

GAS Leak

Genuinely Approachable Sudoku
from the CtC Discord

Volume 42:
July 1 – July 31, 2024

Welcome to July!

We got a full month of GAS puzzles for you, one better than the other. Some are with negative constraint, some are unusual combinations, some are of an unusual shape – but all are certified GAS.

Have fun solving!

July 1, 2024: Slip Away

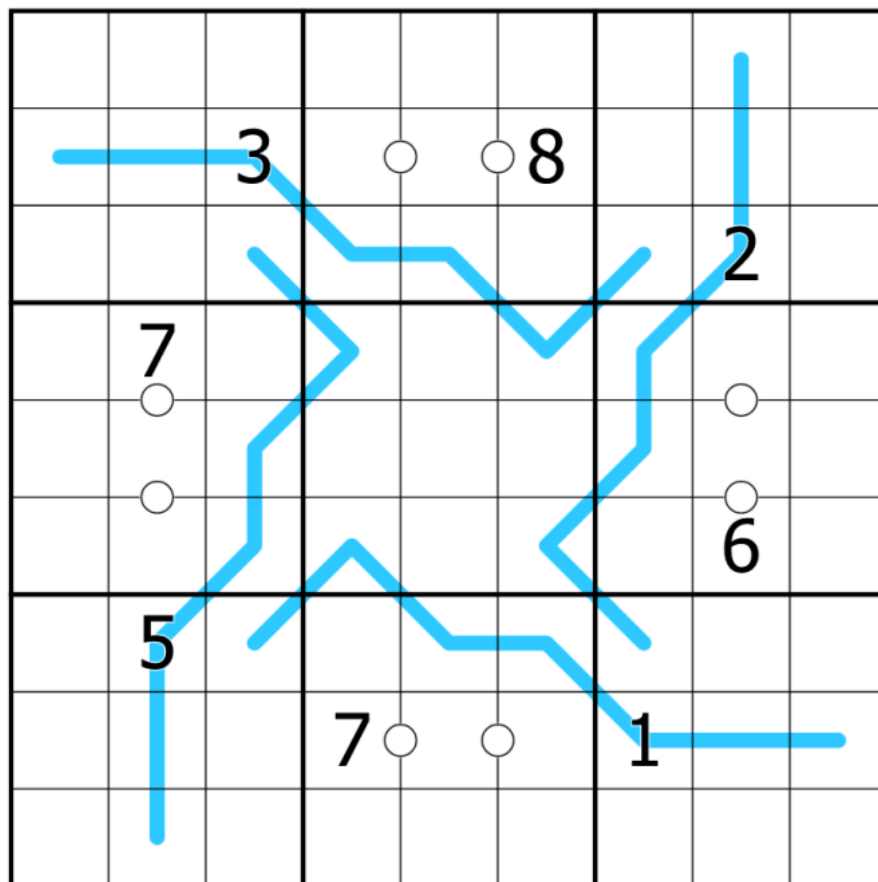
by Bill Murphy

Walkthrough for Renban/X Pairs: <https://youtu.be/T2-KE20jTf4>

Thank you for all the lovely wishes on friday. I had an incredible time.
I've also been running a fever for the last two days, so you'll forgive me if I keep today's intro relatively short. (You should see the stuff I've put into GAS testing in the last 72 hours, I'm clearly having a time)

Today's GAS is a **Region Sum Lines/Consecutive Pairs Sudoku**!

Normal Sudoku Rules Apply. Digits along blue lines must sum to the same total each time it passes into a new box. Digits separated by a white dot must be consecutive. Not all white dots are given.



<https://sudokupad.app/txyhg781uz>

July 2, 2024: Silence is German

by Philip Newman

Walkthrough of "Slip Away" by Bill:

<https://youtu.be/sPujMWO-6hs>

Here's a pairing of variants we haven't done before... and after solving it, you may wish it had stayed that way. 🤔

