

# GAS Leak

Genuinely Approachable Sudoku  
from the CtC Discord

Volume 29:

June 1 – June 30, 2023

Welcome to June!

Once you finish the last of these 32 great puzzles, half of the year 2023 will already be gone... (nitpickers corner: day 183 is July 2nd, but we've finished half the months).

In this month we learned about heat waves and the trouble with AC and about nerd snipes and their danger to posting on time, we got schoolteachers in dino costumes and on vacation (not necessarily both at the same time) - and we got our share of new variants and new shapes. If you think you have diplopia (double vision) in one puzzle: that's nothing medical, just another really interesting variant 😊

Also GAS had its second birthday this month! 🎂

Have fun solving!

- Engy

**June 1, 2023: Born Slippy**  
Bill Murphy

Choose your future. Choose life... But why would I want to do a thing like that? I chose not to choose life. I chose somethin' else. And the reasons? There are no reasons. Who needs reasons when you've got **Classic Sudoku**?

*Put the digits 1-9 in each box, row and column.*

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

f-puzzles: <https://f-puzzles.com/?id=2n83kyfc>  
CTC: <https://tinyurl.com/me3xn7xn>

## June 2, 2023: Duplication Glitch

Philip Newman

As everyone should be aware by now, I have been playing Tears of the Kingdom quite a bit recently. I'm still looking for shrines and "lightproofs" as Zoe calls them, but now that I've defeated the final boss I have watched a few speedruns of the game. The world record is already under an hour, in large part thanks to a number of weapon and item duplication glitches.

I enjoyed this comment on by youtube user "Kanye Northeast":

"I can't believe no one in the history of Hyrule thought of just duct-taping a dozen spears together and using them against any enemy they faced. Link is truly a genius."

Today's **GAS** is a **Clone Sudoku**; hopefully you can use the constraint to duplicate your placing of digits and get a faster time!

Normal sudoku rules apply.

**Clone: Blue regions are clones, and must contain the same digits in the same relative positions.**

↓↓ ↓↓ (The puzzle is on the next page) ↓↓ ↓↓

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

Play on f-puzzles: <https://f-puzzles.com/?id=2pjha47w>

Play on CTC App: <https://tinyurl.com/462m4zf9>

**June 3, 2023: Difference  
clover!**

What's the difference between affect and effect?

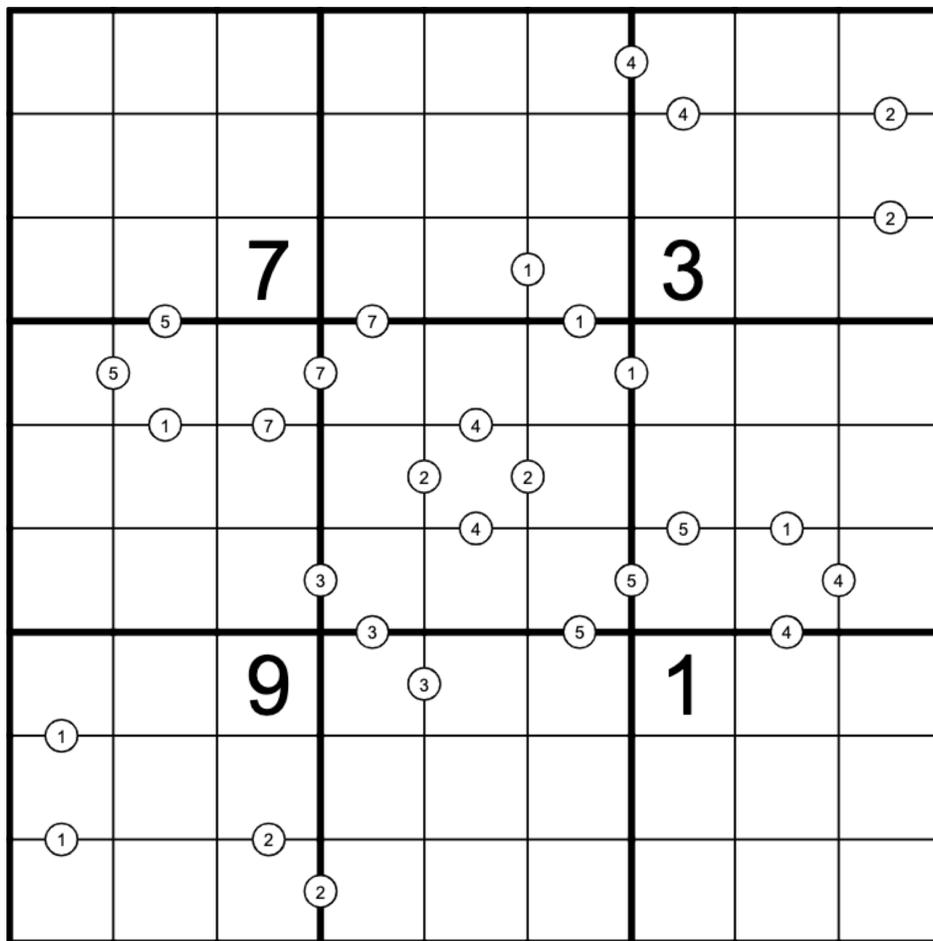
What's the difference between an alligator and a crocodile?

What's the difference between a hurricane and a typhoon?

How many GAS solvers are currently experiencing an overpowering urge to answer all three of those questions?

Learn the answers to these questions and more, by solving today's **difference sudoku!**

Normal sudoku rules apply. Also, digits separated by a white dot have the difference shown in that dot. For instance, if two digits are separated by a dot with a "4" in it, they must have a difference of exactly 4, such as 2 and 6.



f-puzzles: <https://f-puzzles.com/?id=2mn7vdrn>

CtC: <https://tinyurl.com/3cp6ejr3>

## June 4, 2023: Give It To Me

Bill Murphy

Happy Pride Month to my friends and adopted family! Love u!

Today's Palindrome Quadruple Sudoku title comes from my favourite pride anthem.

(The UK might actually win a Eurovision if they send the Northern Boys)

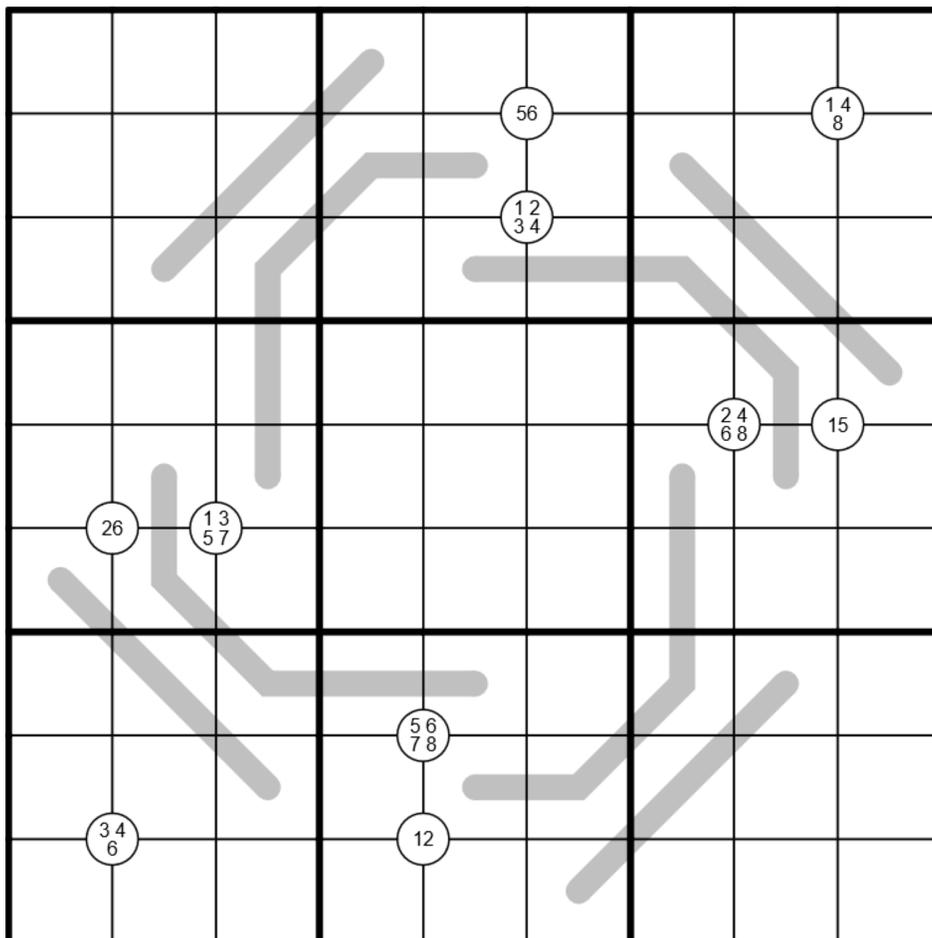
*Raising a glass to the gays, and the bis and the trans and the girls and the big bald men*



Speaking of Pride Month, @Taco Dave and @Jamie Hargrove collated a fantastic collection of LGBTQIA+ constructors for Pride, you can find that link here:

<https://l.puz.fun/pp2023> (There's a GAS classic in there from yours truly)

*Normal sudoku rules apply. Grey lines are palindromes and must read the same from either direction. Digits in clues at cell intersections must appear in the surrounding 4 cells.*



f-puzzles: <https://f-puzzles.com/?id=2q3llmx>

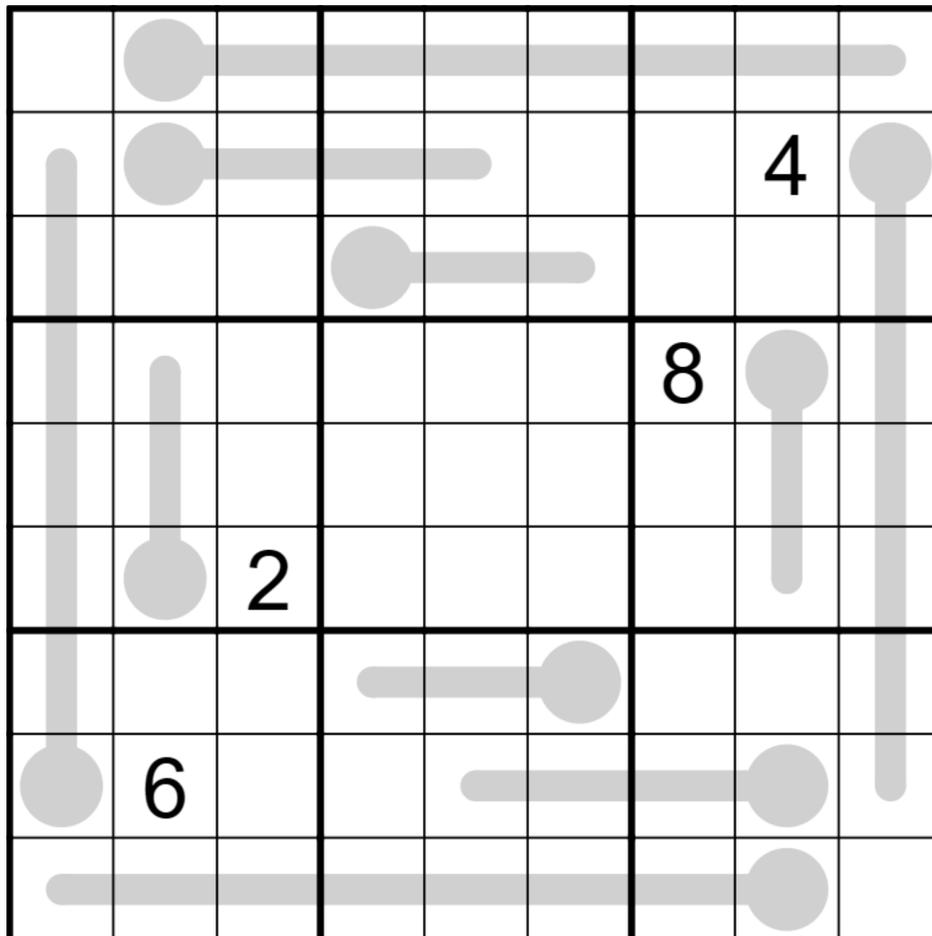
CTC: <https://tinyurl.com/yc3h468v>

June 5, 2023: Hot Line Bling  
Philip Newman

Today's **GAS** is a **Thermo Sudoku**! It comes with a dumb meme!

