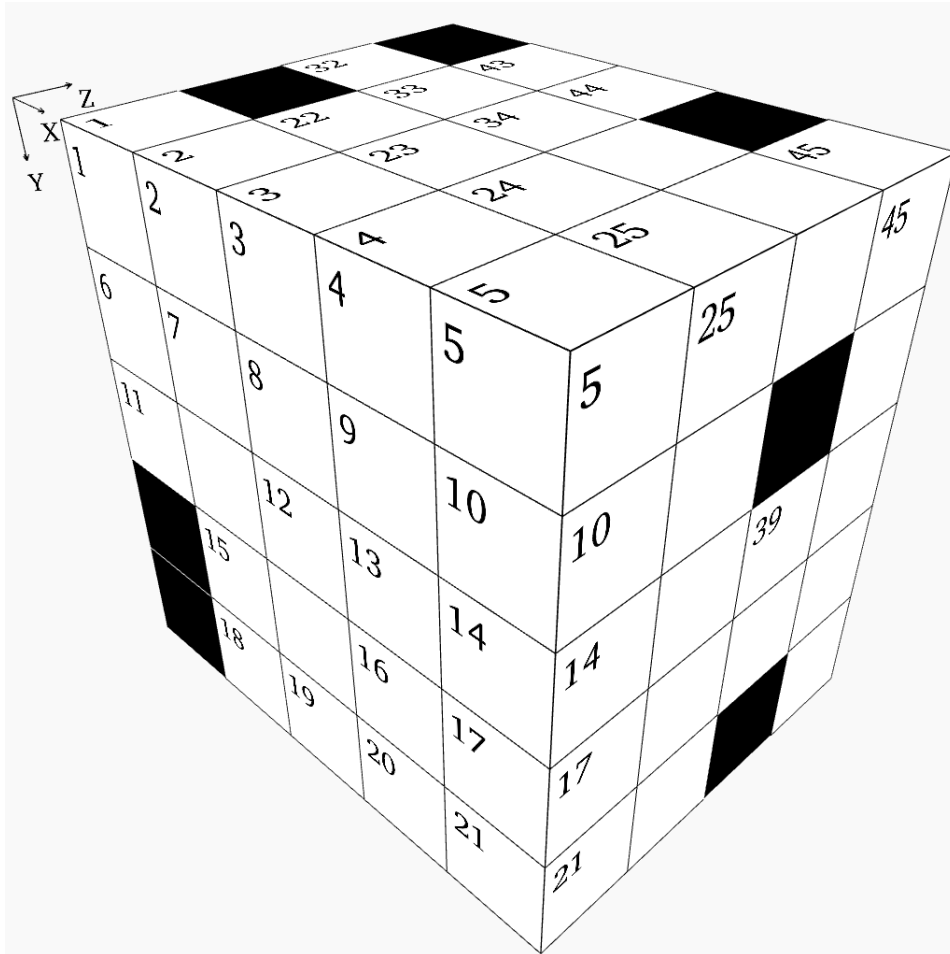


Difficulty: ★★★★★

Box - Hard Puzzle #32



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

1	2	3	4	5		22	23	24	25	32	33	34		
6	7	8	9	10	26					35				
11		12	13	14			27			36	37		38	39
	15		16	17	28	29		30			40	41		
	18	19	20	21	31					42				
						43	44		45					
					46			47						
					48			49						
						50	51							
					52									

X Direction

- 1 Sixty-seven times a prime number
- 6 Three times a prime number
- 11 Y_{24} plus X_{48}
- 15 Twice the result of Z_6 minus Y_{38}
- 18 A prime number
- 22 Ninety-one times a square
- 26 Nine thousand seven hundred forty-five more than Y_{45}
- 27 Y_1 minus X_{43}
- 28 Y_{51} plus X_{30}
- 30 Y_{29} plus X_{48}
- 31 Twice a prime number
- 32 Twenty-three times a prime number
- 35 Y_4 divided by X_{28}
- 36 Thirty-four times a prime number
- 40 Three hundred fifty-eight more than X_{50}
- 42 Thirty-one times a prime number
- 43 Mean of Z_{10} and X_{48}
- 46 Twice the result of Y_5 minus Y_{23}
- 48 X_{30} minus Z_{37}
- 49 X_{43} plus Y_{22}
- 50 Twelve times a prime number
- 52 Two thousand seven hundred sixty-three less than Y_5

Y Direction

- 1 Fourteen times X_{30}
- 2 Eleven thousand six hundred seventy less than X_{26}
- 3 Mean of X_{36} and Y_{22}
- 4 Ninety-three times a prime number
- 5 Fifty-one times a prime number
- 22 Y_{38} minus Y_{46}
- 23 A prime number
- 24 Twenty-three times a prime number
- 25 Z_{31} times Y_{44}
- 28 Z_{36} plus Z_{21}
- 29 Mean of Y_{46} and X_{43}
- 32 Eight times a prime number
- 33 Two thousand three hundred ninety-nine more than Y_{43}
- 34 Mean of X_1 and Y_{33}
- 38 A prime number
- 39 Mean of Y_{28} and Z_{41}
- 43 Z_{19} plus X_{18}
- 44 X_{30} plus X_{48}
- 45 Twice the result of X_{32} plus Z_{37}
- 46 Z_5 divided by fifty-six
- 47 Twice the result of X_6 minus X_{50}
- 51 Y_{22} minus X_{43}

Z Direction

- 2 Seventeen times a prime number
- 3 A prime number
- 4 Sixteen times Z_{37}
- 5 Fifty-six times Z_{36}
- 6 Three times Z_{31}
- 7 Eighty-two times Z_{10}
- 8 Three times a prime number
- 9 Y_{46} plus X_{48}
- 10 Y_{28} minus Z_9
- 12 Z_{17} divided by seven
- 13 Four times a prime number
- 14 Three times a prime number
- 15 Z_5 minus Z_{37}
- 16 Z_6 plus X_{35}
- 17 Mean of X_{40} and Z_{18}
- 18 Ninety-eight times Z_{36}
- 19 Last two digits are the same as last two digits of X_{26}
- 20 Two thousand three hundred seventy-three less than X_{42}
- 21 Z_{10} plus X_{48}
- 31 Sixteen times a prime number
- 36 Y_{38} minus Y_{22}
- 37 Z_{41} minus Z_{21}
- 41 Mean of X_{49} and Y_{44}

Solution:

8	6	3	6	3	■	5	8	2	4	3	1	4	4	1
1	1	1	8	1	7	2	7	0	5	7	3	9	■	■
2	0	9	7	2	■	■	7	9	5	6	3	8	1	8
■	3	3	2	6	9	3	■	5	8	■	7	7	1	4
■	5	5	7	3	5	9	4	3	4	9	7	0	3	■
					■	1	7	■	6					
					6	0	7	7	2					
					1	9	■	6	9					
					■	7	3	5	6					
					2	8	5	0	0					