

# **GAS Leak**

*Genuinely Approachable Sudoku from the CtC Discord*  
Volume 1: June 7, 2021 - June 26, 2021



## What is GAS?

GAS stands for “genuinely approachable sudoku.” These puzzles are designed to be novel and fun without taking all day to solve. In Volume 1, you’ll find the first 20 days of GAS, set by Clover, Sam Cappleman-Lynes, and Philip Newman. You might even find a bonus puzzle or three!

Each puzzle in GAS Leak has two time benchmarks. These are all listed on the **last page of this document**. To earn **two party hats**, finish the puzzle within the faster time benchmark. To earn **one party hat**, finish the puzzle within the slower time benchmark. If you spend more time than that, but still stick it out all the way to a solution, then you’ll earn a **dinosaur** (they look very handsome wearing party hats).

Good luck, and have fun!

- *Clover*

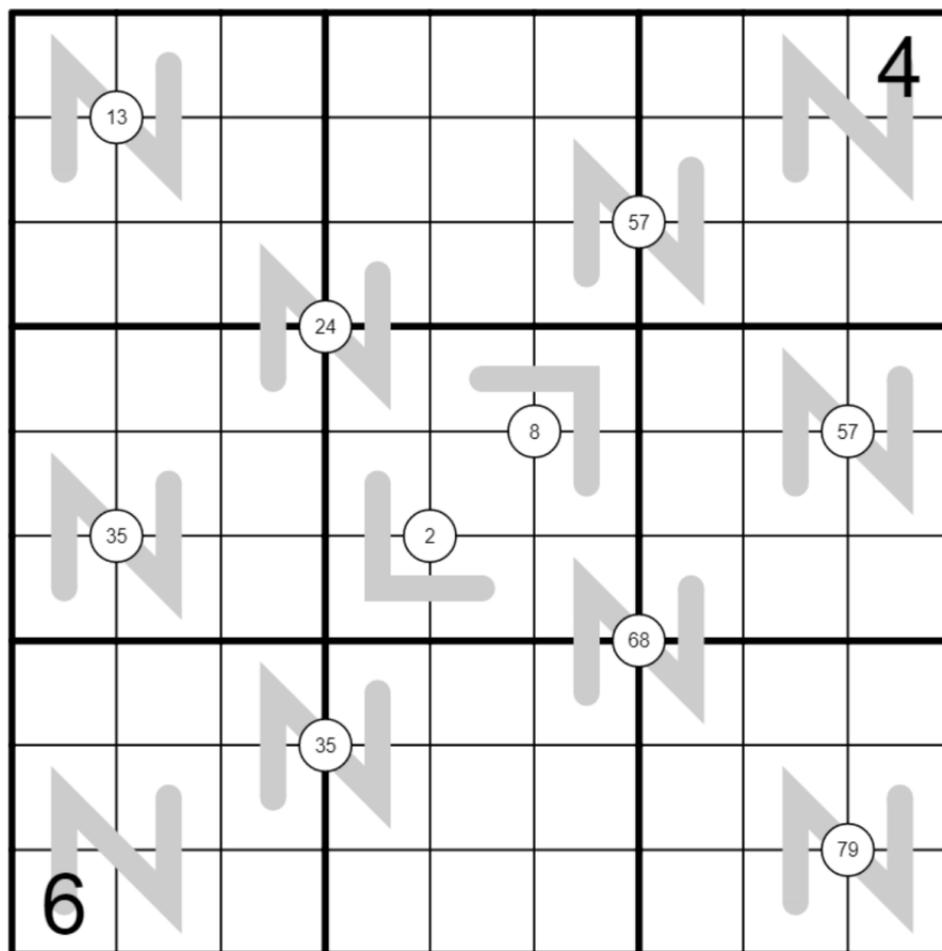
## June 7, 2021: Renban/Quadruples

Clover

Standard sudoku rules apply.

Renban: Digits along a grey line must form a set of consecutive digits with no repeats (in any order).

Quads: Digits in a white circle must appear somewhere in the four cells immediately surrounding that circle.



f-puzzles: <https://f-puzzles.com/?id=yhu9z1fe>

CtC: <https://tinyurl.com/cbr6j65v>

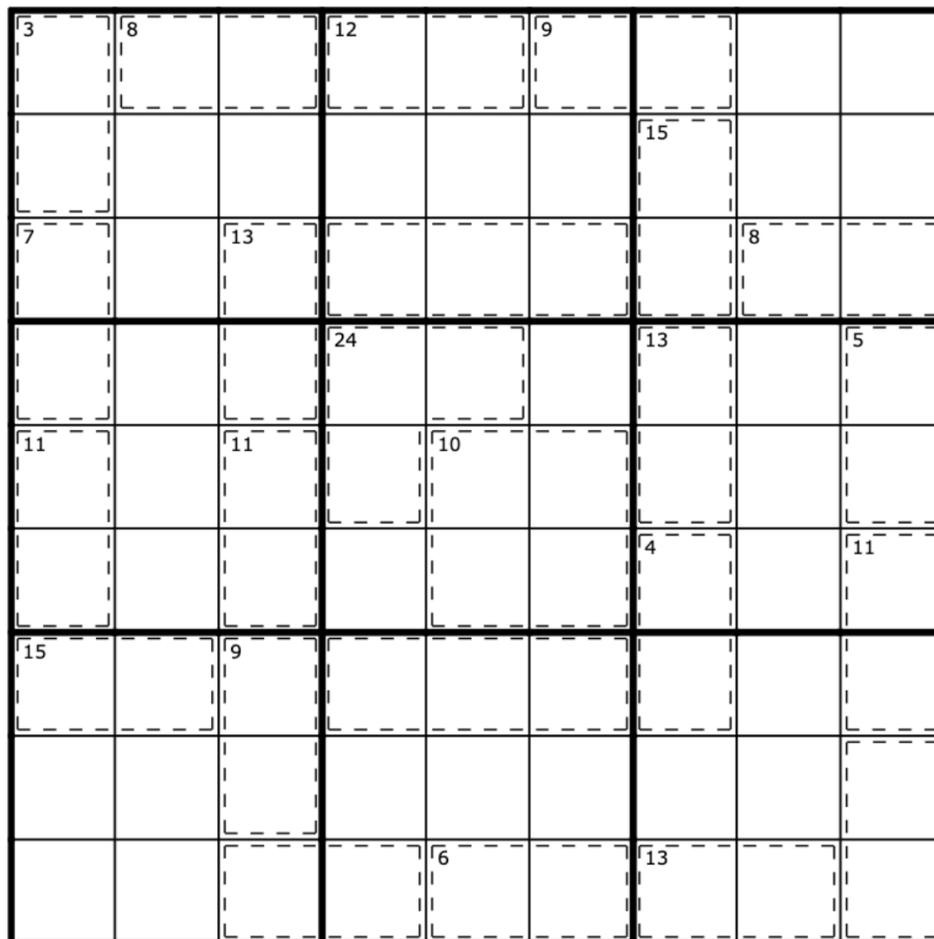
## June 8, 2021: Killer

Clover

Standard sudoku rules apply.

Digits in a cage may not repeat, and must sum to the value (if given) in the top left corner of the cage.

(In this puzzle, the empty cages are just for aesthetics!)



f-puzzles: <https://f-puzzles.com/?id=yg5gcav2>

CtC: <https://tinyurl.com/ku4wwemr>

**June 9, 2021: XV/Ratio/Pairs**

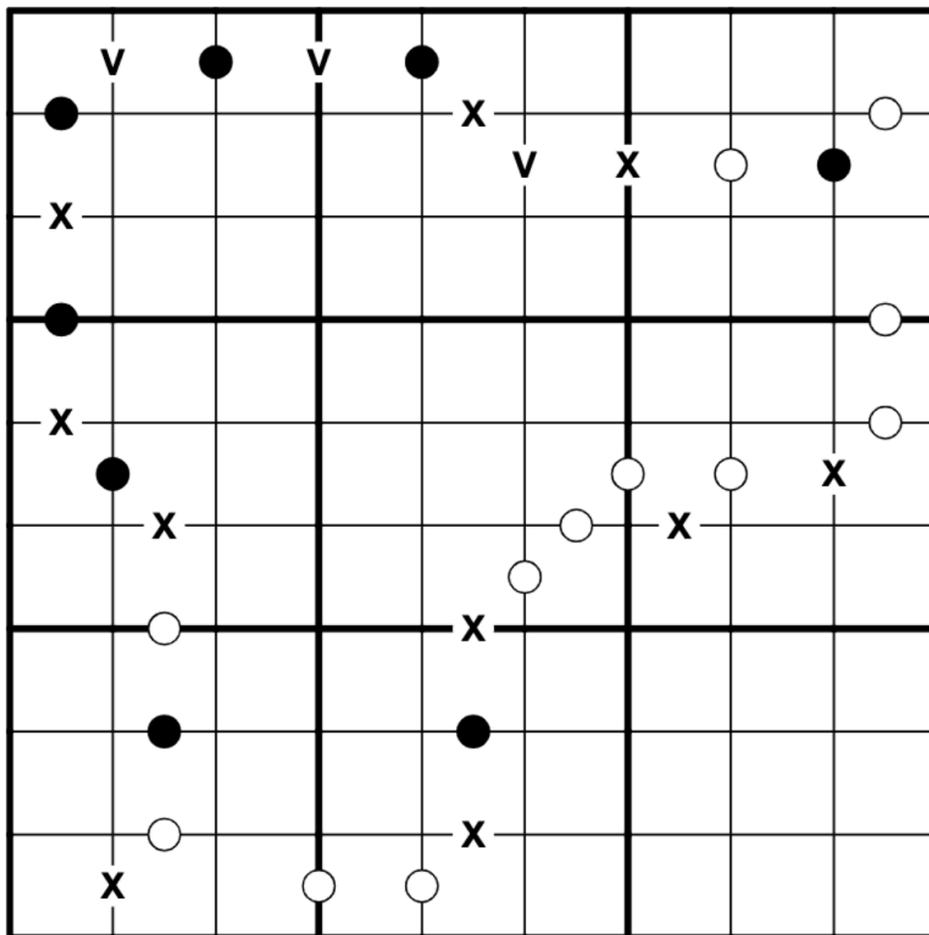
Clover

Standard sudoku rules apply.

Digits on either side of an X sum to 10. Digits on either side of a V sum to 5.

Digits on either side of a white dot are consecutive. Digits on either side of a black dot are in a 1:2 ratio.

There are no negative constraints (digits without an X, V, or dot might or might not have the properties described.)



f-puzzles: <https://f-puzzles.com/?id=yjwh4sl3>

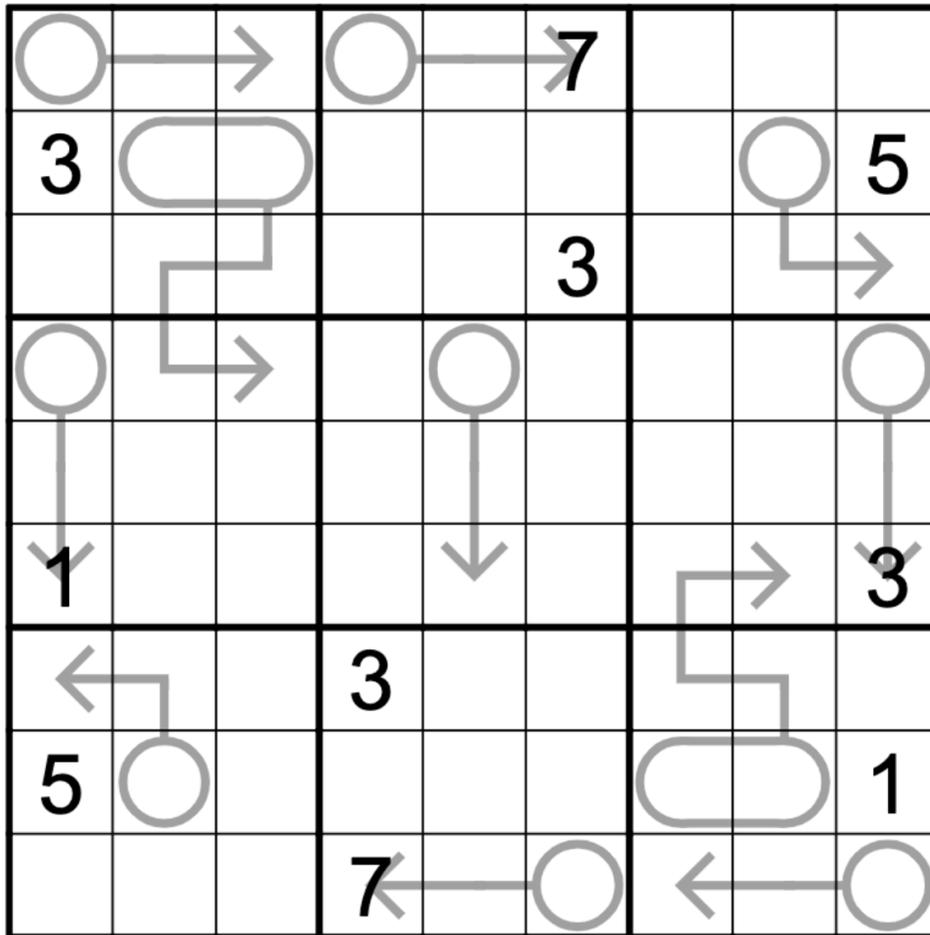
CtC: <https://tinyurl.com/2ja4fkdd>

June 10, 2021: Arrow

Clover

Standard sudoku rules apply.

Digits along an arrow sum to the value in the corresponding circle. Two-digit circles should be read as two-digit numbers from left to right.



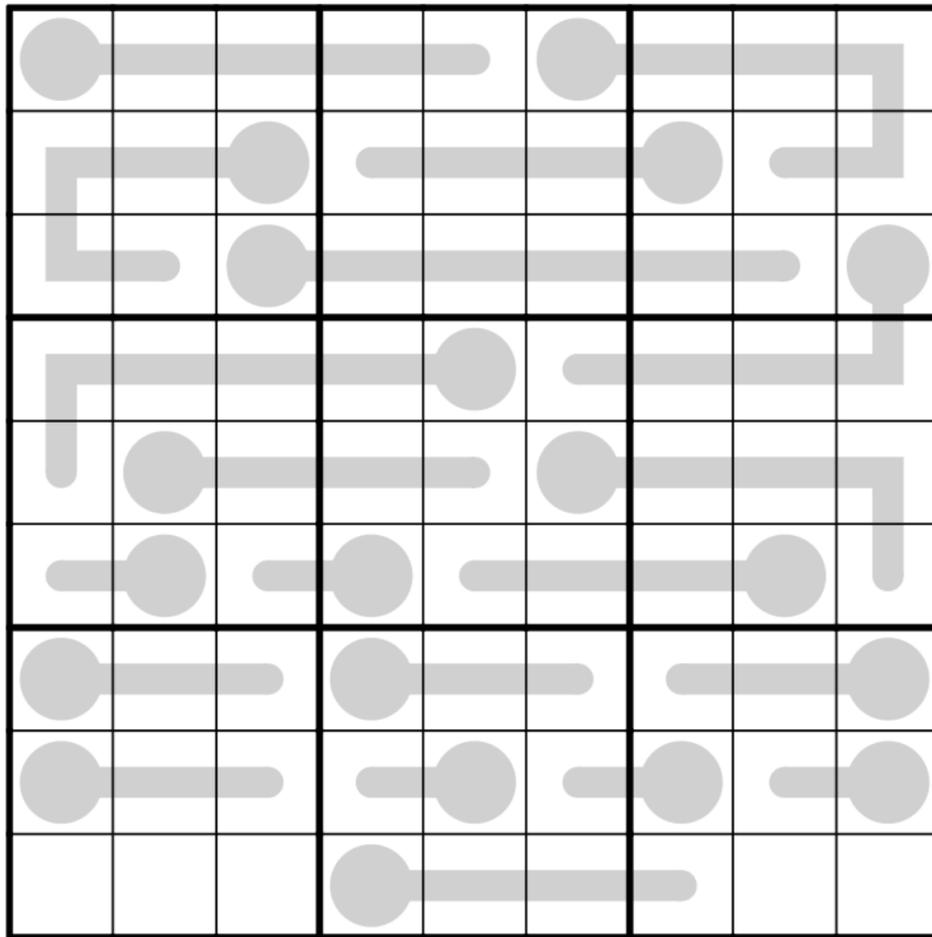
f-puzzles: <https://f-puzzles.com/?id=yev57jhv>

CtC: <https://tinyurl.com/3paxvuau>

**June 11, 2021: Thermo**  
Clover

Standard sudoku rules apply.

Digits along a thermometer must strictly increase, starting from the bulb (round) end.



f-puzzles: <https://f-puzzles.com/?id=yg7avy6l>

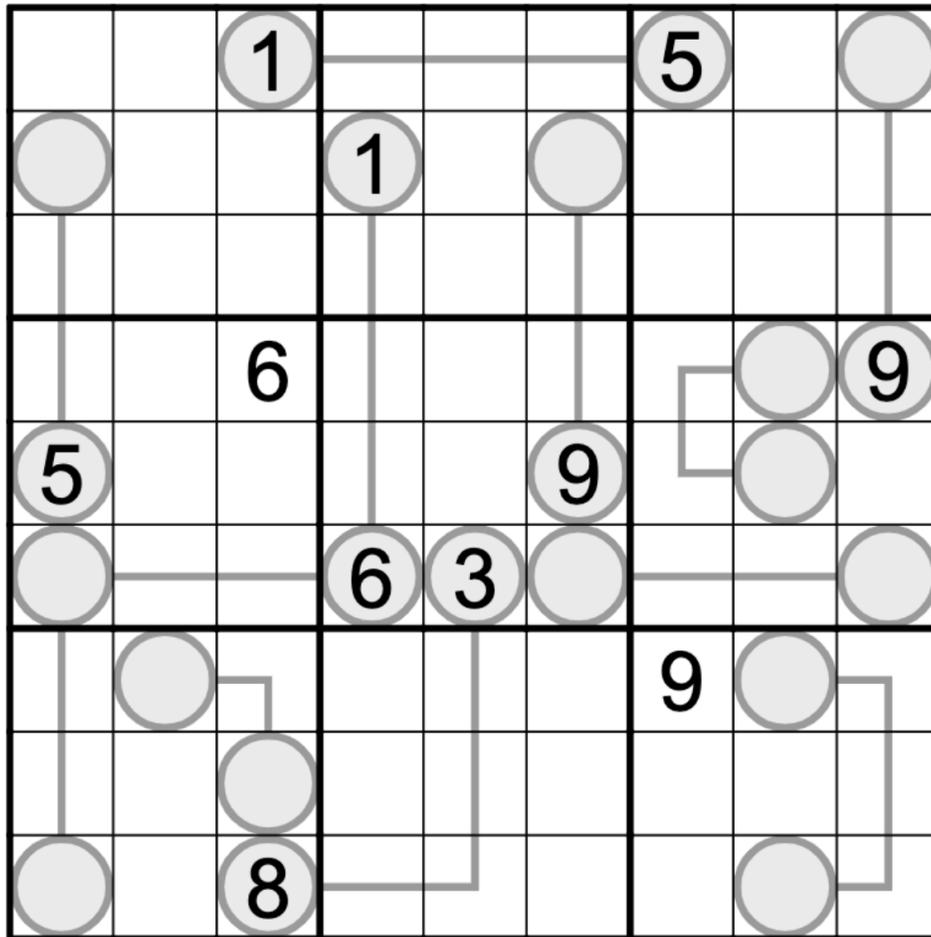
CtC: <https://tinyurl.com/w28yx2zc>

**June 12, 2021: Between Lines**

Clover

Standard sudoku rules apply.

Digits along a line must have values strictly between the values in the circles on the ends of that line. (Digits along a line may repeat, as long as they follow all other rules.)



f-puzzles: <https://f-puzzles.com/?id=yf8n159b>

CtC: <https://tinyurl.com/t2ejxphe>

## June 13, 2021: Fortress

Clover

Standard sudoku rules apply.

Any digit in a grey square must be greater than all of its orthogonal neighbors in white squares.

4			1		2		< ^ >	
				< ^ >				
			3		4	7		
< ^ >		8		< ^ >		1		
	< ^ >						< ^ >	
7				< ^ >				3
			6		7			
				< ^ >				
	< ^ >		8		9			2