Normal sudoku rules apply.

**Thermo:** Digits along thermometers must strictly increase from bulb to tip.



Play on f-puzzles: <https://f-puzzles.com/?id=2gy68oqy>  
Play on CTC App: <https://tinyurl.com/466ycec2>

↓↓ (The meme is on the next page) ↓↓



Antiking  
Sudoku

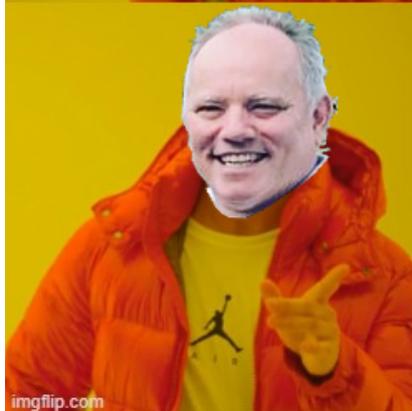


Goodliffing  
Thermos

@Lapis made a better version of the meme 😊



Antiking  
Sudoku



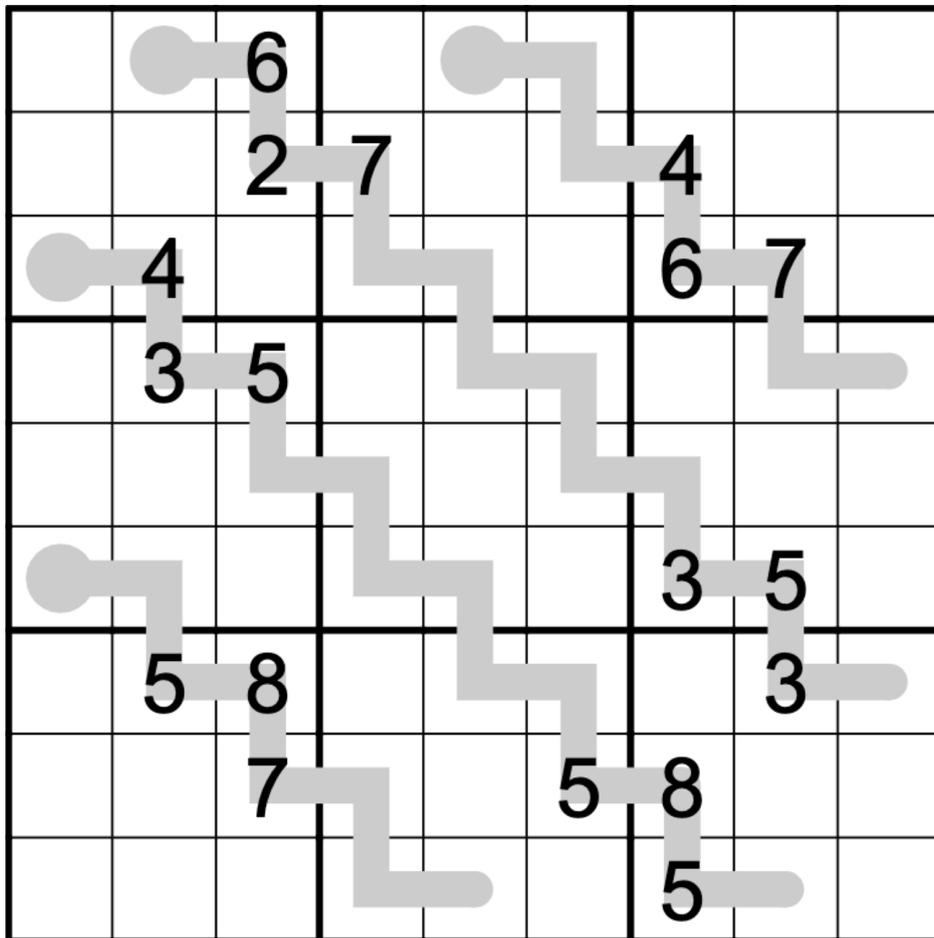
Goodliffing  
Thermos

**June 6, 2023: Double Digit Thermo  
clover!**

This one goes out to all of you who are sick and tired of never seeing your favorite two-digit number ~~which I assume is 69~~ represented in sudoku. Does it make an appearance in this puzzle? Solve it and find out!

Normal sudoku rules apply. Also, read the digits along each thermometer as a series of non-overlapping 2-digit numbers, starting from the round bulb. These 2-digit numbers must increase along the thermometer.

For instance, a thermometer could read 1317182629, because the 2-digit numbers 13, 17, 18, 26, 29 are an increasing sequence.



f-puzzles: <https://f-puzzles.com/?id=2k6j92ec>  
CtC: <https://tinyurl.com/atbx72w7>

**June 7, 2023: Happy Birthday, GAS**  
Bill Murphy, Philip Newman and clover!

Happy birthday to GAS 🍰

Happy birthday to GAS 🕯️

Happy birthday dear Genuinely Approachable Sudoku... 🎉

Happy birthday to GAS! 🎊

Good morning, friends! As GAS's adopted son, it brings me great joy to tell you that today is GAS's second birthday! Those of us in the GAS testing channel really did have a moment where we did that Paul Rudd "Look at us! Who would've thought?" bit, then went back to playing Tears of the Kingdom. Thank you to all the daily solvers - and your efforts to rehome stray dinosaurs - for coming to our birthday party! 🥰

For today's GAS, we've brought back our favourite game show, GAS WHO! There are no time standards today: instead, everybody who finishes all three puzzles will receive two party hats.

However, if you want that juicy **limited edition commemorative birthday bonus hat**, you'll need to tell us who made which puzzle. Will you get your **fill** with a Classic Sudoku? Will you be a 🍷lover of Anti-King Sudoku? Or are you slightly dotty like GAS's stray that they picked up off the street and will you go for the Difference Quadruple Sudoku?

[The solution of the setters is on the Hints page]

↓↓ ↓↓ (The first puzzle is on the next page) ↓↓ ↓↓

Puzzle 1: G  
Normal sudoku rules apply.

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

<https://f-puzzles.com/?id=2er2het3>  
<https://tinyurl.com/5x7765su>

⇓⇓ (The second puzzle is on the next page) ⇓⇓

Puzzle 2: A

Normal sudoku rules apply. Cells that are a chess king's move apart must not contain the same digit.

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

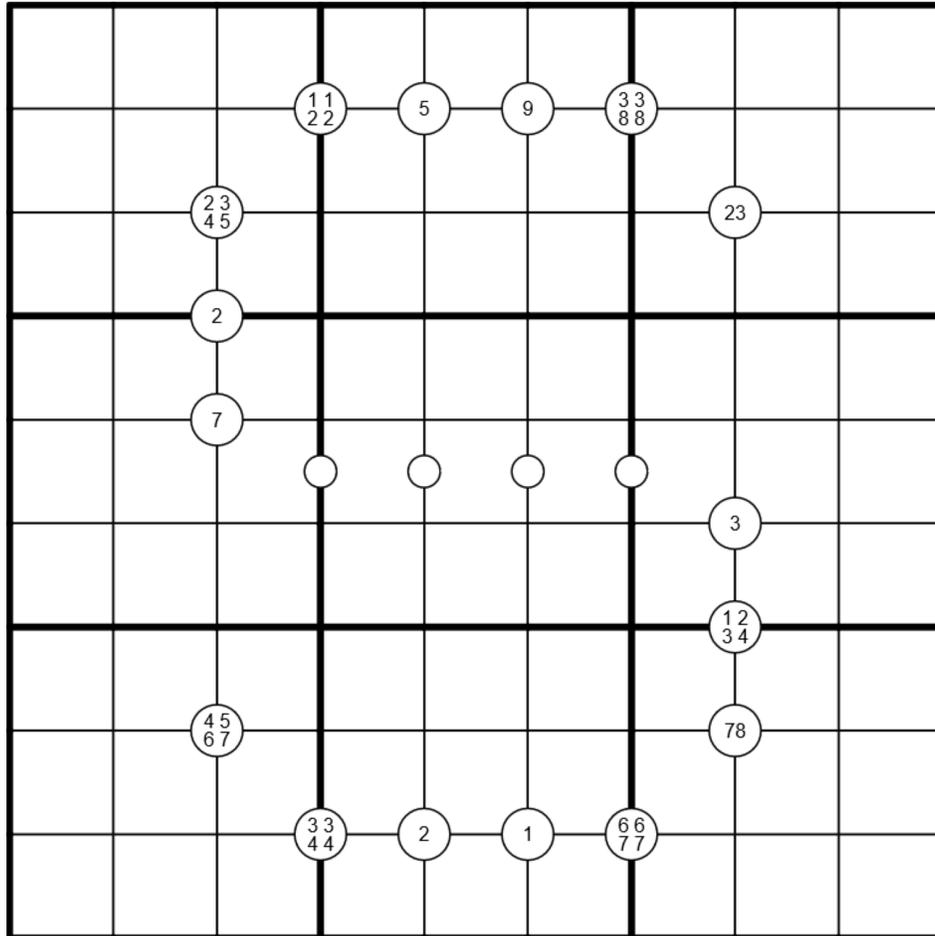
<https://f-puzzles.com/?id=2pep6vu7>

<https://tinyurl.com/bddjvmyz>

↓↓↓ (The third (and last) puzzle is on the next page) ↓↓↓

### Puzzle 3: S

Normal sudoku rules apply. Digits separated by a white dot must be consecutive. Digits in clues at cell intersections must appear in the surrounding 4 cells.



