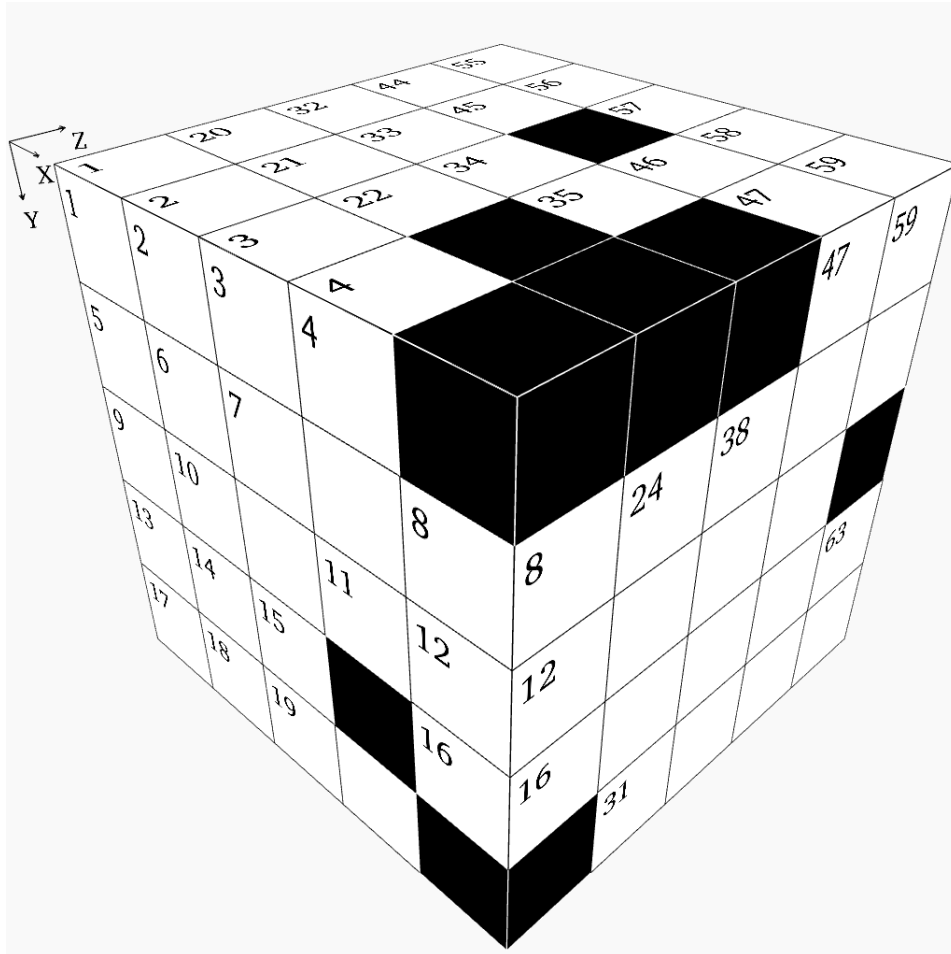


## Cube - Hard Puzzle #12



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 cube pictured above and divide it into individual X-Y layers, we will get these planes:

|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1  | 2  | 3  | 4  |    | 20 | 21 | 22 |    |    | 32 | 33 | 34 | 35 |    |
| 5  | 6  | 7  |    | 8  |    | 23 |    |    | 24 |    | 36 |    | 37 | 38 |
| 9  | 10 |    | 11 | 12 | 25 |    |    | 26 |    | 39 |    | 40 |    |    |
| 13 | 14 | 15 |    | 16 | 27 |    | 28 | 29 |    |    |    | 41 |    |    |
| 17 | 18 | 19 |    |    | 30 |    |    |    | 31 | 42 |    |    | 43 |    |

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

### X Direction

- 1 Seventy-nine times X48
- 5 A prime number
- 9 A prime number
- 13 Twice the result of Z3 plus X44
- 17 Half of X32, then subtract Y57
- 20 Three-fourths of X53
- 23 X42 minus X61
- 25 Z19 plus X48
- 26 Mean of Z19 and Y26
- 27 X36 plus half of Z43
- 30 Y34 divided by four
- 32 Twice a prime number
- 36 A prime number
- 39 Z31 plus half of X54
- 41 Mean of Z10 and Y51
- 42 Y22 plus X49
- 43 Z43 minus Y39
- 44 Y26 minus Z47
- 46 Y44 plus Y56
- 48 Mean of X64 and Y63
- 49 Y59 plus Y52
- 50 Last two digits are the same as last two digits of Y25
- 53 Mean of Y45 and Z3
- 54 Six thousand four hundred fifty-three more than X5
- 55 Five times a prime number
- 60 Nine times a prime number
- 61 X26 plus Y28
- 62 Y24 plus X23
- 64 X42 minus X46

### Y Direction

- 1 Five thousand two hundred thirty-nine more than Z1
- 2 Two thousand three hundred eleven less than Z2
- 3 Mean of Y2 and Z9
- 4 Y39 minus X42
- 8 A square
- 21 Seven thousand three hundred twenty-two less than X39
- 22 X61 minus Z19
- 24 Thirty-three times a prime number
- 25 Z35 plus Y26
- 26 X46 minus X44
- 28 Z40 divided by thirty-eight
- 33 Twice the result of Z11 minus Z6
- 34 Four times a prime number
- 35 Thirteen thousand two hundred seventy-nine less than X54
- 38 Three times a prime number
- 39 Z48 plus X30
- 44 Y59 minus Y52
- 45 Z10 minus half of X41
- 46 Thirteen thousand nine hundred twenty-five less than X5
- 47 Four times a prime number
- 51 X30 minus half of Y44
- 52 X48 minus Y28
- 55 Mean of X53 and Z14
- 56 X49 minus X23
- 57 Three times Y51
- 58 Four times a prime number
- 59 Z37 divided by eleven
- 63 Mean of X42 and X23

### Z Direction

- 1 Thirteen times a prime number
- 2 Y55 times Y8
- 3 A prime number
- 6 Nine times a prime number
- 7 X1 divided by twenty-three
- 8 Y58 plus Z35
- 9 Y4 plus Z37
- 10 Y52 times X26
- 11 Four times a prime number
- 12 Sixteen times a prime number
- 13 Nine times X13
- 14 Z48 plus X44
- 15 Nineteen thousand six hundred eighty-two more than Y2
- 16 Seventy-four times a prime number
- 17 Twice the result of Y47 plus Z47
- 18 Six times a prime number
- 19 Same as Y56
- 29 Two hundred seven more than Z18
- 31 Twice a prime number
- 35 Last two digits are the same as X46
- 37 X1 minus half of Z13
- 40 Mean of X41 and Y4
- 43 X53 minus X64
- 47 X26 divided by three
- 48 X53 divided by fourteen

**Solution:**

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

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