f-puzzles: <https://f-puzzles.com/?id=ygabthoh>

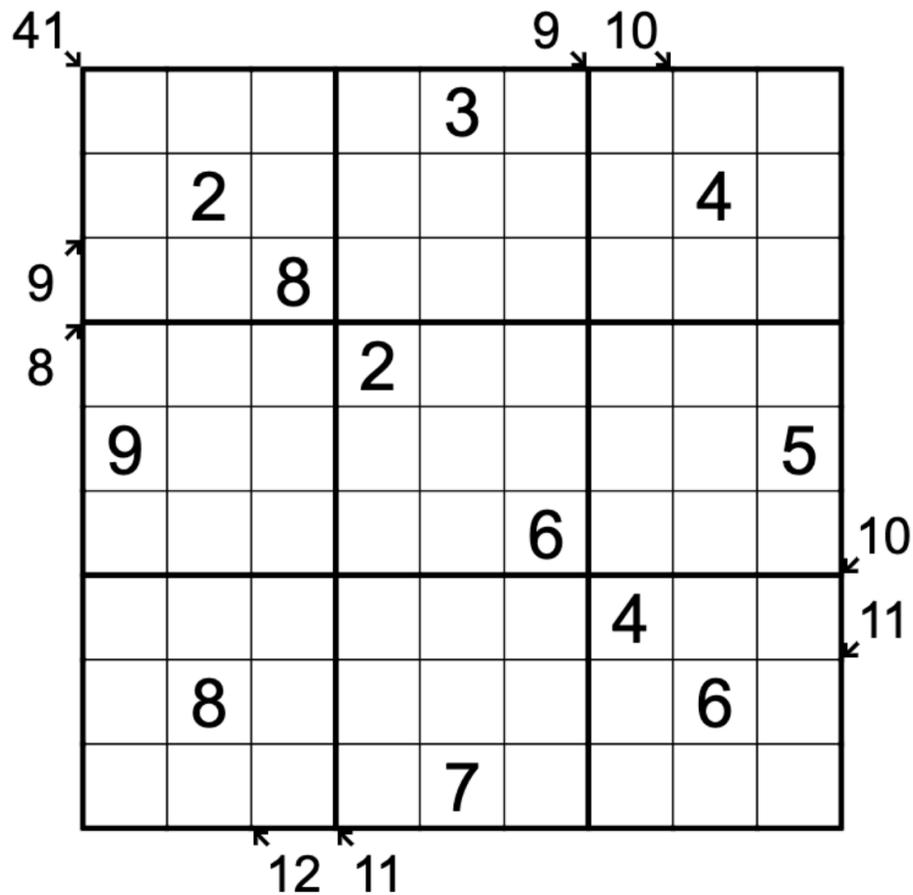
CtC: <https://tinyurl.com/2ut2r73e>

(fortress cells in the CtC version are marked, but not colored grey)

**June 14, 2021: Little Killer**  
Clover

Standard sudoku rules apply.

Digits along a marked diagonal must sum to the value indicated. Digits may repeat along a diagonal.



f-puzzles: <https://f-puzzles.com/?id=yjonx6tn>

CtC: <https://tinyurl.com/k9ca6kd5>



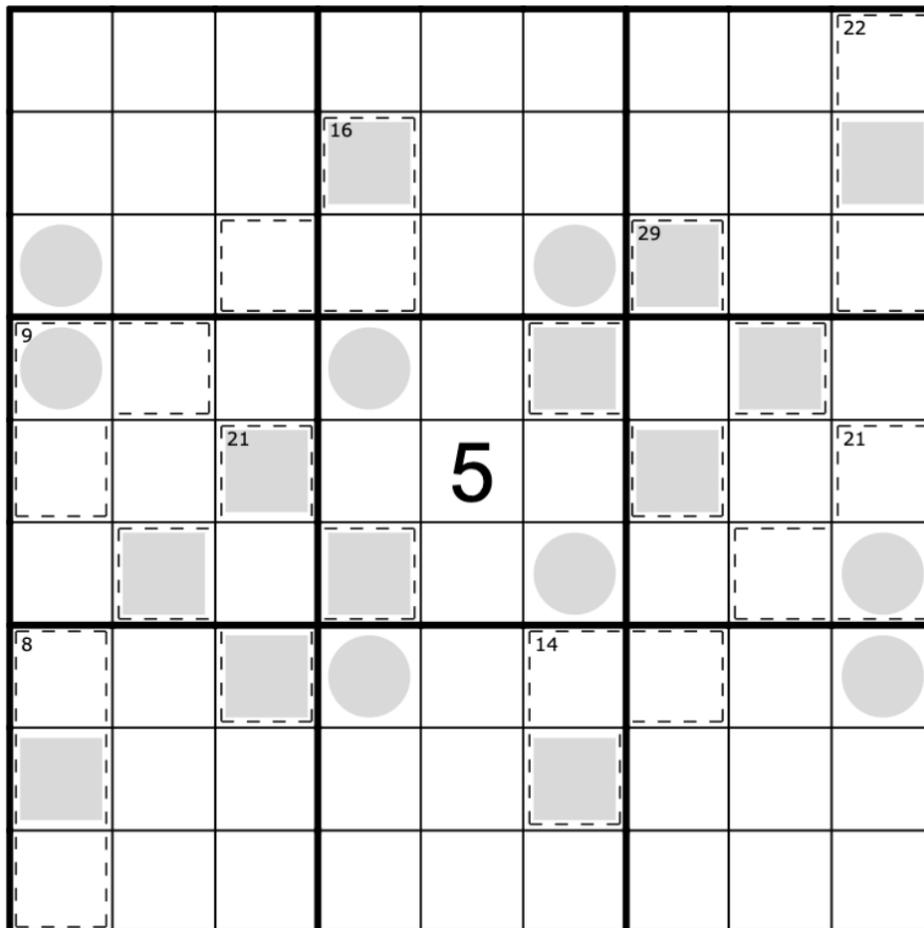
**June 16, 2021: Odd/Even/Killer**

Clover

Standard sudoku rules apply.

Cells with a grey square always contain even digits. Cells with a grey circle always contain odd digits.

Digits in a cage may not repeat and must sum to the value indicated.



f-puzzles: <https://f-puzzles.com/?id=yz6rach2>

CtC: <https://tinyurl.com/y6k9u875>

## June 17, 2021: Next to Nine

Sam Cappleman-Lynes

Normal Sudoku rules apply. Additionally, clues outside the grid give ALL digits that are adjacent to the 9 in the corresponding row or column.

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

f-puzzles: <https://f-puzzles.com/?id=yhacmw2t>

CtC: <https://tinyurl.com/jcp5ux6w>

**June 18, 2021: Sudoku X**

Philip Newman

Normal sudoku rules apply. Digits cannot repeat along the indicated diagonals.

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

f-puzzles: <https://f-puzzles.com/?id=yj3zz8tt>

CtC: <https://bit.ly/2TLCv3q>

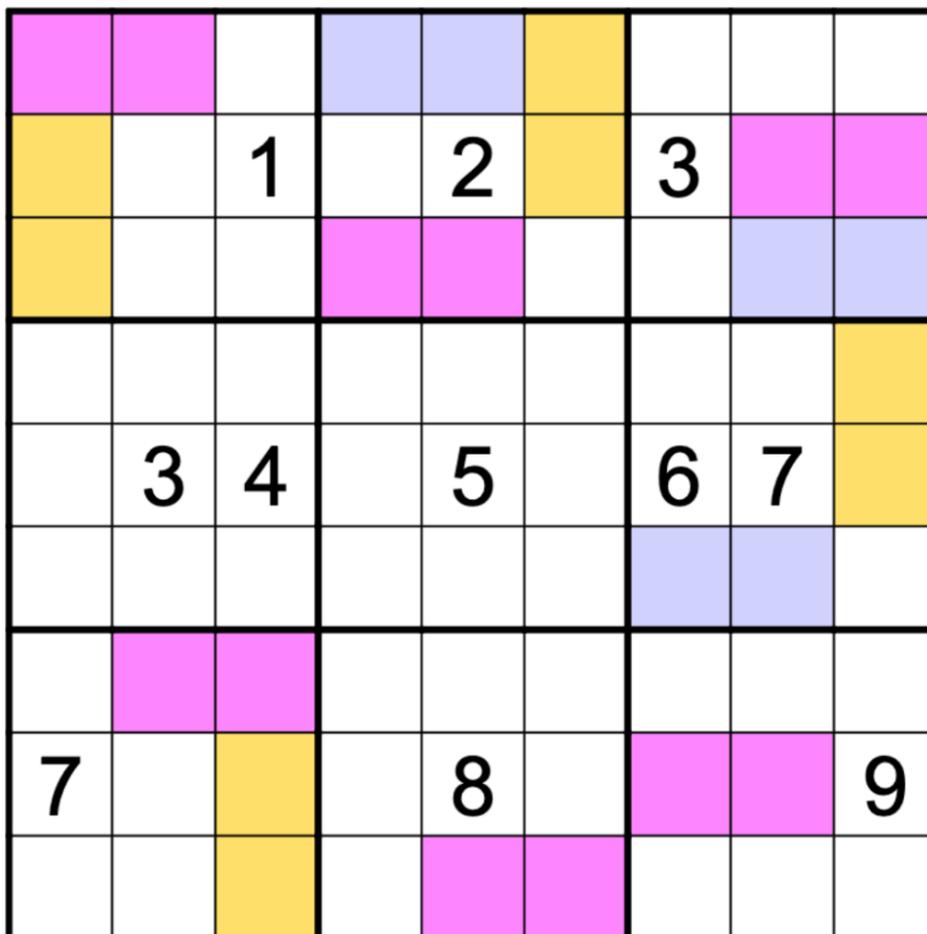
## June 19, 2021: Clones

Clover

Standard sudoku rules apply.

All regions of the same color must include exactly the same digits in the same order.

(See below for colorblind-friendly versions, which overlay the colored regions with lettered cages. In these versions, cages marked with the same letter must contain exactly the same digits in the same order.)



f-puzzles: <https://f-puzzles.com/?id=yhnfflo9>

f-puzzles (colorblind-friendly): <https://f-puzzles.com/?id=yfh9flql>

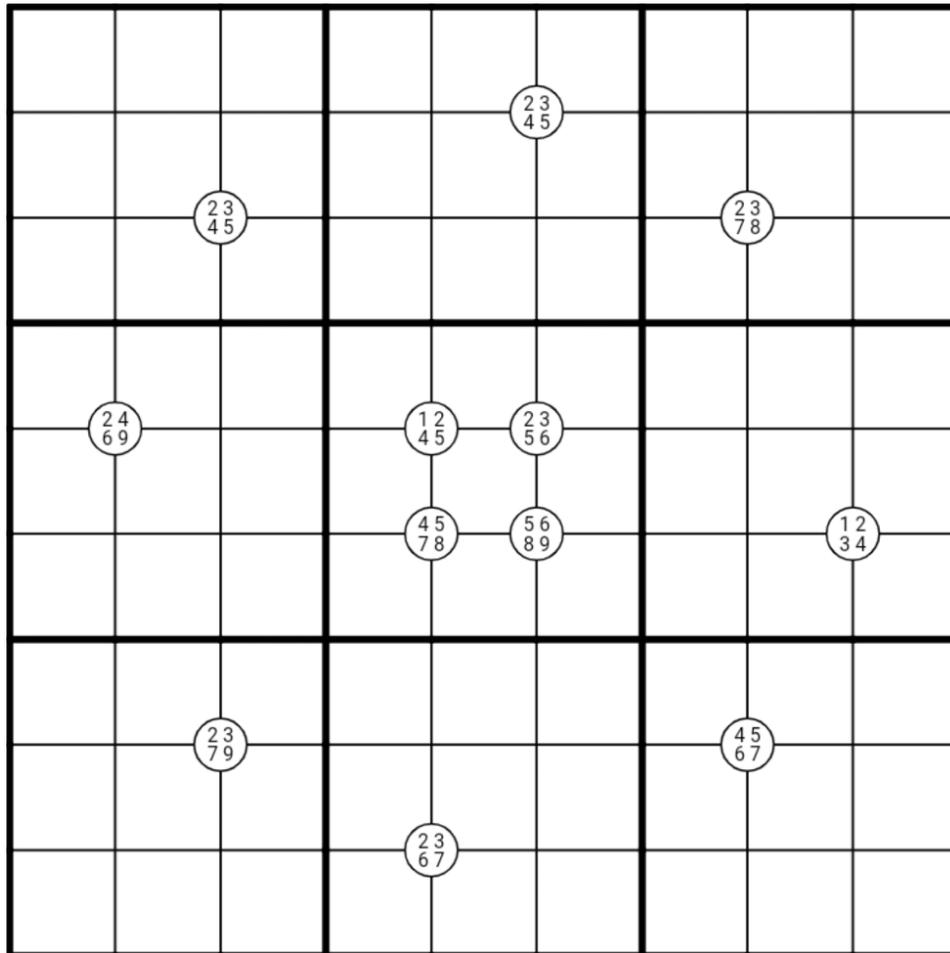
CtC: <http://tinyurl.com/t3f8endc>

CtC (colorblind-friendly): <http://tinyurl.com/26ee585r>

## June 20, 2021: Quadruples

Sam Cappleman-Lynes

Normal Sudoku rules apply. Where a circle is given in the grid, the digits in the circle must appear in the four cells surrounding the circle.



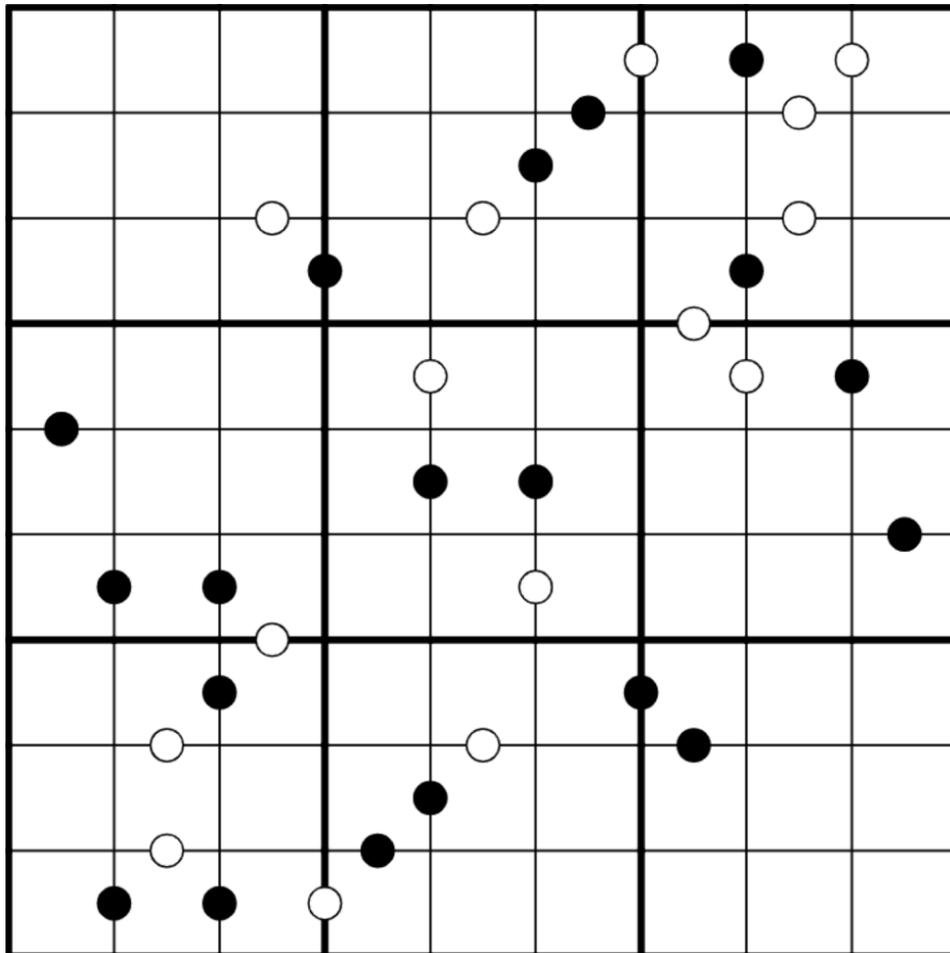
f-puzzles: <https://f-puzzles.com/?id=yep7xurl>