<https://f-puzzles.com/?id=2mg882us>

<https://tinyurl.com/yc2uthsz>

**June 8, 2023: Relentless**

Bill Murphy

I'm very tired so I'll keep this classic sudoku intro short today!  
(Hi very tired, I'm @Daily Sudoku Solver)

You should enter the raffle at your local GAS Station! Many will enter, fuel win.

*Normal Sudoku Rules Apply.*

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

f-puzzles: <https://f-puzzles.com/?id=2lt82ajp>

CTC: <https://tinyurl.com/mv67z8kz>

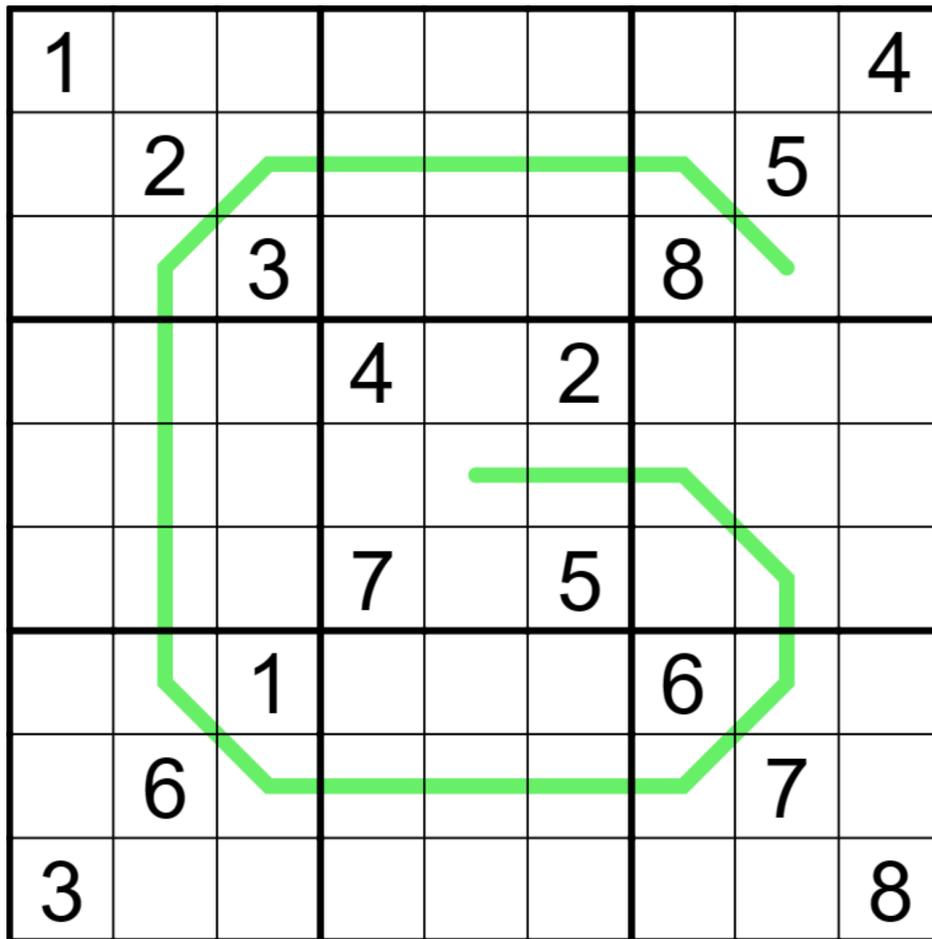
June 9, 2023: Regifting  
Philip Newman

Happy Coral Triangle Day! I made you something! The G is for... uh... oh! It's an Ecolo-G! This is definitely not a leftover puzzle from GAS's second birthday.

Today's **GAS** is a **German Whispers Sudoku!**

Normal sudoku rules apply.

**German Whispers: Digits in cells directly connected by a green line must differ by at least 5.**

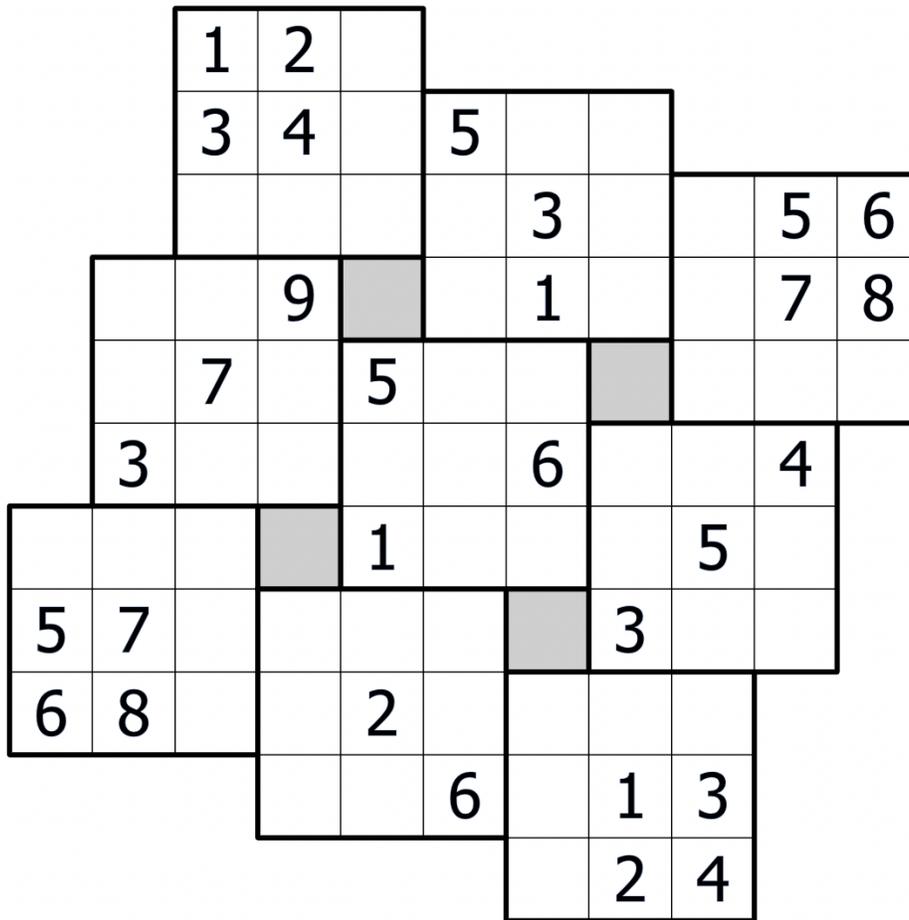


Play on f-puzzles: <https://f-puzzles.com/?id=27zgg5r7>  
Play on CTC App: <https://tinyurl.com/5n7vwdt4>

**June 10, 2023: Strange and Wiggly  
clover!**

The 3x3 regions in today's GAS have escaped the grid and wandered around a bit. I knew I shouldn't have let them out of their 9x9 paddock, but they just looked so sad in there, I didn't think it would do any harm to let them out...

Place the digits 1 through 9 exactly once each in each 3x3 region. Also, digits that see each other in a row or column must be distinct. However, gray cells block line of sight, so digits separated by a gray cell can be equal.



CtC: <https://tinyurl.com/3karj4sc>

## June 11, 2023: Shaken Clones Sudoku

Bill Murphy

Today's GAS is a **Chosen Ankles** sudoku!

*Wait, hang on, let me try that one again.*

Today's GAS is a **Sank Echelons** sudoku!

*no. wait.*

Today's GAS is a **Canon Shekels, Enclose Ankhs, Chanson Leeks** Sudoku!

*One last time.*

Today's GAS is a **Shaken Clones** sudoku!

*Normal Sudoku Rules Apply. Digits in identically shaded regions, even if the shape of that region is rotated or reflected must contain the same digits, but those digits may appear in any order.*

*It's just like regular clone sudoku, but a bit more shaken!*

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

f-puzzles: <https://f-puzzles.com/?id=2eoczu6>

CTC: <https://tinyurl.com/3m2pb8zs>

**June 12, 2023: Fried Liver**  
Philip Newman

Today's GAS ~~needs~~ has no introduction, it's an **Antiking Antiknight Sudoku!**

Read the following after you have solved the puzzle! [See Hints page]

Normal sudoku rules apply.

**Antiking:** Cells separated by a (chess) king's move cannot contain the same digit.

**Antiknight:** Cells separated by a (chess) knight's move cannot contain the same digit.

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

Play on f-puzzles: <https://f-puzzles.com/?id=2b8nrlhv>

Play on CTC App: <https://tinyurl.com/25h3xuab>

**June 13, 2023: Roll Sudoku**  
 clover!

Only 1 out of approximately 200,000 births results in conjoined twins, making this **roll sudoku** exceptionally unique. Luckily it seems happy, healthy, and has no desire to be separated. 😊

This puzzle consists of two overlapping 9x9 classic sudoku grids which must be solved together so that normal sudoku rules apply to each grid. The topmost 9x9 grid (rows 1-9) is a valid classic sudoku grid, and so is the bottom 9x9 grid (rows 4-12).

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

CtC: <https://tinyurl.com/2utu2tv3>

## June 14, 2023: Ascending Starters

Bill Murphy

I'm writing this from outside a live music venue in Melbourne tonight. I like to joke that in any given situation I refuse to learn my lesson, but I've posted GAS enough times from inside venues to remember that reception is always bad inside. Evolution!