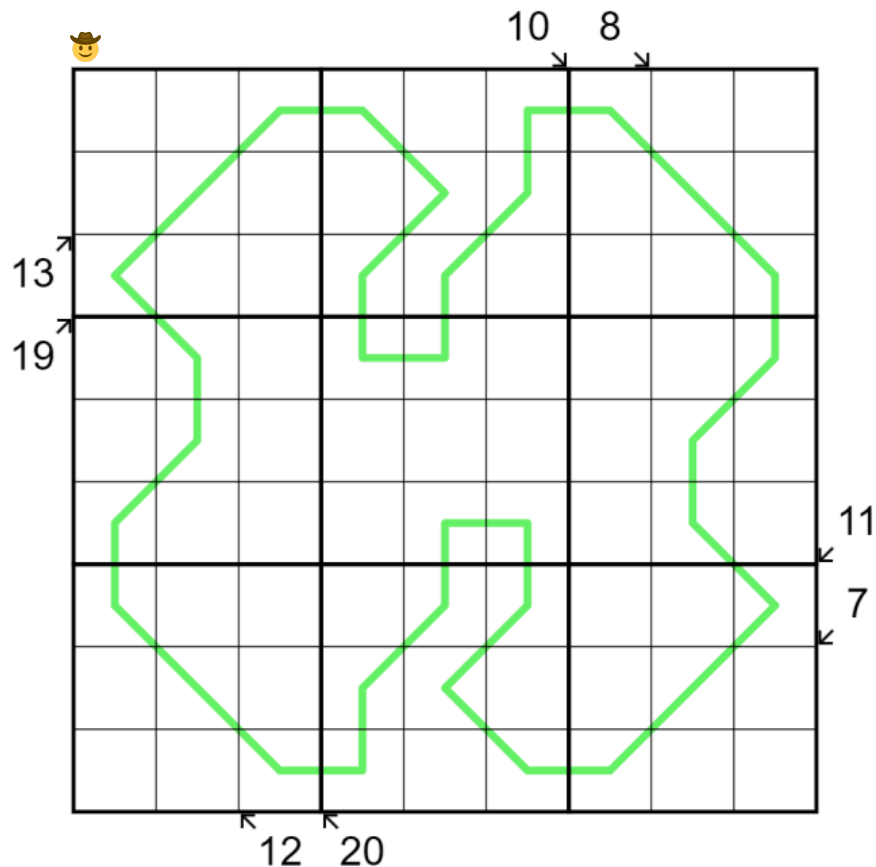
(It's on the long side, but no individual step should be *hard*. If you get stuck or just aren't familiar enough with German Whispers, [#daily-sudoku-discussion](#) is a great place to get tips!)

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

Normal sudoku rules apply.

Little Killer: Digits along the indicated diagonals must sum to the total given.

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



Play on f-puzzles: <https://f-puzzles.com/?id=2epd6qbp>

Play on SudokuPad: <https://sudokupad.app/philip-newman/20240702-silence-is-german>

July 3, 2024: XV (-) Sudoku

by clover!

Walkthrough for Philip's "Silence is German": <https://youtu.be/yeVIKTCPAO4>

Today's GAS is a **negative-constraint-having XV sudoku (negative) (all clues are given)!**
That means it's time for our very favorite game show - 'forget the negative constraint!'

Normal sudoku rules apply. Digits separated by an X sum to 10; digits separated by a V sum to 5. 🌟 ALL POSSIBLE XS AND VS ARE GIVEN. 🌟 If there's not an X or a V (there isn't!), then the digits don't sum to 10 or 5.

	1		3					
3		2			1			
	4		2					
		1		2				
2			1		4			3
				3		4		
					2		4	
			4			3		2
					3		1	