CtC: <https://tinyurl.com/4k4d5nvr>

## June 21, 2021: Ratio/Pairs

Philip Newman

Normal sudoku rules apply. Digits in cells connected by a black dot must have a ratio of 2:1 (that is, one digit is double the other digit). Digits in cells connected by a white dot must be consecutive. There are no negative constraints (digits in adjacent cells not connected by a dot could be consecutive, have a ratio of 2:1, or neither).



f-puzzles: <https://f-puzzles.com/?id=yheex7q>

CtC: <https://tinyurl.com/2ddsw86z>

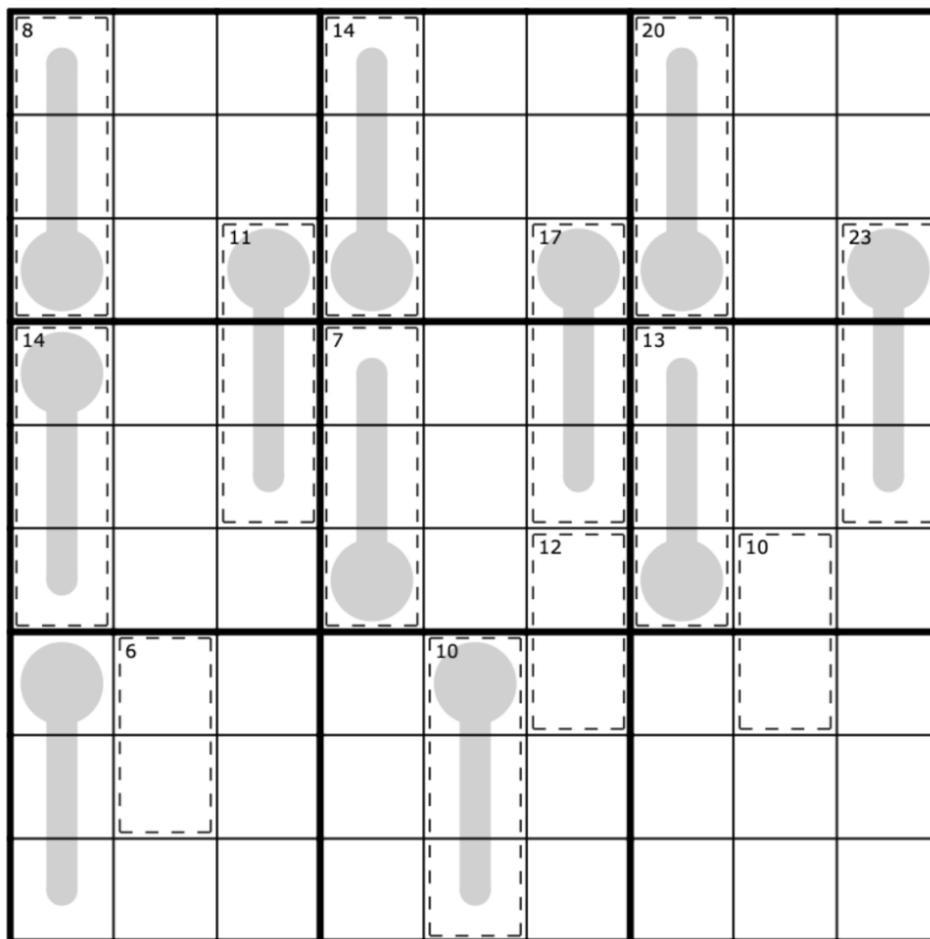
**June 22, 2021: Thermo/Killer**

Clover

Standard sudoku rules apply.

Digits in a cage may not repeat and must sum to the value provided.

Digits along a thermometer must strictly increase, starting from the bulb (round) end.



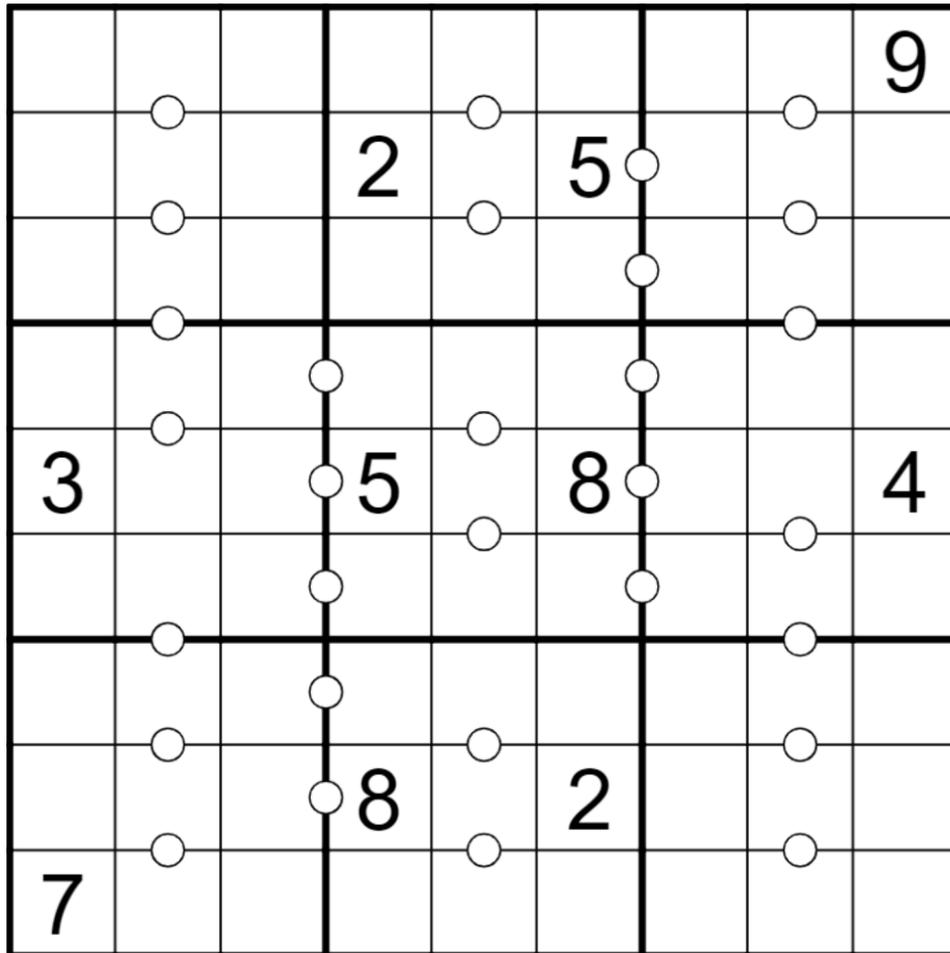
f-puzzles: <https://f-puzzles.com/?id=ye5zdd2r>

CtC: <https://tinyurl.com/ca8dknkp>

## June 23, 2021: Consecutive Pairs

Sam Cappleman-Lynes

Normal Sudoku rules apply. If a white dot is placed between two cells then the digits in those cells must be consecutive.