While I get a little of that spiritual ascension tonight, I hope you get a little lift from this **Ascending starters sudoku!**

*Normal Sudoku Rules Apply. Clues outside the grid give the sum of the first ascending sequence of digits from the first cell seen from the direction of the clue. Sequences may be only one digit.*

*eg. if Row 1 was 135792486, then from the left 13579 would sum to 25 and from the right 86 would sum to 14.*

									4	15	42
44											
											11
8				4							
			2		5						
				1							24
25											
											42
									37	8	12

f-puzzles: <https://f-puzzles.com/?id=288tla4g>

CTC: <https://tinyurl.com/ye2ac9sj>

## June 15, 2023: Pairity

Philip Newman

If you look through the GAS catalogue, you might notice that the variants I use tend to be more "common" while Bill and especially clover introduce new rulesets frequently. This is due to several factors:

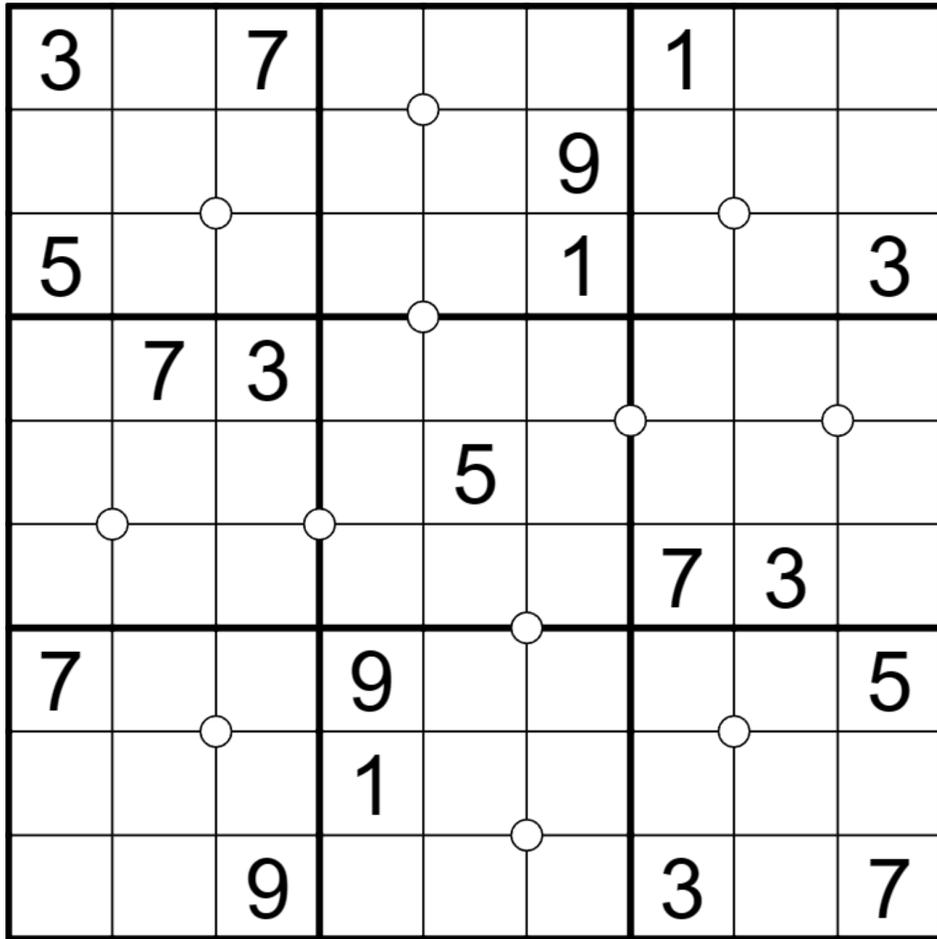
- ① I use f-puzzles + rangsk's solver all the time so I tend to set variants supported there. I'm a setting cyborg.
- ② I spend all my free time playing Tears of the Kingdom.
- ③ When I do set something unusual, the first version tends to be too hard.

Today's GAS is a **Diagonal Consecutive Pairs Sudoku** (not to be confused with a Diagonal + Consecutive Pairs Sudoku, though I absolutely set one of these too; Bill said "adored it, no"). I set an initial version of this in February and have only just come back to it this week!

Normal sudoku rules apply.

**Diagonal Consecutive Pairs: Digits in cells separated diagonally by a white dot are consecutive (have a difference of 1). This applies to both pairs of cells around the white dot!**

↓↓ ↓↓ (The puzzle is on the next page) ↓↓ ↓↓



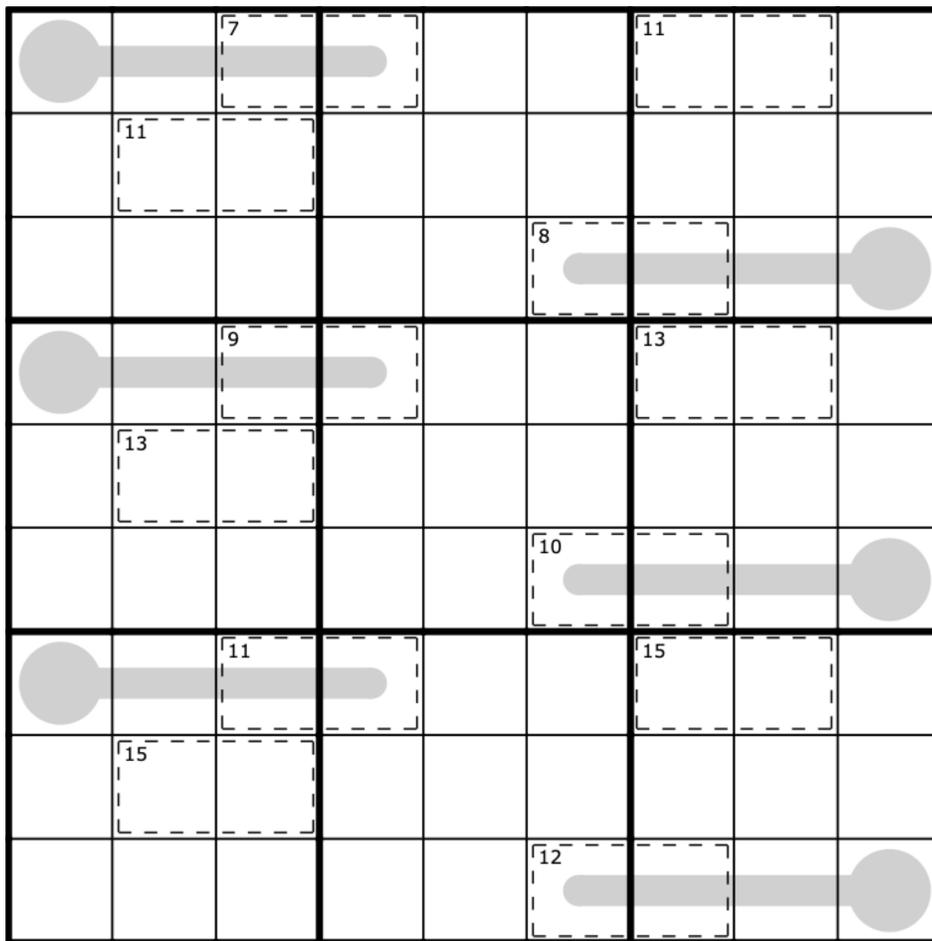
Play on f-puzzles: <https://f-puzzles.com/?id=243ua9d5>  
Play on CTC App: <https://tinyurl.com/bdeduuym>

**June 16, 2023: Thermo Killer**  
 clover!

So a proctologist walks into the bank one afternoon after work. She goes to get a pen out of her purse to sign a check, but all she finds in there is a rectal thermometer.

"Oh no," she laments. "Some a\*\*hole must have my pen."

In this **thermo killer** GAS, normal sudoku rules apply. Also, digits along thermometers must increase starting from the round bulb. Digits in cages sum to the indicated totals.



f-puzzles: <https://f-puzzles.com/?id=24m98jip>  
 CtC: <https://tinyurl.com/2aupp5vf>

## June 17, 2023: The Middle

Bill Murphy

As it inspired today's puzzle from me, in exciting news, Clover and I recently made sudoku for the Indian Sudoku Championships along with some other icons from this server! The puzzles are available for purchase over on Logic Masters India at the following link: <https://logicmastersindia.com/forum/forums/thread-view.asp?pid=31690>

In other exciting news, I ordered it for GAS's Second Birthday, but it only arrived yesterday, so it brings me joy to say the dinosaur for today's **Pencilmark Sudoku** is me lol

(Thank you to my patrons for helping with bills, but also enabling me to do silly bits)

*Normal Sudoku Rules Apply. Digits marked in cells are all possible candidates for that cell.*

			19					
	567	678		79		45		
	456				46	25	67	
		24	12	23	34			39
	59		18		45		19	
79			78	67	56	68		
	78	58	28				128	
		69		39		234	123	
					59			

f-puzzles: <https://f-puzzles.com/?id=25bw2raj>

CTC: <https://tinyurl.com/2r33kjzu>

↓↓↓ (The image of Bill is on the next page) ↓↓↓

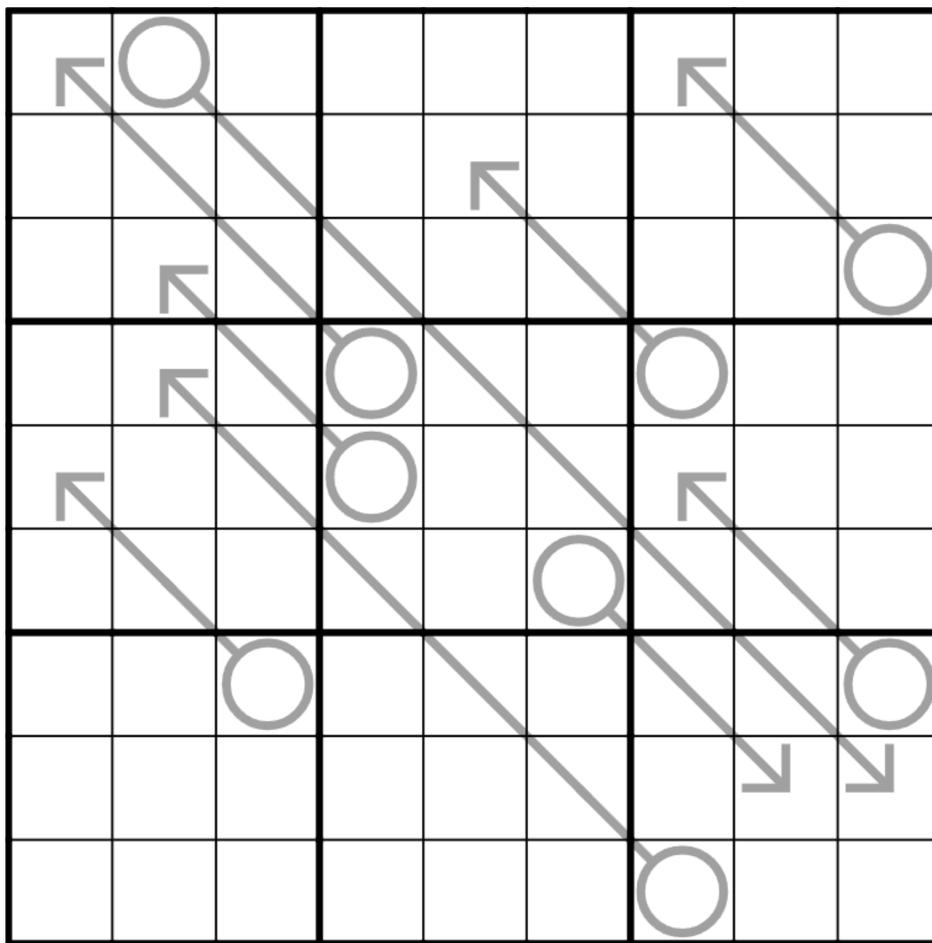


**June 18, 2023: Sniped**  
Philip Newman

Today's **GAS**, an **Arrow Sudoku**, should have been posted sooner. Blame @*(ass)* Shyeheya, she posted an interesting nerd snipe in #theory-and-programming. [Note: see Hints page for more info]

Normal sudoku rules apply.

**Arrow: Digits along arrows must sum to the circled total.** (Digits may repeat if allowed by other rules.)

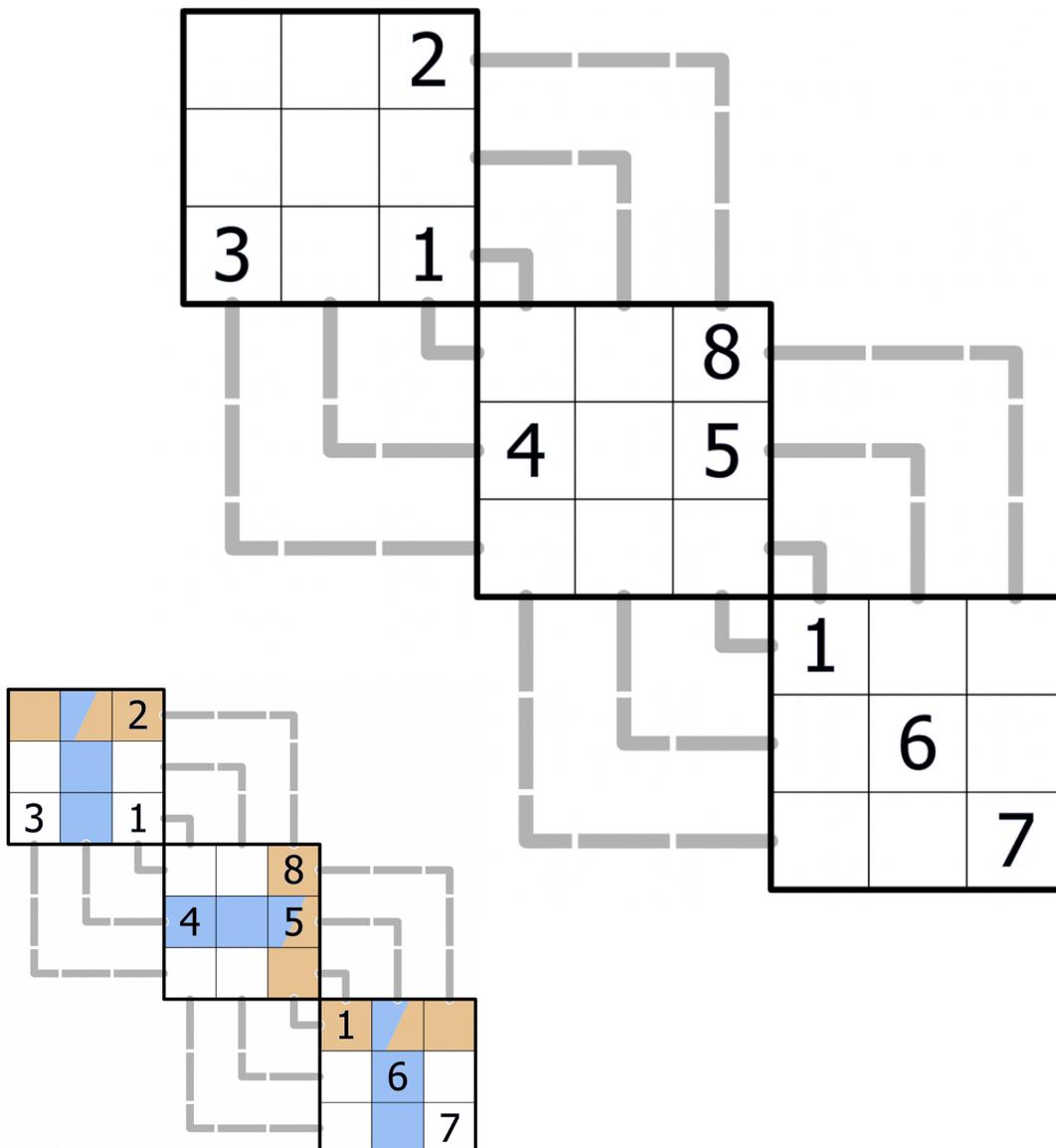


Play on f-puzzles: <https://f-puzzles.com/?id=24kzjqpg>  
Play on CTC App: <https://tinyurl.com/2s4jpf28>

**June 19, 2023: Sudokurve**  
clover!

Today's puzzle is just a tiny little fella. And like all other tiny things, such as scorpions, poison dart frogs, and flesh-eating bacteria, it's *completely harmless*.

Fill each 3x3 region with the digits 1 through 9 exactly once each. Also, digits must not repeat along the 'curved' length-9 lines indicated by the lines outside of the grid (see example image in post).



CtC: <https://tinyurl.com/4fypmk2r>

## June 20, 2023: Big Feelings

Bill Murphy

*Today's Intro (and hat time too, I guess) brought to you by Mark Goodliffe getting his second fastest time for a 9x9 on a classic of mine in his last video (only besting it by one second on a Sam Cappleman-Lynes classic).*

Do you ever see those people getting ridiculously quick times on **Classic Sudoku** in the discord and youtube comments and go "What do they know that I don't?"

I'm gonna tell you the secret that those people don't want you to know, because but Mr. Goodliffe clearly doesn't need it, I'm going to both put it under a spoiler so he won't read it. [See Hints page]

Now that that's just between us, let's just carry on shall we? *Normal Sudoku Rules Apply.*

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

f-puzzles: <https://f-puzzles.com/?id=29gmu5f9>

CTC: <https://tinyurl.com/2s4eezvu>

June 21, 2023: Shuriken  
Philip Newman

It's the first day of summer! I live in Texas! Our AC is out! I'm making this intro short so I can get back downstairs where it is very slightly cooler! 🥰

Today's **GAS** is an **8x8 Irregular Sudoku**!

**Normal 8x8 irregular sudoku rules apply: Place a digit in each cell such that each row, column, and outlined region contains each digit from 1-8 exactly once.**

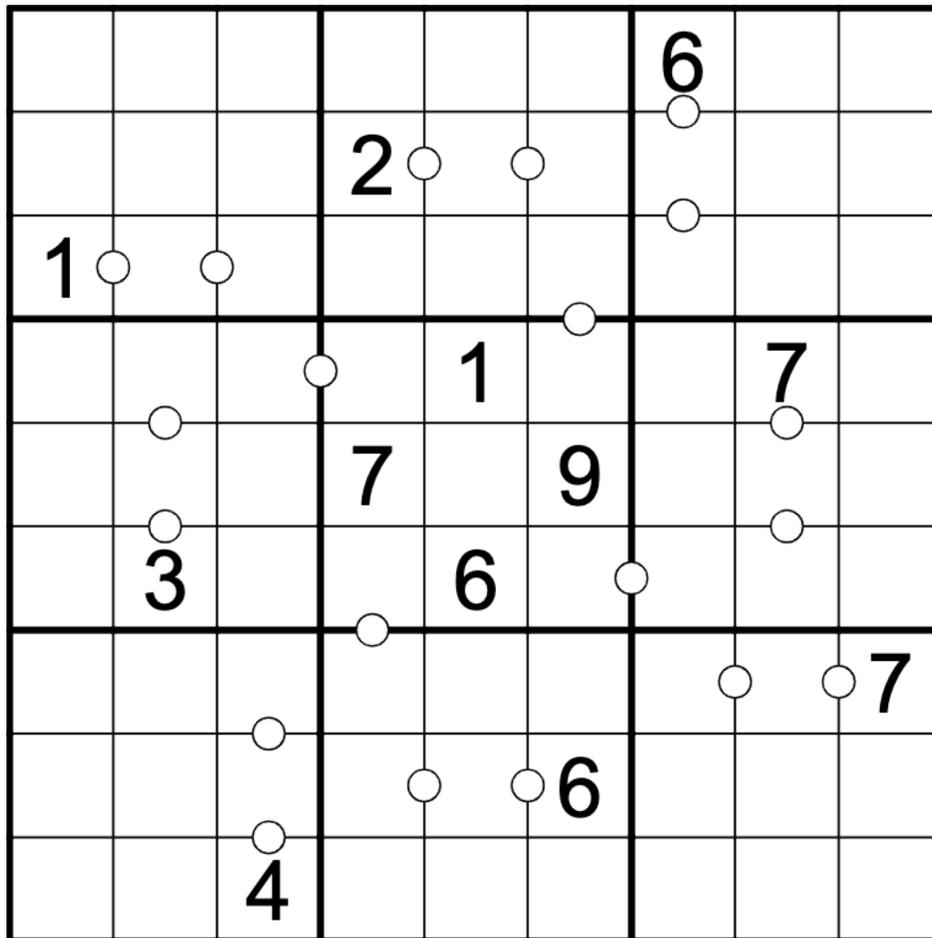
1					8		7
	2					6	
		3					5
			4				
				5			
4					6		
	3					7	
2		1					8

Play on f-puzzles: <https://f-puzzles.com/?id=2n7oyfjh>  
Play on CTC App: <https://tinyurl.com/yc5t49t4>

June 22, 2023: Consec. Pairs  
clover!

What is a **consecutive pairs sudoku**? A miserable little pile of white dots. But enough talk. Solve at you! 🙌

Normal sudoku rules apply. Also, digits separated by a white dot are consecutive. Not all possible dots are necessarily given.



f-puzzles: <https://f-puzzles.com/?id=2kfnvwrn>  
CtC: <https://tinyurl.com/4dvdt5fj>

**June 23, 2023: You've Got A Friend In Me**  
Bill Murphy

*David Attenborough voice*

And here we have the rare, **Holidaying Schoolteacher**, emerging from its burrow to search for food. It's only seen for about two weeks every three months, choosing to live a life of solitary comfort, sleeping and eating.

Look! There it goes. It found a burrito. This will sustain it for weeks to come.

Quite often it will leave behind Genuinely Approachable Sudokus to ward off predators, this time, choosing to leave behind a **Friendly Cell Sudoku**. This should stave off the masses for a while.

*Normal Sudoku Rules Apply. Digits in green cells must be equal to either the box, row or column they are in.*

9			7					
							5	
		1	3					5
5					7	9		
	5							
					3			1

## June 24, 2023: Inside Philip's House

Philip Newman

Update on our AC! A wire in the outside unit got fried and took out the board with it; it won't be replaced until Monday at the earliest. Fortunately, they were able to provide us with a couple of window units to cool our bedroom and the living room so that we all have somewhere cool to sleep. The kids are enjoying "camping out" in the living room.

Since I know some are visual learners, I have put together a rough schematic of the temperature situation in our house. At the bulb of the longer (slow) thermo, we have our bedroom, where one of the window units is blowing directly on my face. The temperature creeps up as you go through the living room, into the hall, and up the stairs.

At the very tip of the thermo is my office, which I endured for 5 whole minutes this morning just to get a link with solution check, because that's how dedicated I am to getting **GAS** ready for you! (It wasn't that bad... yet.)

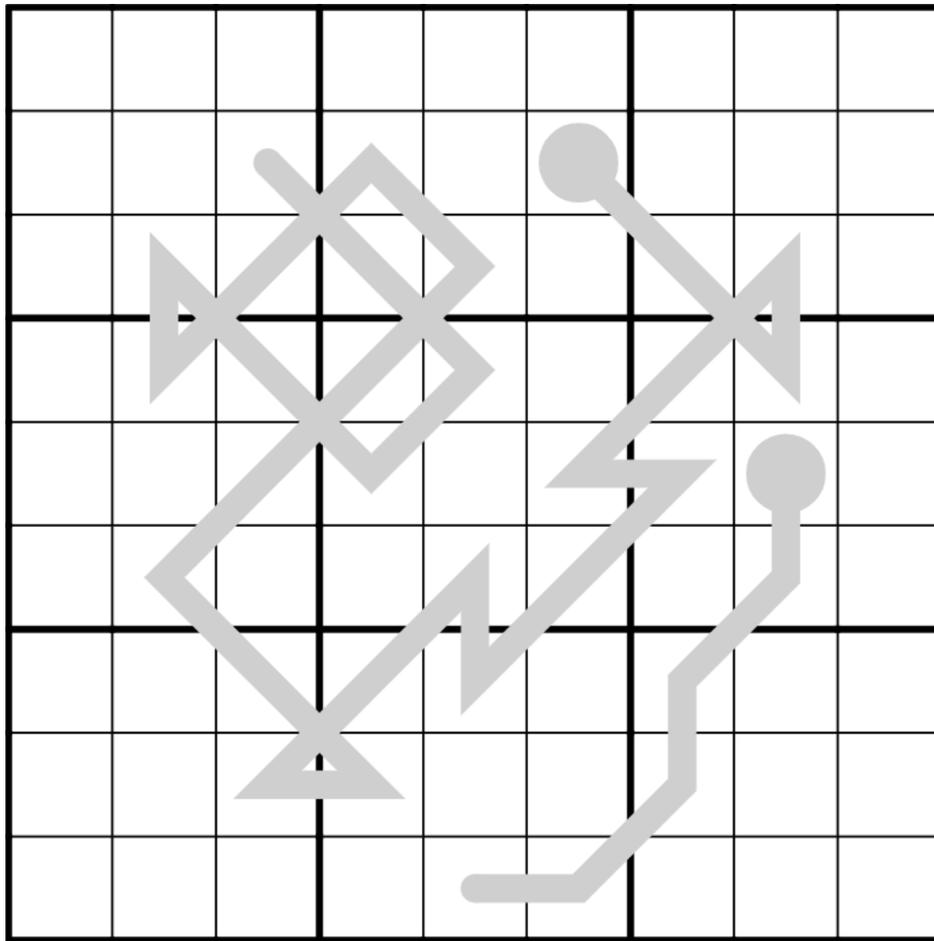
The shorter thermo is the shade at our front door out onto the street? Maybe? Solve to find out if it's hotter in my office than outside!

Today's **GAS** is a **Slow Thermo Sudoku!**

Normal sudoku rules apply.

**Slow Thermo: Digits along thermometers must not decrease (but can stay the same) from bulb to tip.**

↓↓ ↓↓ (The puzzle is on the next page) ↓↓ ↓↓



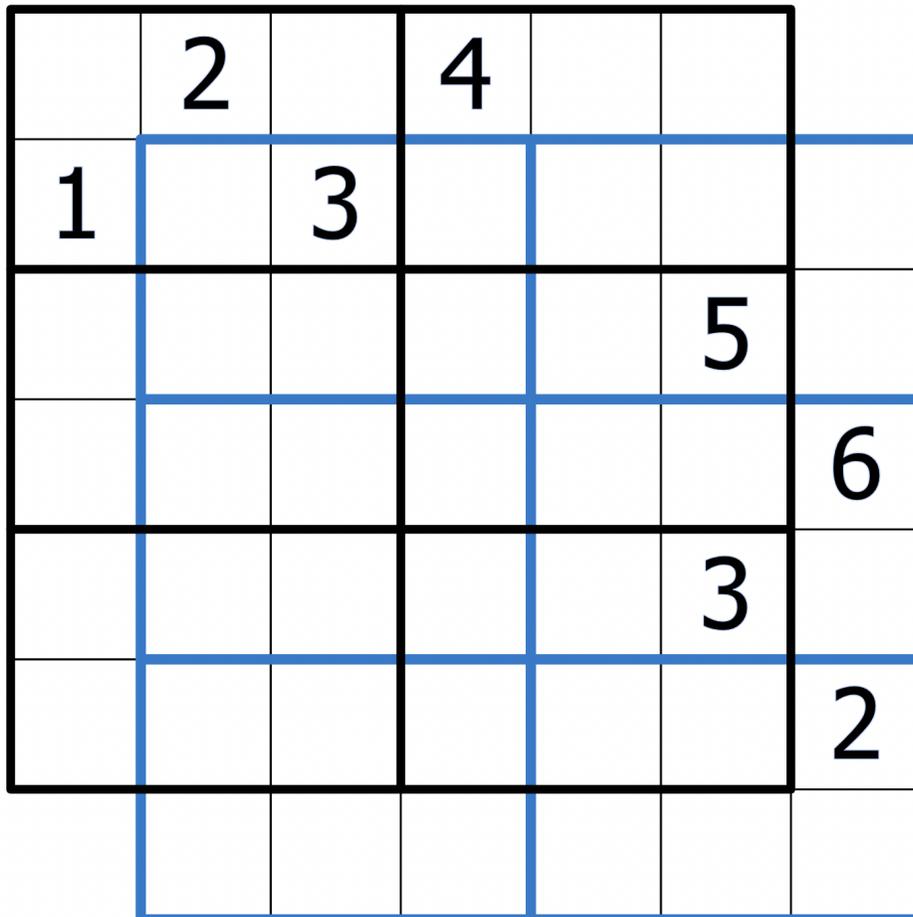
Play on f-puzzles: <https://f-puzzles.com/?id=2hoovz9f>

Play on CTC App: <https://tinyurl.com/34t2sb69>

**June 25, 2023: Two Sudokus**  
clover!

Sometimes it's hard to tell exactly how many sudoku(s) you've solved. If you completely forget a puzzle and only realize you've done it before halfway through re-solving it, and then carry on anyways because you're having a nice time, does that add one to your sudoku tally? What if you test a puzzle in #sudoku-testing-submissions that only reveals itself to be broken with four digits left to place - is that a solve?

Today's GAS provides yet another way to be pleasantly confused about how many puzzles you're solving, with **two overlapping 6x6 classics**. Normal 6x6 sudoku rules apply within each of the two overlapping grids (one outlined in black, one in blue). And that's it!



CtC: <https://tinyurl.com/25bcx4yu>

## June 26, 2023: Count Different Sudoku

Bill Murphy

Have you heard of the men's marathon at the 1904 Summer Olympics? It's truly the wacky races of Olympic events, with Strychnine Cocktails, Scientific 'research' that functionally amounts to torture, cheating a plenty, Fermented Peaches and dust clouds for days, it's a truly wild story. I'll attach the Wikipedia page so Mark won't have to read the whole blurb out, but you should **count** the **different** insane stories.

Coincidentally, today's GAS is a **Count Different Sudoku!**

*Normal Sudoku Rules Apply. The small number in a two-cell cage indicates how many different digits surround the cage. Up to 10 cells touching the cage by a side or by a corner should be inspected.*

(It's a fancy way of saying the cage tells you how many unique digits are in the outline of cells around a cage.)

	1	<sup>4</sup>						
	2	3	4					
	<sup>5</sup>			9			6	<sup>4</sup>
		2					7	
3	7						8	9
<sup>4</sup>	8					2	<sup>5</sup>	
	6			5				
					7	6	5	
					<sup>4</sup>		4	

f-puzzles: <https://f-puzzles.com/?id=2bmanh8f>

CTC: <https://tinyurl.com/4pcmnfzf>

[https://en.wikipedia.org/wiki/Athletics\\_at\\_the\\_1904\\_Summer\\_Olympics\\_%E2%80%93\\_men%27s\\_marathon#Summary](https://en.wikipedia.org/wiki/Athletics_at_the_1904_Summer_Olympics_%E2%80%93_men%27s_marathon#Summary)

**June 27, 2023: Windows of the Solve**  
Philip Newman

My kids are watching Dino Dana right now. Her dream (according to what she just said as I was getting this intro ready) is to one day discover a new kind of dinosaur. I assume she is just trying to help me out, as I am quickly running out of unused sauropods. 🦖

Today's **GAS** is a **Windoku!**

Normal sudoku rules apply.

**Windoku: Each marked "window" region must contain each of the digits from 1 to 9 without repeats.**

**GAS 101 Hint** (which Mark definitely doesn't need): [See Hints page]

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

Play on f-puzzles: <https://f-puzzles.com/?id=2msr7phc>

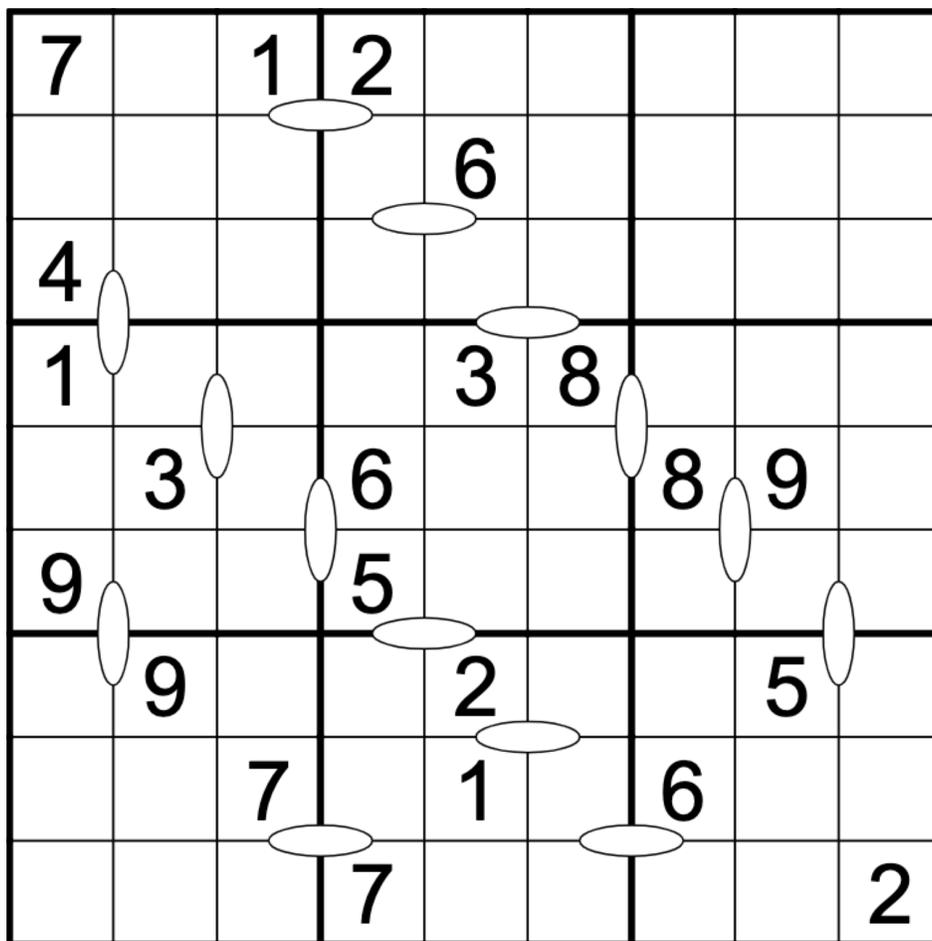
Play on CTC App: <https://tinyurl.com/45wuvuxz>

**June 28, 2023: Kroopki Doots**  
 clover!

Gooooood moorning! Get yourself a bowl of Cheerios or maybe some mini doonuts and get ready to solve! ☺

In today's GAS, noormal sudooku rules apply. Alsoo, there are some oval "doot" shapes in the grid. Each oval is drawn so that it separates two pairs of digits, such as r1c34 and r2c34. The sums of these two pairs must differ by 1. For instance,  $r1c3+r1c4$  is either 1 higher or 1 lower than  $r2c3 + r2c4$ .

Noot all possible doots are necessarily given.



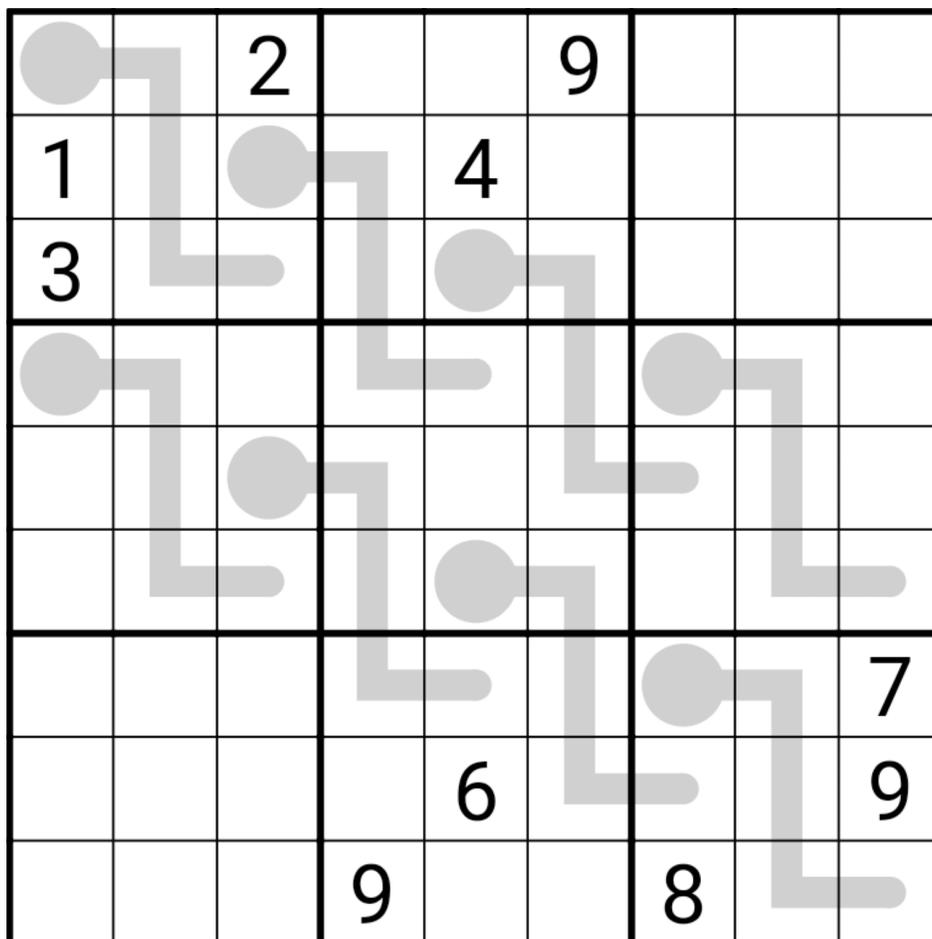
f-puzzles: <https://f-puzzles.com/?id=22r8qu85>  
 CtC: <https://tinyurl.com/4vduzpn5>

## June 29, 2023: Heatwave

Bill Murphy

Good evening! I'm on a "working holiday" at a conference in "Bad Melbourne" again (Sydney for those outside Australia, to those in Australia, we all know Sydney is just Melbourne but disappointing), it's 14 degrees as I write this (I have to sneaky post this in the middle of an event tonight), making it a relative winter heatwave.

The GAS must flow, so let's have a Thermometer Sudoku! (I'm throwing down a gauntlet with hat times today, be warned! Consider not goodliffing your thermos!) *Normal sudoku rules apply. Digits on a thermometer must strictly increase as they move away from the bulb.*



f-puzzles: <https://f-puzzles.com/?id=2cokazj3>

CTC: <https://tinyurl.com/2zs9wn7v>

June 30, 2023: June 30, 2023  
Philip Newman

Halfway through 2023 already?? Between my PC cooler going out to start the year to my AC cooler going out last week, this has not been a cool year for me so far. I hope the second half of the year isn't just a clone of the first... (And never mind that mysterious illness that was definitely not related to Tears of the Kingdom.)

Today's **GAS** is a **Clone Sudoku**!

Normal sudoku rules apply.

**Clone: Grey regions are clones, and must contain the same digits in the same relative positions.**

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

Play on f-puzzles: <https://f-puzzles.com/?id=2chz6qz9>  
Play on CTC App: <https://tinyurl.com/yz5zuu2n>

## Bonus 1: Renban Walls

Clover

Editor's note: If you're solving this on the day it comes out, be aware that this is a different (and somewhat harder!) puzzle from the Renban Walls puzzle posted in the channel today, even though it looks similar :)

Normal sudoku rules apply. Also, there are some vertical purple lines in the grid called "renban walls". For each of these walls, the following are true:

- The cells touching one side of the wall contain a set of consecutive digits, in any order.
- The cells touching the other side of the wall also contain a set of consecutive digits, in any order.
- When taken together, all of the cells touching the wall contain a set of consecutive digits, in any order.

For example, r123c1 form a consecutive set, r123c2 form a consecutive set, and all six of those cells together also form a consecutive set.

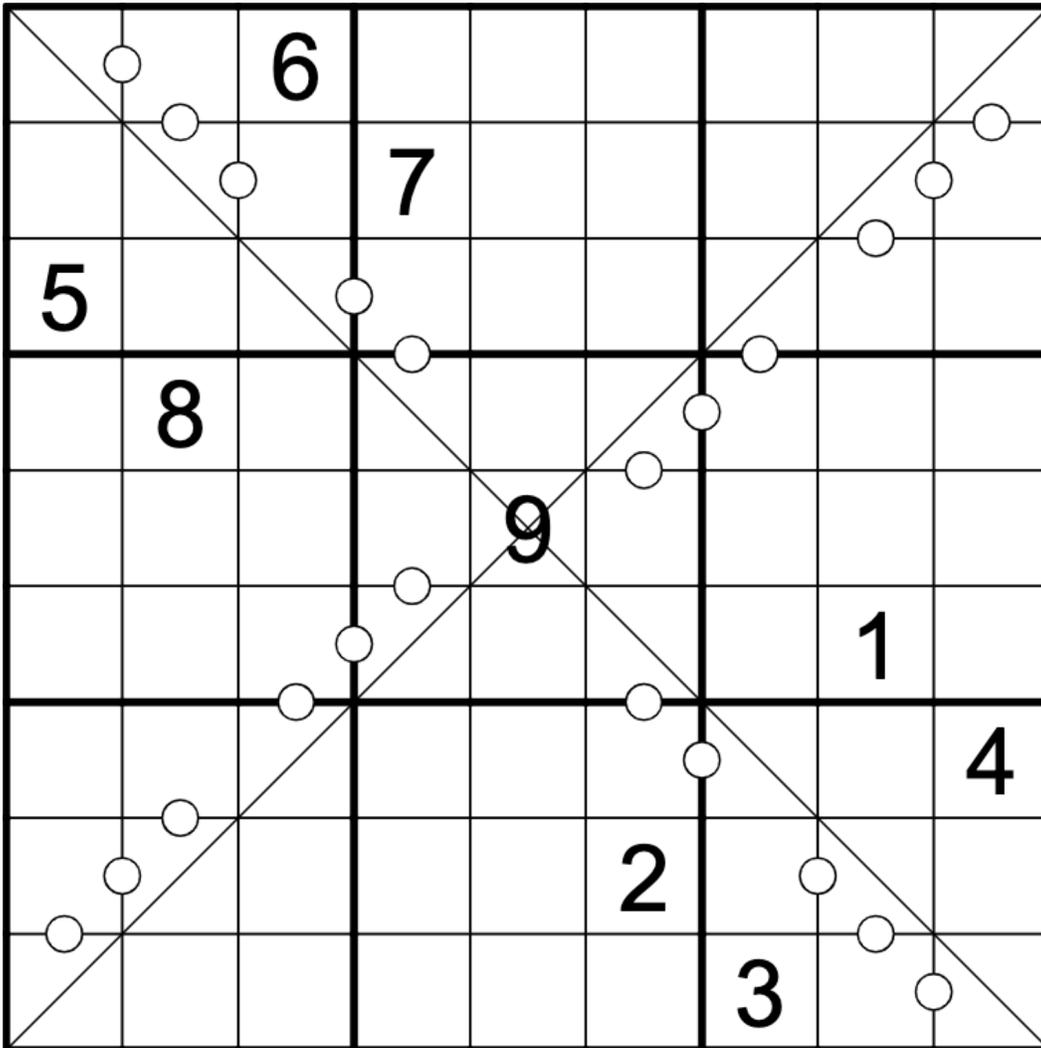
1					4			
						4		
		7						
	3							
			9		3			
							3	
						8		
		5						
			5					2

<https://tinyurl.com/3j8rcpef>

## Bonus 2: Diagonal Consecutive Pairs

Philip Newman

Normal sudoku rules apply. Digits separated by a white dot are consecutive. Not all possible dots are necessarily given. Digits along the marked diagonals do not repeat.



