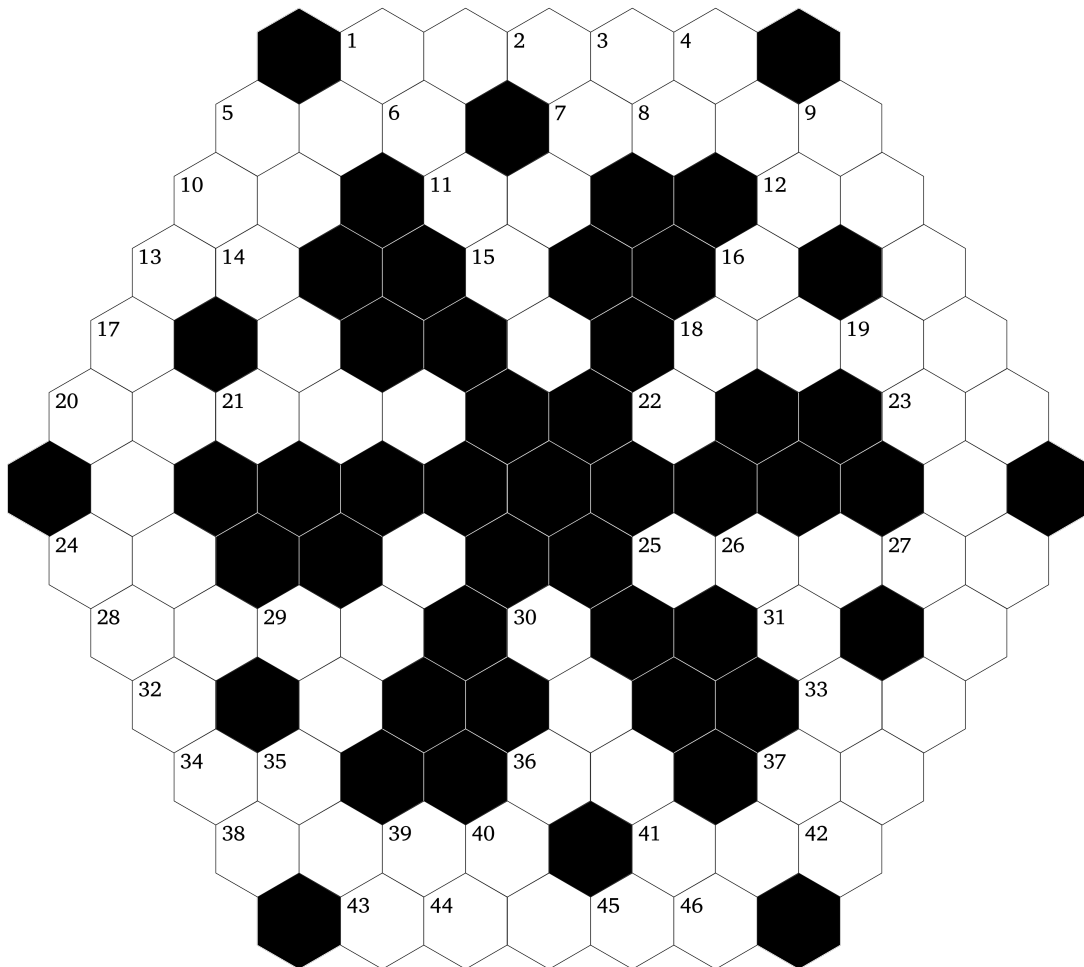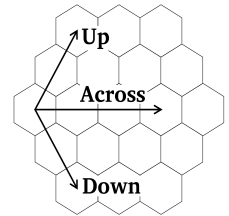Difficulty: ★★★★☆

TripleCross - Hard Puzzle #16

This puzzle is like a crossword, but with numbers. Each digit occupies a hexagonal cell and can be a part of a "word" in the across, up, and down directions.

Rules:

1. "Words" may not start with a zero.
2. "Words" in the 'across' direction read from left to right.
3. "Words" in the 'up' direction read along the upward diagonal to the right.
4. "Words" in the 'down' direction read along the downward diagonal to the right.
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.

Across

1 Three times a prime number
5 A prime number
7 Three times a prime number
10 13 across plus 19 up
11 27 down plus 12 across
12 27 down plus 34 across
13 Sum of digits in 1 across
18 Twice the result of 20 down plus 19 up
20 A prime number
23 35 down divided by 40 down
24 33 across minus 3 down
25 Mean of 1 down and 2 down
28 Ninety times a prime number
33 Mean of 31 up and 12 across
34 36 across minus 12 across
36 6 up minus 23 up
37 36 across minus 34 across
38 Thirteen times a prime number
41 35 down minus 34 across
43 15 up times 8 up

Up

6 37 across plus 31 up
8 Same as 3 down
14 Fifty-two times 2 down
15 43 across divided by 3 down
19 34 across plus 40 down
20 Twice a prime number
21 39 down plus half of 43 up
22 A prime number
23 31 up minus 34 across
24 Mean of 21 up and 5 across
27 41 across plus half of 36 across
28 36 across plus 23 up
31 21 up minus 33 across
32 Mean of 39 down and 37 across
38 Twice a prime number
42 Eight thousand nine hundred seventy-seven more than 1 down
43 Same as 11 across
44 Twice a prime number
45 Mean of 32 up and 17 down
46 Twice a prime number

Down

1 Twenty-two thousand two hundred seventeen less than 38 up
2 17 down plus 33 across
3 43 up minus 2 down
4 38 up minus 30 down
5 13 across plus 19 up
9 Thirteen times a prime number
10 Twice the result of 7 across plus 10 across
16 5 down plus half of 37 across
17 Mean of 8 up and 37 down
19 Seventy-seven less than 7 across
20 Sixty times a prime number
24 Mean of 42 up and 29 down
26 Twenty-four times a prime number
27 A square
29 17 down plus 12 across
30 Seventeen times a prime number
35 A square
37 40 down plus 31 up
39 36 across minus 24 across
40 36 across minus 10 across

Solution: