## Box-Challenging Puzzle \#1



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 $\mathrm{X}, \mathrm{Y}$, 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 |  | 11 | 12 | 17 |  | 18 | 22 | 23 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 4 |  | 5 | 13 |  |  |  |  |  | 24 |  |  |
| 6 | 7 | 8 |  | 14 |  | 19 | 20 |  | 25 |  |  |
| 9 | 10 |  |  | 15 | 16 |  | 21 |  | 26 |  |  |

## X Direction

1 Rearranged digits of X6
6 Fifty-one times X25
9 Z8 minus X15
11 Same as Y7
13 Twenty-five times X25
14 Mean of X24 and Y20
15 Half of X21
17 Twice a prime number
19 Y17 reversed
21 Twice the result of Z8 minus X9
22 Y17 minus X26
24 Seven times X25
25 Y22 divided by X1
26 Five times a prime number

## Y Direction

1 A prime number
3 A prime number
7 Same as Z19
11 Seventy-six times a prime number
12 Y3 plus Y17
17 X19 reversed
18 Twenty-eight times a prime number
20 Half of X19, then subtract X13
22 Two hundred fifty-seven more than Y1
23 Twice a prime number

## Z Direction

2 Six times a prime number
3 A prime number
4 Thirty-one times a prime number
5 Twice a prime number
7 Y23 minus X24
8 X11 plus X24
10 Mean of Y12 and Y1
16 Mean of X19 and X17
17 A square
19 Y18 minus half of Z2

## Solution:

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