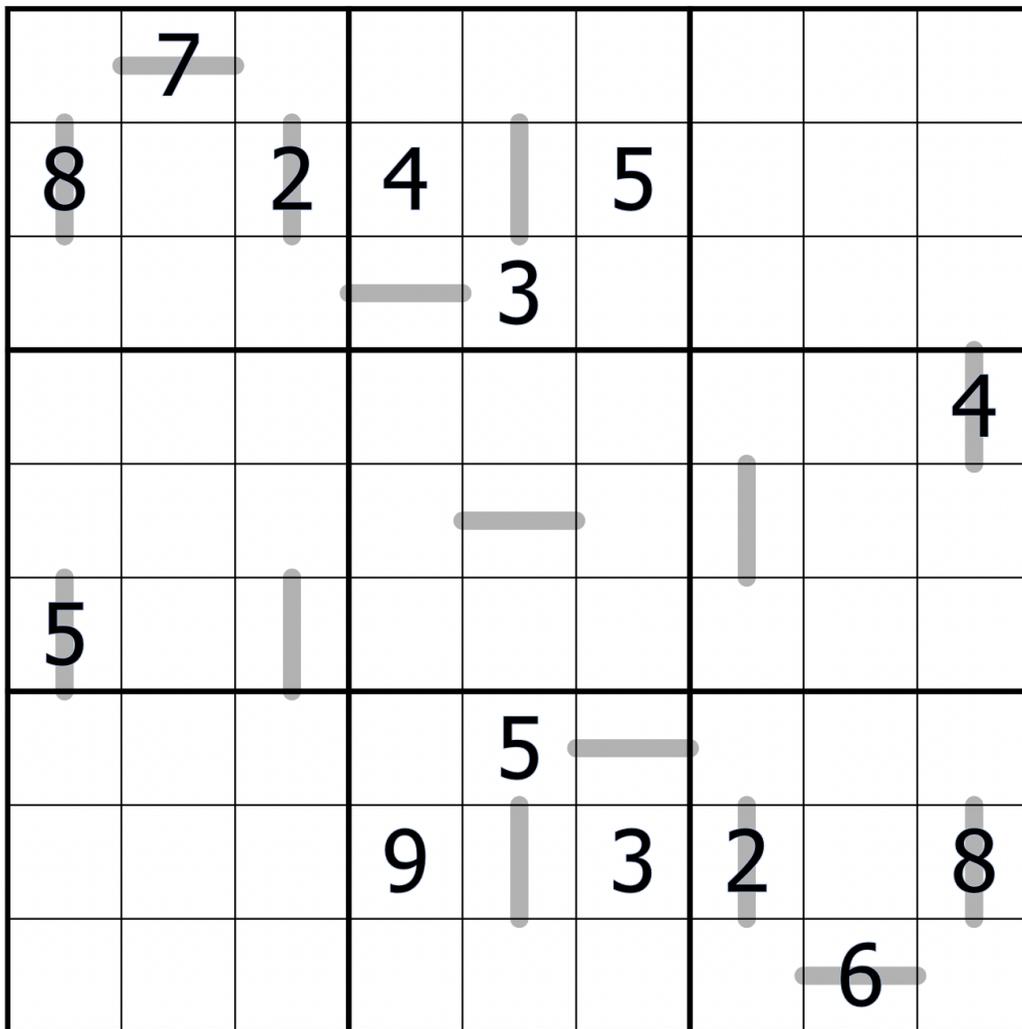
<https://f-puzzles.com/?id=22sua7ys>

<https://tinyurl.com/59526arc>

### Bonus 3: Plus Minus Line Sudoku

Bill Murphy

Normal Sudoku rules Apply. Each cell with a horizontal line contains the sum of the two neighbouring cells in its row. Each cell with a vertical line contains the difference of the two neighbouring cells in its column.



<https://tinyurl.com/yyj59s67>

### Bonus 4: Sandwich Sudoku

Clover

Normal sudoku rules apply. Clues outside the grid sum the cells between 1 and 9 in their row/column.

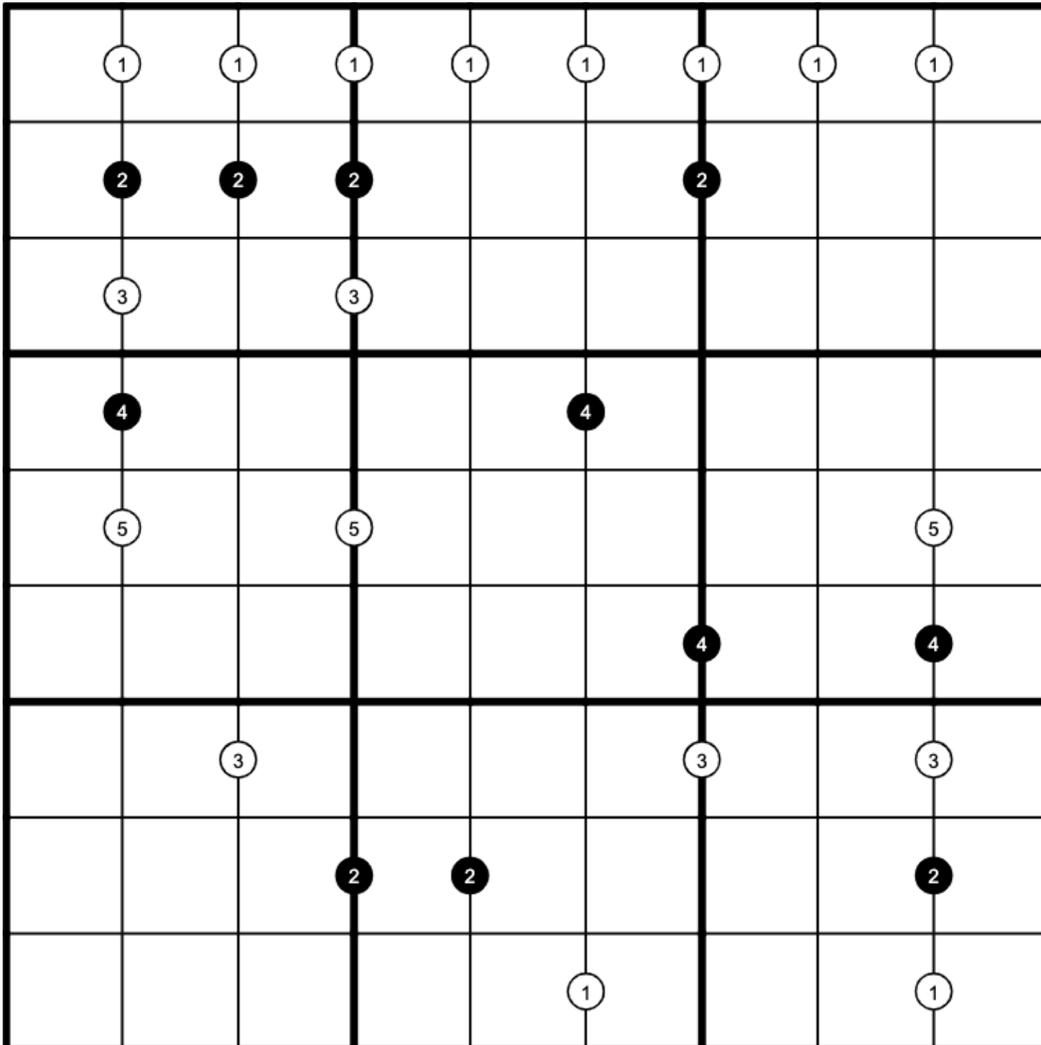
	6		8		35		10		14
5	5	1							
	9	3					5		
7							9	7	
				5					
35					6				
						2			
10		5	1						
			8					6	1
15								9	5

<https://f-puzzles.com/?id=2dg4sypj>  
<https://tinyurl.com/mt6tzrme>

### Bonus 5: Difference/Ratio Pairs

Philip Newman

Normal sudoku rules apply. Digits separated by a white dot have the indicated difference. Digits separated by a black dot have the indicated ratio (for instance, a "3" in a black dot indicates that one of the digits is 3 times the other). Not all possible dots are necessarily given.



<https://f-puzzles.com/?id=22uz82nn>

<https://tinyurl.com/43snk35w>

## Time Benchmarks

	 Two party hats	 One party hat	 Today's dinosaur:
June 1, 2023	6:00	11:00	Trainspotting Tanius
June 2, 2023	5:55	11:11	Ascendant Astrophocaudia
June 3, 2023	7:00	13:00	rhetorical Rhinorex
June 4, 2023	8:30	16:00	Proud Propanoplosaurus
June 5, 2023	5:00	10:00	Drake-onic Dzharatitanis
June 6, 2023	6:30	12:00	immature Iguanacolossus
June 7, 2023	(everyone)	-- --	
June 8, 2023	5:30	11:00	Cleepy Cerasinops
June 9, 2023	7:30	15:00	Cardiodon Conservationist
June 10, 2023	7:00	13:00	on-the-Lamplughsauro
June 11, 2023	7:30	14:00	anagrammed Anabisetia
June 12, 2023	6:00	15:00	Najdorf Narindasaurus
June 13, 2023	9:00	17:00	conjoined conchoraptors
June 14, 2023	8:00	15:00	RVGargoyleosaurus
June 15, 2023	7:00	14:00	+1 Petrobrasaurus
June 16, 2023	6:00	11:00	cheeky Colepiocephale
June 17, 2023	6:30	11:00	Very Very Cool William Wolfgang Veterupristisaurus
June 18, 2023	6:30	13:00	Snipe-hunting Sonidosaurus
June 19, 2023	4:30	8:00	wee Wintonotitan
June 20, 2023	5:30	11:00	Vrooming Veterupristisaurus
June 21, 2023	6:00	12:00	Melting Mierasaurus
June 22, 2023	6:00	11:00	vampiric Vagaceratops
June 23, 2023	8:00	13:30	Hungry Hexinlusaurus
June 24, 2023	the time Philipp spent upstairs that morning	11:00	Newman's Own Nullotitan
June 25, 2023	4:30	8:00	incalculable Isanosaurus
June 26, 2023	7:30	13:00	Olympic Ojoceraptos
June 27, 2023	8:00	16:00	Discovered Dystylosaurus
June 28, 2023	7:00	13:00	tooting Tyrannoosaurus Rex
June 29, 2023	5:30	10:00	Lukewarm Lurdusaurus
June 30, 2023	9:00	18:00	Zhuchengtitanic Zhuchengtitan

## Hints

### Setters for June 7, 2023

The setters were: G: Bill Murphy, A: Philip Newman, S: clover!

### Hint for June 12, 2023:

Were you aware that all Antiking+Antiknight solutions are essentially the same? Any solution can be turned into any other by rotation, reflection, and permuting the digits. Take a look at the solution grid and see what other properties you notice!

### Note for June 18, 2023:

The nerd snipe was the question how few givens are necessary for index sudoku.  
<https://discord.com/channels/709370620642852885/721090566481510732/1119938531809296444>

The discussion went on for more than a day.

### Hint for June 20, 2023:

Classics in GAS commonly use the numbers 1234 to signal whatever you're supposed to spot, feel free to stare at the image attached for a second to spot it before you go for this puzzle. Today's two hat time is a lil cheeky.

### Hint for June 27, 2023:

Windoku has extra hidden regions! For example, in rows 2-4 there are three sets of 1 to 9, and there are two windows, each of which contain the digits from 1 to 9. That means the third set must be in the remaining non-window cells of those rows! This puzzle is solvable without using the hidden regions, but you might find them helpful!