SudokuPad: <https://sudokupad.app/3c4gdfqy85>

July 4, 2024: Stabilise

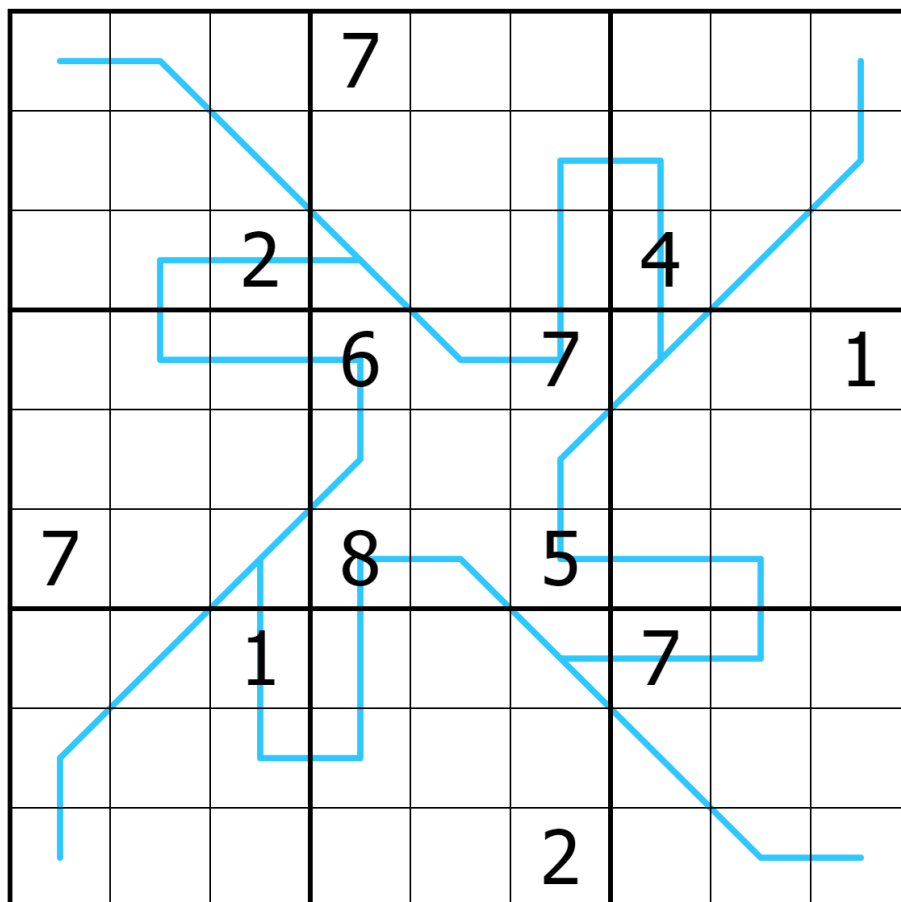
by Bill Murphy

Walkthrough for XV-: <https://youtu.be/Zia5LicOnQw>

Spending the weekend down the beach, haven't got my personal laptop on me, you'll have to excuse a short intro. (I did still manage to tune into Summer Games Done Quick's Silly Block #smoochthehomies)

Today's GAS is a **Region Sum Lines** Sudoku!

Normal Sudoku Rules Apply. Digits along the blue line sum to the same total each time it enters a new box in the grid.



<https://sudokupad.app/qucvrn7k9c>

July 5, 2024: Clone of the Attacks

by Philip Newman

Walkthrough of "Stabilise" by Bill:

<https://youtu.be/rpZkw4uxlOA>

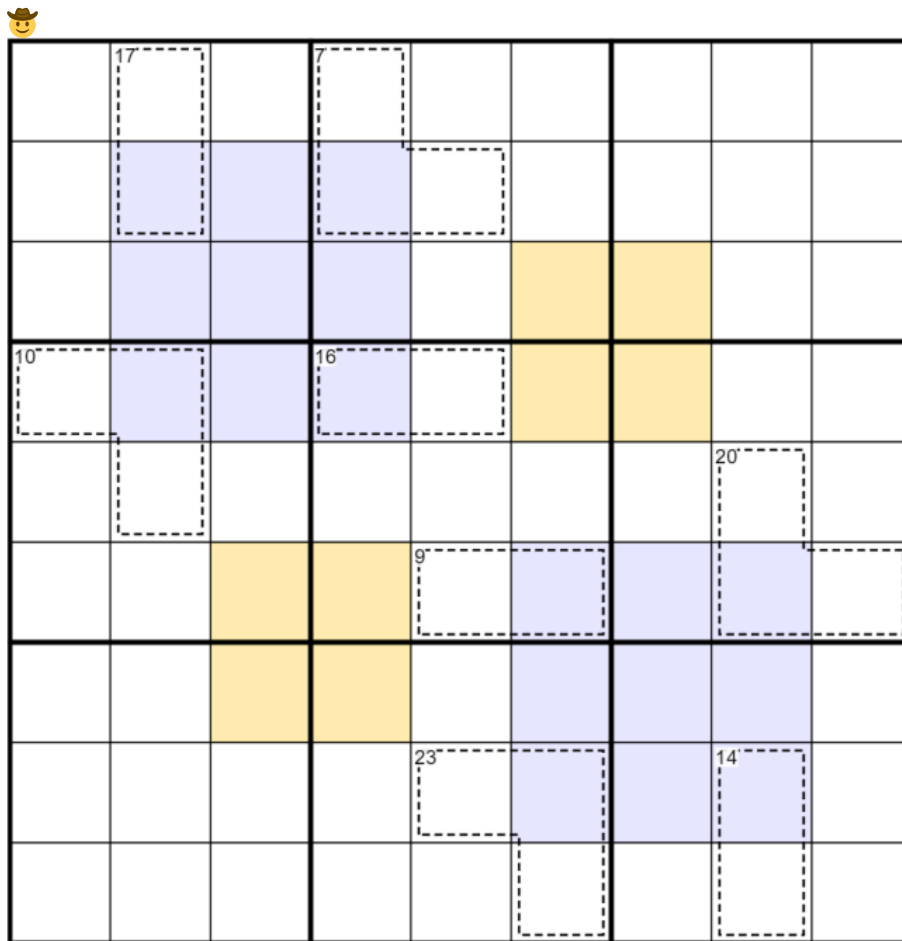
Killer is our most popular variant in GAS, so it should be no surprise that we have paired it with *most* of our other common variants. But not all!

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

Normal sudoku rules apply.

Killer: Digits in cages cannot repeat and must sum to the total given.

Clone: Shaded regions of the same size/color are clones, and must contain the same digits in the same relative positions.



Play on f-puzzles: <https://f-puzzles.com/?id=2csa7vfh>

Play on SudokuPad: <https://sudokuapp.app/philip-newman/20240705-clone-of-the-attacks>

July 6, 2024: XV (-)
by clover!

Walkthrough for Philip's "Clone of the Attacks": <https://youtu.be/VlwkJoyCVOc>

I've had several requests to provide the *other* digits that were missing from my puzzle three days ago - you know, the 5s, 6s, 7s, 8s, and 9s. Here they are!

Today's GAS is a **negative-constraint-having XV sudoku (negative) (all clues are given) (again)!**

Normal sudoku rules apply. Digits separated by an X sum to 10; digits separated by a V sum to 5. 🌟 ALL POSSIBLE XS AND VS ARE GIVEN. 🌟 If there's not an X or a V (there isn't!), then the digits don't sum to 10 or 5.