f-puzzles: <https://f-puzzles.com/?id=yfe9fvog>

CtC: <https://tinyurl.com/3p7j8ezd>

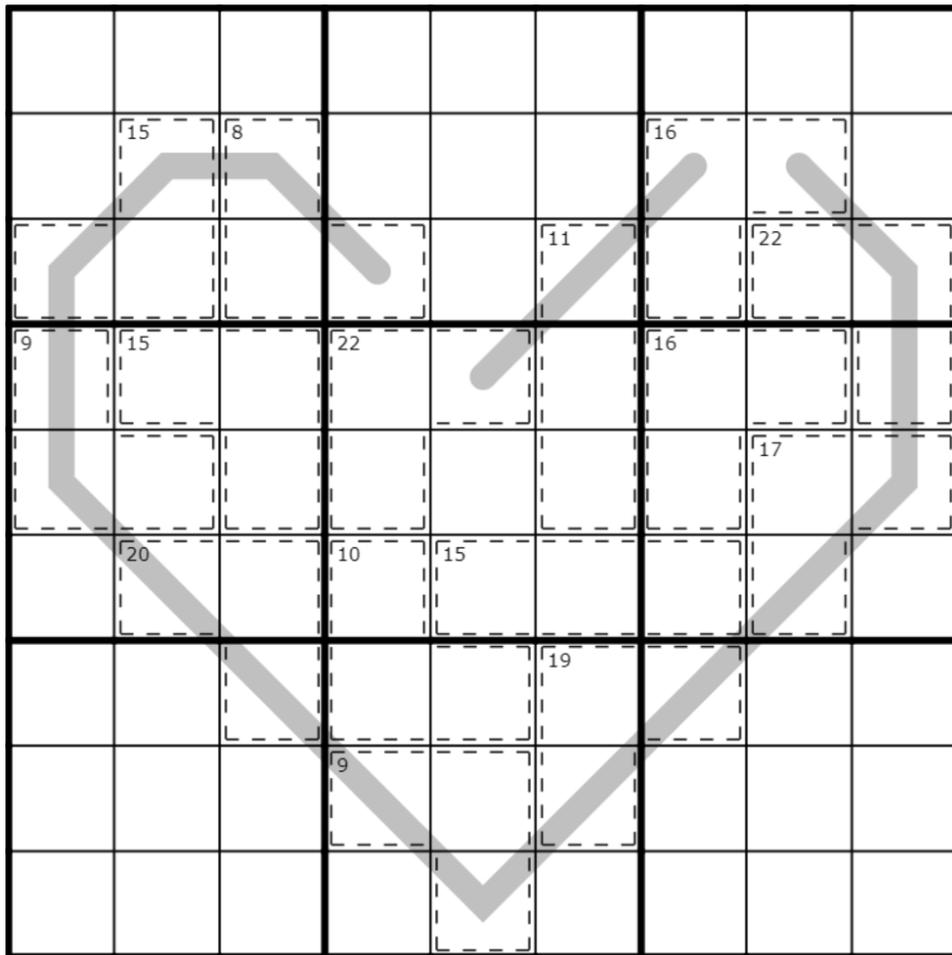
## June 24, 2021: Palindrome/Killer

Philip Newman

Normal sudoku rules apply.

Digits in cages must sum to the total given, and digits cannot repeat within a cage.

Digits along each grey line must form a palindrome (that is, a sequence of digits which reads the same starting from either end; for example, "123292321").



f-puzzles: <https://f-puzzles.com/?id=yg9xzf3>

CtC: <https://tinyurl.com/3c2zfp9p>

**June 25, 2021: Point to Next**  
Clover

Standard sudoku rules apply.

If a digit appears in a cell with an arrow, then the arrow has to point to the next highest digit. For instance, if you put an 8 in an arrow cell, then the next highest digit, 9, must appear somewhere in the direction that the arrow is pointing (not necessarily immediately adjacent to the 8).

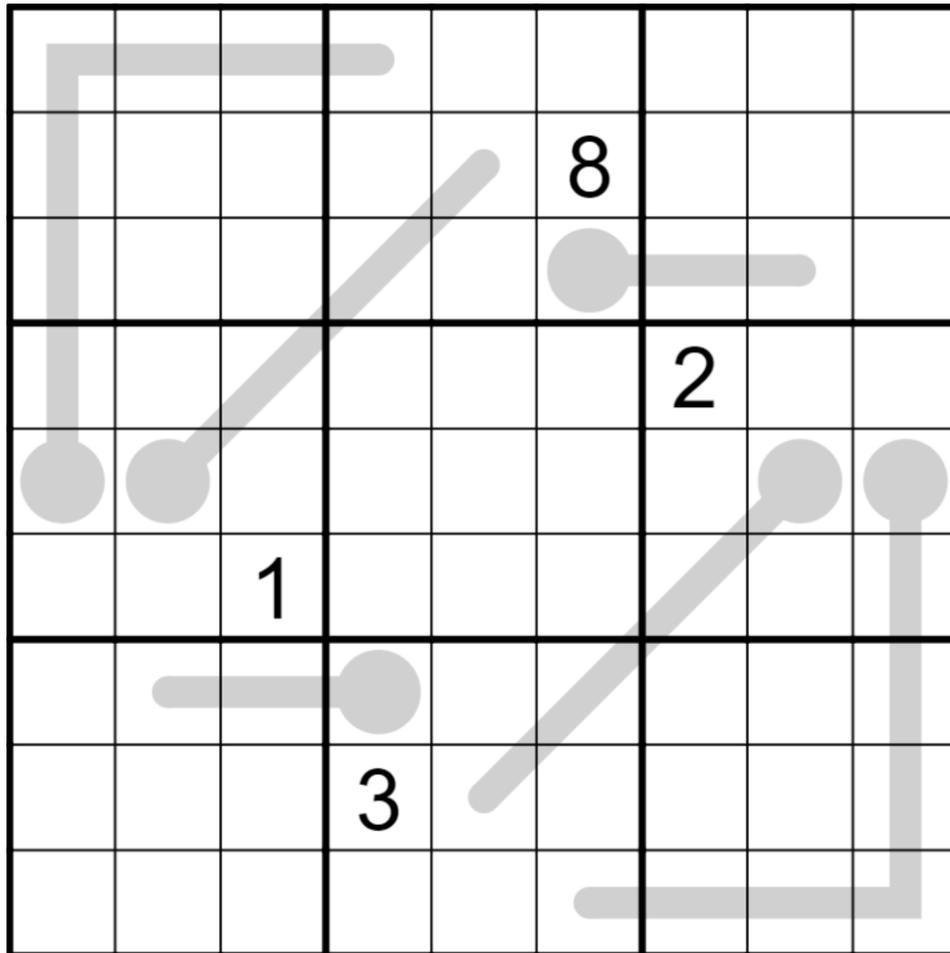
1	2	3			→	7	8	9
			→	→	→			
		→				←		
	6						2	↓
↑	7					↓	3	
	8						4	
	↓	→					↓	↓
			9	5	1	→		
			←					

f-puzzles: <https://f-puzzles.com/?id=yxfb42d>

CtC: <https://tinyurl.com/4rkw7kvr>

**June 26, 2021: Thermo**  
Sam Cappleman-Lynes

Normal Sudoku rules apply. Additionally, digits placed on a thermometer shape must be strictly increasing, starting from the bulb.



f-puzzles: <https://f-puzzles.com/?id=yz78sqod>  
CtC: <https://tinyurl.com/znre6nxs>

