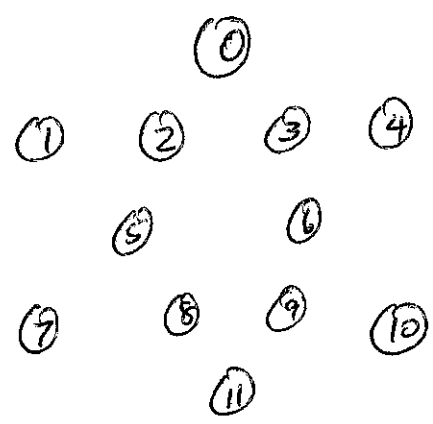


perm 2 (11) 0 1 6 8 5 4 7 10 3 9  
 nums 3, 17, (5) 18, 11, 22, 12, 23, 21, 7, 9, (13) next slot

top slot  
 1. Try all 12! permutations in the star design

2. For each add up the "6" = rows and see if they are equal.

Hexagram  
 Soln Idea  
 1/1/1/1/8  
 Page 1



Run-time  
 $12! \times 24$   
 ↓  
 ~ 160 million  
 > 3 billions

After filling out 2 full rows, see if those sums don't match, if not cut off out.

If we KNEW what the sum was going to be, we could cut out after the 1st row is filled.

Magic Sq

X	1	3	
X		5	
X			9

3		6
8	5	2
4	4	7

7	2	6
	5	
4	8	3

Hexagram cont

$3x \quad 1 + 2 + 3 + 4 \dots + 9 = 45$

$3x = 45$

$x = 15$

$\sum_{\text{all equal}} 6 \text{ rows} = 2 \sum \text{all num s}$

$\sum 1 \text{ row} = \frac{2}{6} \sum \text{all num s}$

$\frac{\sum \text{all num s}}{3}$

this is the desired sum!

## SOLUTION

Fill in #s 1 at a time. Anytime a row finishes, if the ~~magic~~ <sup>row</sup> sum doesn't equal the magic sum, cut out!

# Tentative

49 squares

Some #s given

Pick 10 open slots for stars

So nums are consistent

30ish open squares

- 2 choices per square

$2^{30}$

WHEN CAN WE CUT OUT  $\times \sim 100$  consistency.

① put down star, and there are too many stars adjacent to some #.

\*\* \_ \_ \_

- 1 \_ \_ \_

3 \_  
\* \* \_

} Pass a # and not enough stars for it.

If we've placed all 10 stars and we need more.

# Sudoku Tips

1/11/18 P34

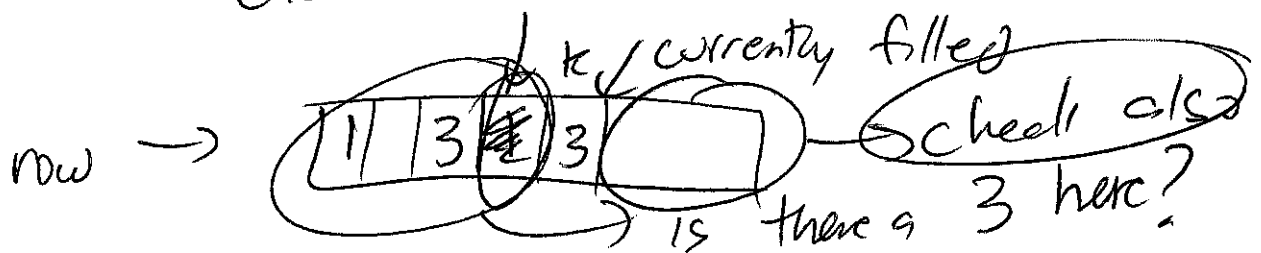
① Fill in numbers in order  
In mine, `board[8]`, in my  
recursive function  $k$  is the  
square I am filling in, next  $k+1$ .  
Also okay `board[9][9]`, then if  
stmt to figure out next square.  
(Trade off more %/ math with  
1D array.)

② Skip over slots with #s.

③ When to cut out

- if a duplicate # on a row
- if a duplicate # on a col
- if a duplicate # on a box

I have 3 functions,  
each take in a square( $k$ )



④ In main rec func for ( $num=1; num \leq 9; num++$ )  
 $\Rightarrow$  `board[k] = num;`