	7		8					
9		6						
	8		5		6			
		8		7			6	
			6		9			
	9			8		7		
			9		5		7	
						9		6
					7		8	

SudokuPad: <https://sudokupad.app/llmkk8kseg>

July 7, 2024: Coded Pairs Sudoku

by Bill Murphy

Walkthrough for XV (-): <https://youtu.be/9ShAJRVF5Bq>

XLQ DFLB, XLQ VLQUP EALCYCUX OENFP XLQA GMKN PLMFI GWN OQPLDQ MFOGNYP
LZ ZYUUMFI ZLA GWMO CMG.

YVVLAPMFI GL YUU DFLBF UYBO LZ YJMYGMLF, GWNAN MO FL BYX Y CNN OWLQUP
CN YCUN GL ZUX. MGO BMFIO YAN GLL OKYUU GL ING MGO ZYG UMGGUN CLPX LZZ
GWN IALQFP. GWN CNN, LZ VLQAON, ZUMNO YFXBYX CNVYQON CNNO PLF'G VYAN
BWYG WQKYFO GWMFD MO MKELOOMCUN.

Don't fall for it, Today's GAS is a **Coded Pairs Sudoku**!

Normal Sudoku Rules Apply. Cages with matching letters contain the same digits, but may or may not be in the same order.

This one's new for us, so if you're like, "What?", the easiest way to explain it, is it's Zone Sudoku (Like this one here: [#daily-sudoku-discussion](#)) but instead of me telling you which digits are in the cage, I'm telling you the cages that contain the same digits instead. They can be in any order too. (P.S. I've also added a minute onto the hat times in case you would like to colour the cages before you start to help with scanning.)

A	1					G			B	3
	E			2		D	6		I	
G		C	5		E					
					I			E		
F				J					H	
	J	D			F		C	7		
B			8		1		F			
4		H					A			2

<https://sudokupad.app/7owj62gefd>

July 8, 2024: Consequential

by Philip Newman

Walkthrough of "Coded Pairs Sudoku" by Bill:

https://youtu.be/M06_3meZCFc

At GAS HQ, I described this one as "kinda wacky, kinda long" based on my own self-testing. clover said "what a cutie" and "kinda weird but good", while Bill gave it a "quite long". Make of that what you will!

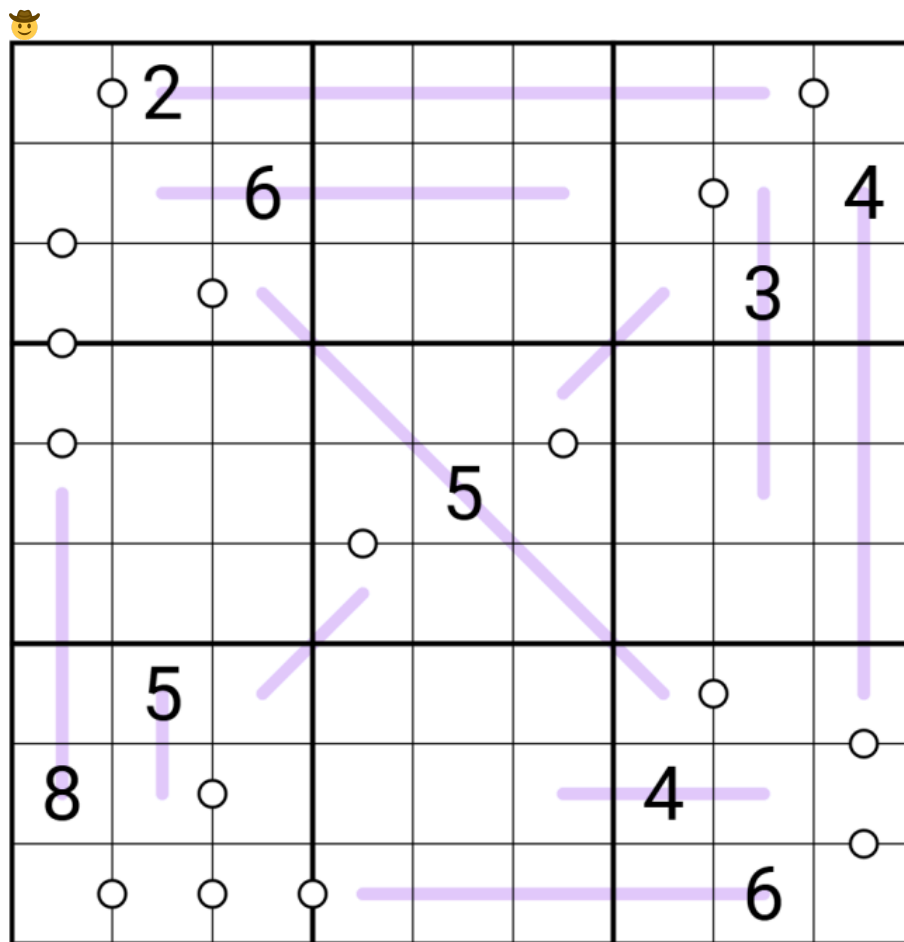
GAS 101 Hint: To get started [see Hints page at the end of this document]

Today's **GAS** is a **Renban Consecutive Pairs Sudoku**!

