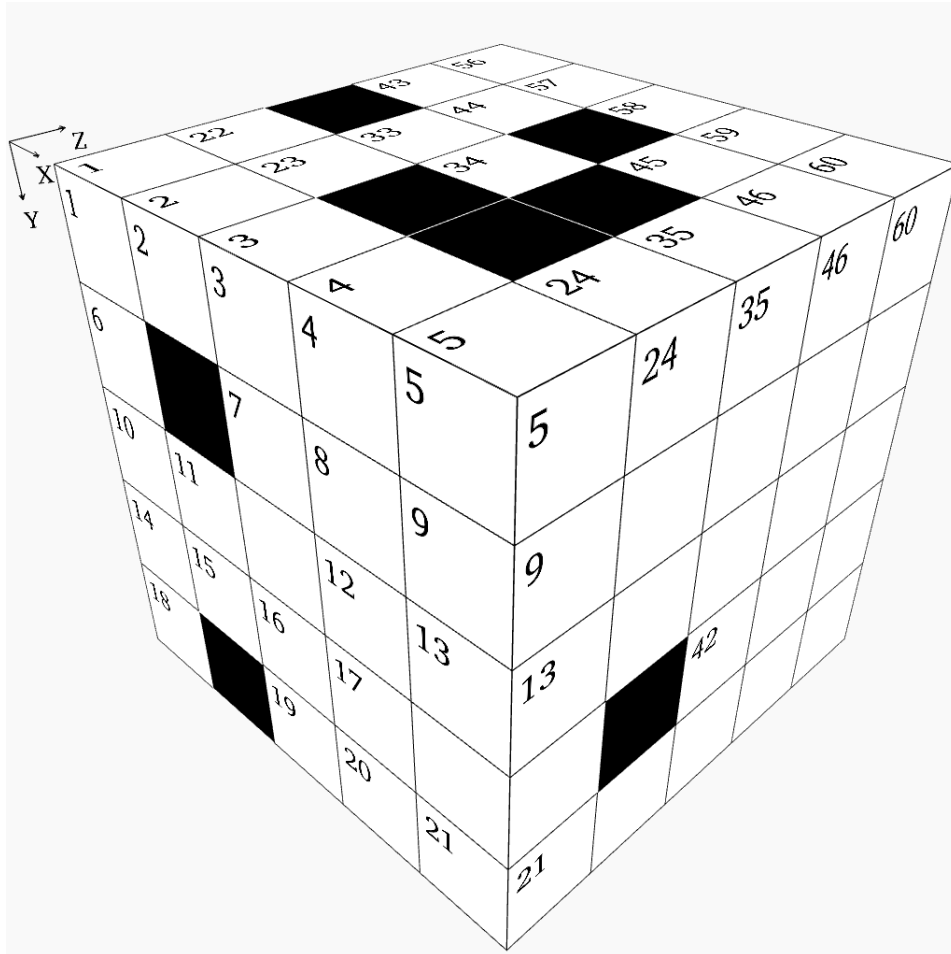


Difficulty: ★★★★★

Cube - Hard Puzzle #42



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 | 5 | 22 | 23 | | | 24 | | 33 | 34 | | 35 | |
| 6 | | | 7 | 8 | 9 | 25 | 26 | | 27 | | 36 | | | | 37 |
| 10 | 11 | | | 12 | 13 | | | | 28 | | 38 | | 39 | | |
| 14 | 15 | 16 | 17 | | | 29 | 30 | 31 | | | 40 | | | 41 | 42 |
| 18 | | | 19 | 20 | 21 | 32 | | | | | | | | | |

| | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|
| 43 | 44 | | 45 | 46 | 56 | 57 | 58 | 59 | 60 |
| 47 | | | 48 | | 61 | | | | |
| 49 | 50 | 51 | | | 62 | | | | |
| 52 | | 53 | | | 63 | | | | |
| | | 54 | 55 | | 64 | | | 65 | |

X Direction

- 1 Eight thousand five hundred less than Z18
- 7 Y33 plus Z16
- 10 Seventeen times a prime number
- 14 Seven times a prime number
- 19 Y33 plus Y24
- 22 Y57 minus Y5
- 25 Twelve thousand five hundred nine less than Z12
- 28 Mean of Z16 and X22
- 29 Twenty-one times a prime number
- 32 A prime number
- 33 X47 plus Z45
- 36 Half of X62, then subtract Y43
- 39 Z39 plus Z43
- 40 Z16 minus Z20
- 41 X45 plus Y23
- 43 A square
- 45 Z55 minus Z53
- 47 Y33 minus Z45
- 48 Mean of Z20 and Y22
- 49 Fourteen thousand nine hundred seventy-eight more than X62
- 52 Mean of Z42 and Z43
- 54 Twice a prime number
- 56 A prime number
- 61 Three thousand five more than X36
- 62 Twenty-two times a prime number
- 63 Y45 minus X48
- 64 Twice the result of Y30 minus Y31
- 65 Same as Y29

Y Direction

- 1 Mean of X49 and Y46
- 3 Twice the result of X25 plus Y24
- 4 Mean of Z15 and X63
- 5 Three thousand two hundred thirty-eight more than X36
- 11 Z38 divided by thirteen
- 22 Y23 plus half of X28
- 23 Mean of X45 and Z43
- 24 Z42 plus Z50
- 27 Eighteen times a prime number
- 29 Mean of Y22 and Z43
- 30 Z19 minus Z53
- 31 Y22 minus Y23
- 33 Z39 minus Y51
- 34 X19 minus Z17
- 35 Two hundred nineteen less than X36
- 36 Its digits total X40
- 37 Twice a square
- 43 Four times a prime number
- 44 Y58 minus Y59
- 45 Z19 plus half of Y37
- 46 Six thousand two hundred ninety-eight less than Y4
- 51 Mean of Y23 and X19
- 56 A prime number
- 57 Twice a prime number
- 58 Eighteen times a prime number
- 59 Five times a square
- 60 Twice the result of X1 minus Y27

Z Direction

- 1 Mean of Z45 and Z50
- 2 A prime number
- 5 Seven times a prime number
- 6 X56 minus half of Y35
- 7 Three times Z50
- 8 Sixteen thousand five hundred forty-nine more than Z18
- 9 First two digits are the same as first two digits of X19
- 12 Five times a prime number
- 13 Sixteen times a prime number
- 14 Six thousand five hundred ninety-nine more than Y4
- 15 First three digits are the same as Y34
- 16 X7 minus X33
- 17 X52 minus Z45
- 18 Rearranged digits of X25
- 19 X40 plus Y22
- 20 Z7 minus Y29
- 21 X10 minus X48
- 26 Eighteen times a prime number
- 38 X54 minus half of X65
- 39 Y51 plus X33
- 42 Ten times X22
- 43 Z19 minus X48
- 45 X48 minus X40
- 50 Z45 minus Z43
- 53 Mean of Z50 and Y29
- 55 X43 plus X28

Solution:

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

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