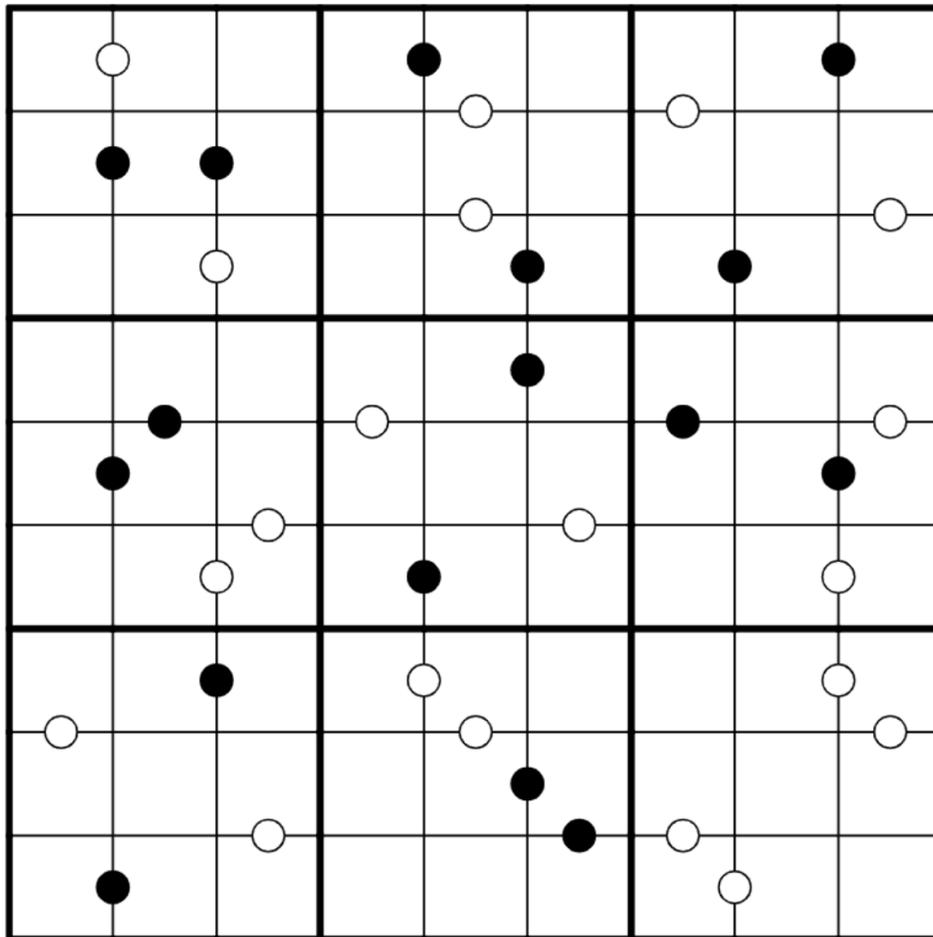
## Bonus Puzzles

Here are three puzzles that we chose *not* to use for GAS: one from each setter. Maybe they were too challenging, or maybe we were just in a bad mood that day. But they've found their home here, at the end of GAS Leak 1! No time benchmarks for these: just solve 'em and enjoy!

## Bonus 1: Box of Krop

Philip Newman

Normal sudoku rules apply. Digits in cells connected by a black dot must have a ratio of 2:1. Digits in cells connected by a white dot must be consecutive. There are no negative constraints (digits in adjacent cells not connected by a dot could be consecutive, have a ratio of 2:1, or neither).



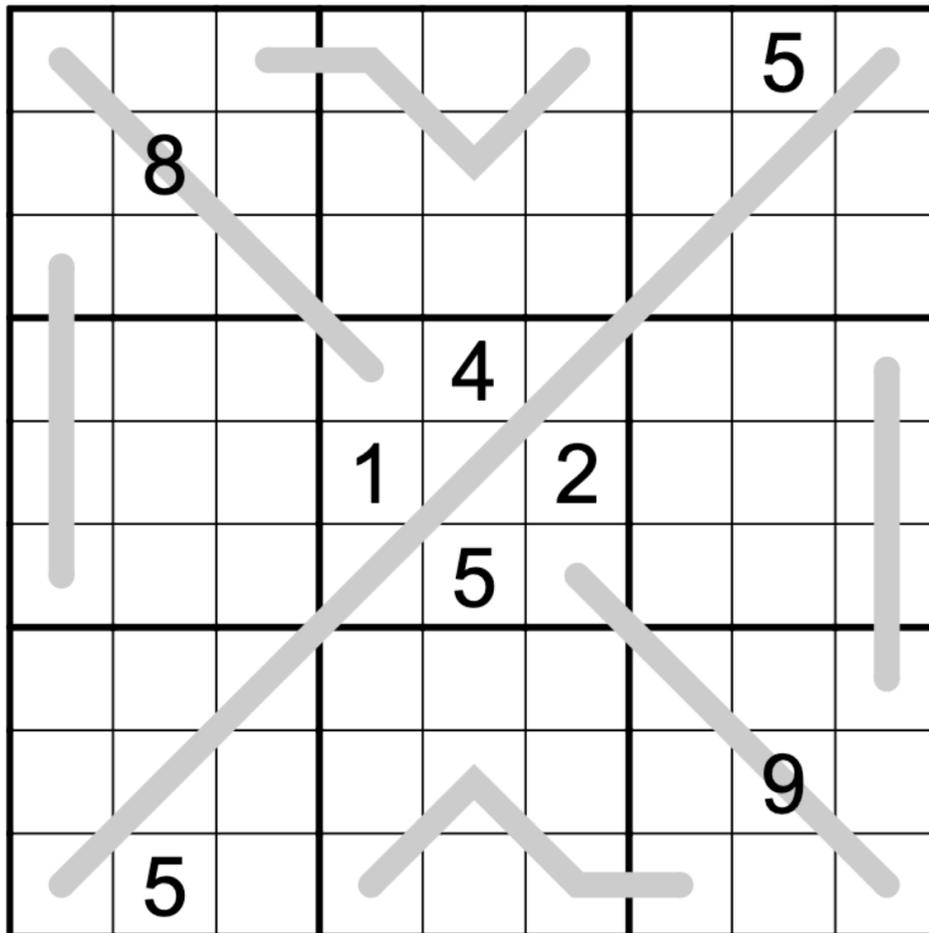
f-puzzles: <https://f-puzzles.com/?id=yguhwgpk>

CtC: <https://tinyurl.com/hb7jvbwk>

## Bonus 2: German Whispers

Clover

Standard sudoku rules apply. Along a grey line, all pairs of neighboring digits must differ by at least 5.



f-puzzles: <https://f-puzzles.com/?id=ygoz39ly>

CtC: <https://tinyurl.com/73xwyss7>

### Bonus 3: Point to Next

Sam Cappleman-Lynes

Standard sudoku rules apply. If N is placed in a cell with an arrow, then N+1 must be somewhere in the direction of the arrow (not necessarily directly adjacent).

	←	←	←		→	→	→	
↓				↑				↓
↓				↑				↓
↓		5		↑		8		↓
	→	→	→	5	←	←	←	
↓		7		↓		9		↓
↓				↓				↓
↓				↓				↓
	→	→	→		←	←	←	

f-puzzles: <https://f-puzzles.com/?id=yedoqbme>

CtC: <https://tinyurl.com/asvztjz3>

# Time Benchmarks

	<i>One party hat</i>	<i>Two party hats</i>
June 7	15:00	10:00
June 8	12:00	8:00
June 9	13:30	9:00
June 10	13:30	9:00
June 11	12:00	7:30
June 12	12:00	7:30
June 13	14:00	9:00
June 14	13:00	7:30
June 15	9:00	5:00
June 16	13:00	7:30
June 17	12:00	6:30
June 18	13:30	8:00
June 19	12:00	7:30
June 20	15:00	9:00
June 21	13:00	7:30
June 22	13:00	7:30
June 23	11:00	6:30
June 24	14:00	8:30
June 25	16:00	10:00
June 26	13:00	8:00