Normal sudoku rules apply.

Renban: Digits along purple lines must form a non-repeating consecutive set, in any order. (For example, a 4-cell renban line could be 4352, but not 5679 or 2312.)

Consecutive Pairs: Digits in cells separated by a white dot must be consecutive (have a difference of 1). (No negative constraint - other pairs of digits may also be consecutive.)



Play on f-puzzles: <https://f-puzzles.com/?id=29pu3s2n>

Play on SudokuPad: <https://sudokupad.app/philip-newman/20240708-consequential>

July 9, 2024: Nonconsecutive
by clover!

Walkthrough for Philip's "Consecutential": <https://youtu.be/TvW5d88QuYg>

If anybody needed to hear right now that you're lovely and important, then: you're lovely and important. Thank you for being here today and solving (or at least attempting) this puzzle; you light up my life. ☀️

And now, for something completely GAsEous: today's GAS is a **nonconsecutive sudoku**! Normal sudoku rules apply; also, consecutive digits are never adjacent to each other.

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

SudokuPad: <https://sudokupad.app/oiz43lvko9>

July 10, 2024: Three's A Crowd Sudoku

by Bill Murphy

Walkthrough for Nonconsecutive: <https://youtu.be/M8V4WEVTPrl>

*Well if Clover's loving the GAS Community and Philip's loving the GAS community and I'm loving the GAS Community, **then who's flying the plane?***

(i reached a million solves on my puzzles a week and a bit ago and that number does not feel real, but here i am. i feel very humbled y'all keep solving and i remember just thinking i was stepping in to help out some friends for a couple of weeks and thinking "well dang i really need to get good at this very quickly". thank you, love you xo)

Today's GAS is a **Three's A Crowd Sudoku**, something I absolutely would not have had the guts to set some 20 months ago, but a lot can happen when you have to make a new sudoku every three days. 😊

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

Normal Sudoku Rules Apply. Clues outside the grid give two out of three digits in the first three cells seen in the direction of the clue. The digit that doesn't belong is to be determined by the solver. (eg. r2c2 and r3c2 must contain either 34, 35 or 45.)

That's right baby! It's a **Liar** Puzzle! It's Outside Sudoku, but I'm a mean liar and have given you a fake digit in each triple of digits! MWAHAHAHAHAHAHA THIS IS WHAT READING COMMENTS ON THE INTERNET DOES TO A MAN

		345		137		246		178		
	1									
									3	567
567		2				4				
234										469
				9						
138										678
		8				6				123
123	7									
							5			
		345		239		145		178		

<https://sudokupad.app/mhxo6n4adv>

July 11, 2024: Tesla Coils

by Philip Newman

Walkthrough of "Three's A Crowd Sudoku" by Bill:

<https://youtu.be/TiqNNwh2HPo>

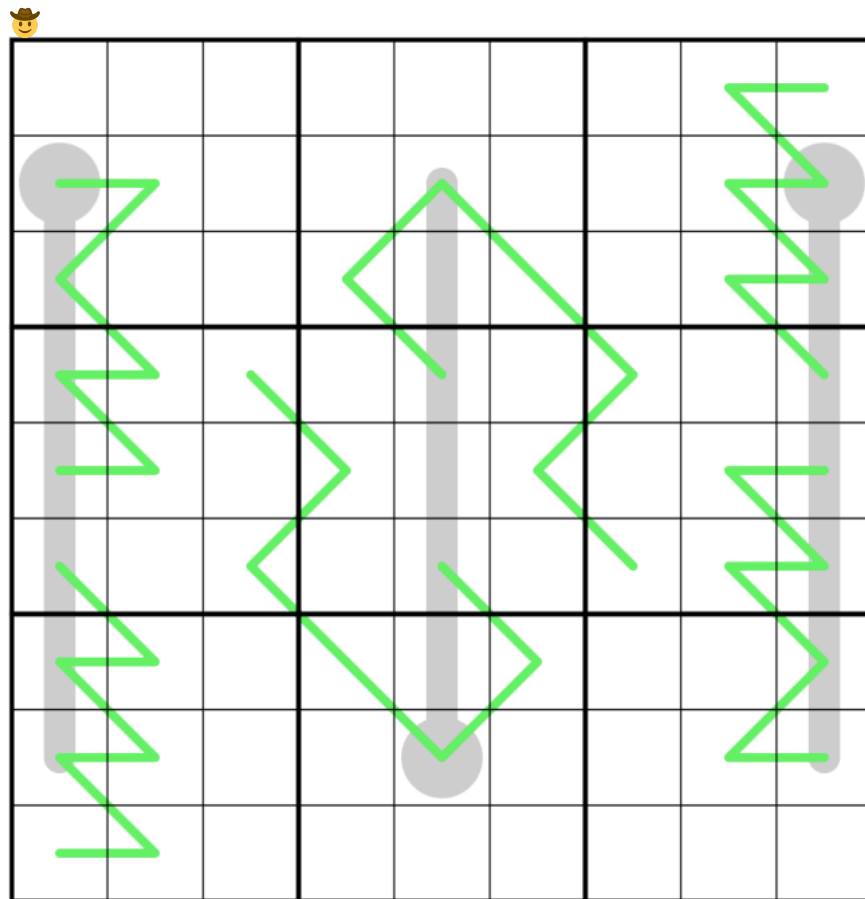
I mentioned a few days ago that killer is our most commonly used variant in GAS... one of these variants is number two*!

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

Normal sudoku rules apply.

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

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=27w9ncju>

Play on SudokuPad: <https://sudokupad.app/philip-newman/20240711-tesla-coils>

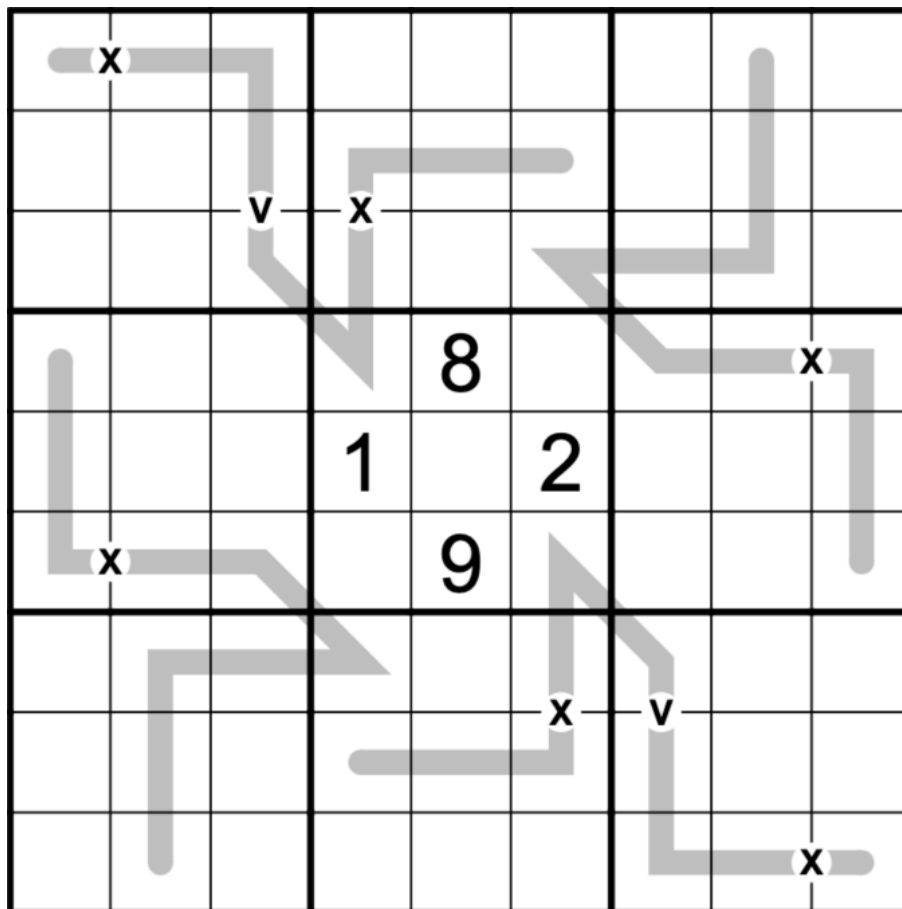
* Some of you may argue that the other is also number two 🤔

July 12, 2024: XVVX
by clover!

Walkthrough for Philip's 'Tesla Coils': <https://youtu.be/715fkwtPBmg>

7-12-2024 is not a palindrome, even if you squint very hard at it, so I'm afraid I'm posting today's **XV pairs palindrome GAS** on entirely the wrong day of the year. My sincere apologies.

Normal sudoku rules apply. Also, the digits along each gray line form a palindrome (read the same forwards and backwards). Digits separated by an X sum to 10; digits separated by a V sum to 5. Not all possible Xs or Vs are necessarily given.



SudokuPad: <https://sudokupad.app/3tutwj45kr>

July 13, 2024: Reasons to be Anxious

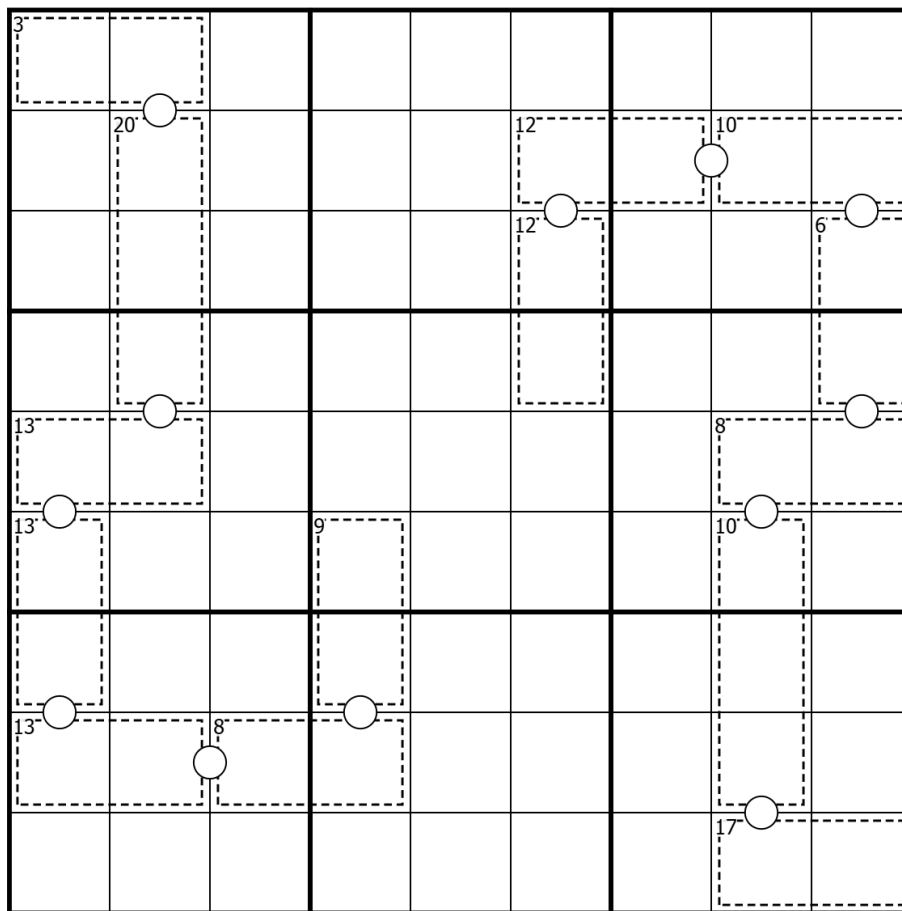
by Bill Murphy

Walkthrough for XVVX: <https://youtu.be/hD5nIS3MVgk>

Fun fact: Today's **Consecutive Killer** Sudoku was inspired by an old puzzle of mine that I put up for GAS testing and everyone said was fine and then I backed out because I didn't like it 2-3 weeks later. (Maybe I'll come back and post it some other time)

I like this one a lot more! If you're a setter reading this, go look at one of your old ideas! You're probably a lot better now! You can probably do it justice!

Normal Sudoku Rules Apply. Digits in cages must sum to the given total. Digits separated by a white dot must be consecutive. Not all dots are given.



<https://sudokupad.app/um5rconz2u>

July 14, 2023: The Very Little Caterpillar

by Philip Newman

Walkthrough of "Reasons to be Anxious" by Bill:
<https://youtu.be/3m6H3PNRlnQ>

Yesterday, Zoe decided she wanted to make a monster movie. She made a mask for me to wear. What do you think of my character work?

Today's **GAS** is a **Mini Caterdokupillar**!

(I might have gotten *slightly* carried away setting a mean mini for yesterday's stream - sorry! - so I made this little guy afterward.)

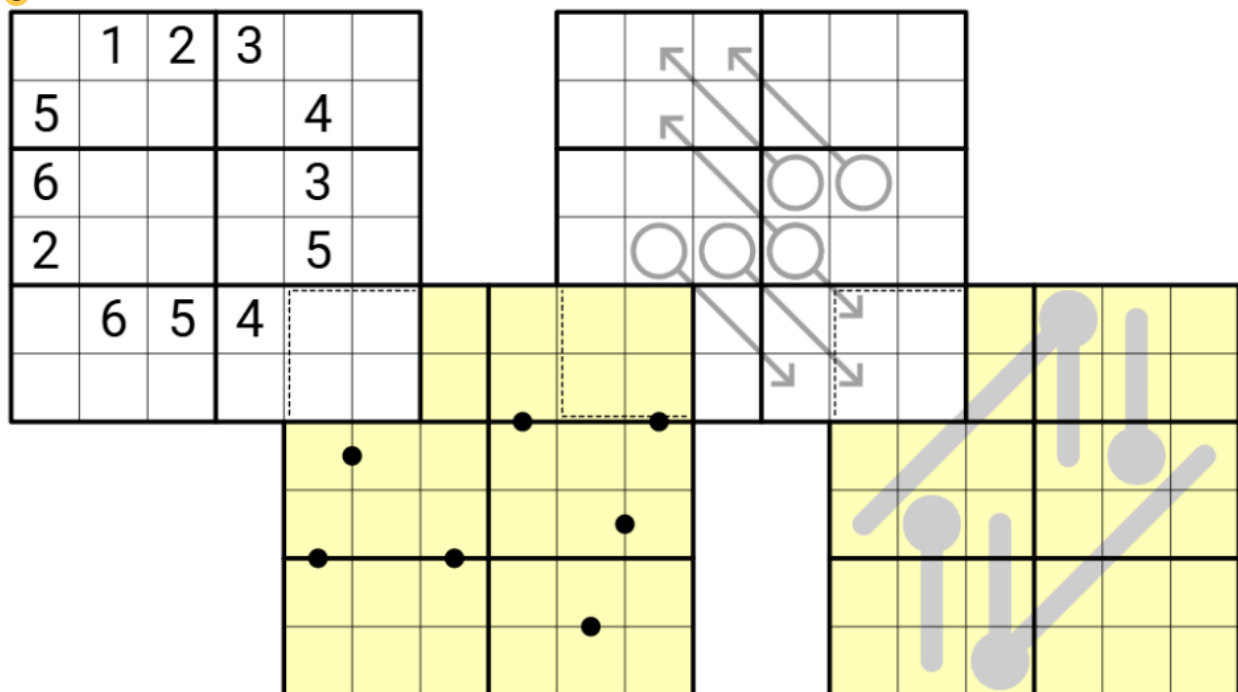
Normal 6x6 sudoku rules apply in each grid.

Gattai: Some cells appear in more than one grid; the rules of both grids apply to these cells. **Cages** are a reminder for the region borders in one of the grids.

Ratio Pairs: Digits in cells separated by a black dot must have a ratio of 2:1. (No negative constraint - other pairs of adjacent digits may have a ratio of 2:1.)

Arrow: Digits along arrows must sum to the circled total.

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



Play on SudokuPad: <https://sudokupad.app/philip-newman/20240714-the-very-little-caterpillar>

[Note from typesetter: the stream mentioned was the setting of a massive linked sudoku by Memeristor and friends: <https://www.youtube.com/watch?v=HqpoCJsSm-I>]

July 15, 2024: Double-Digit Thermo

by clover!

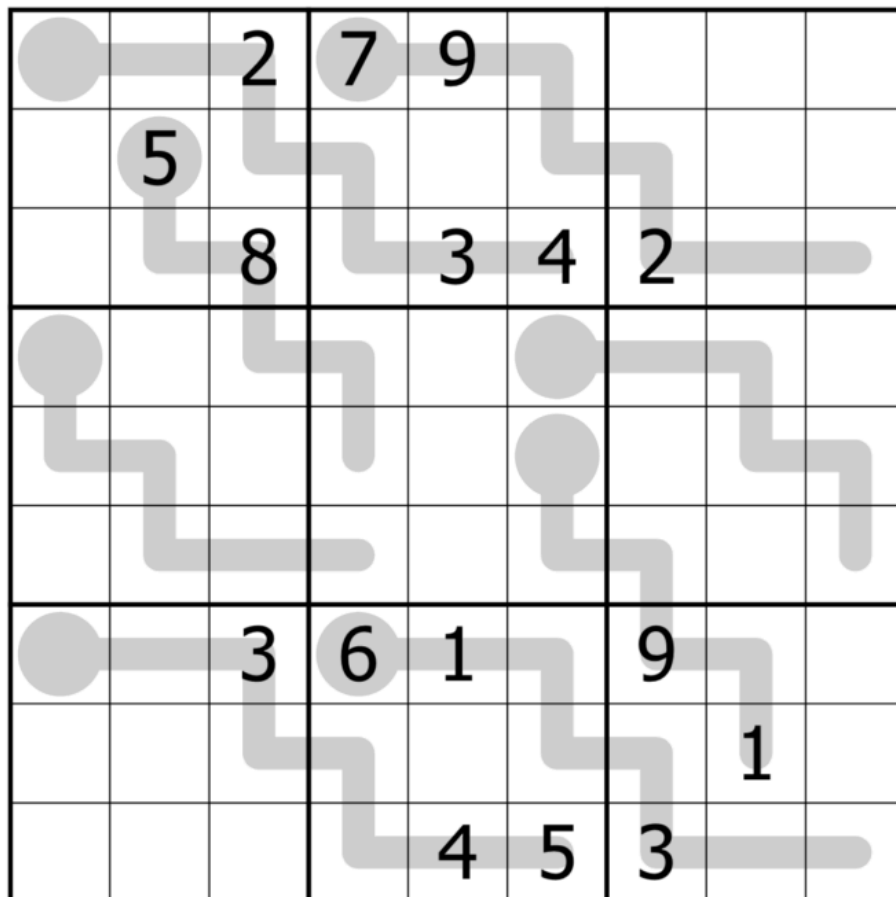
Walkthrough for Philip's "Very Little Caterpillar": <https://youtu.be/bFZAnFQofcw>

In the immortal words of NOFX,

I'm gonna tell you what I really think I like about Mondays
Cause they feel like Saturdays
When you don't gotta go to work
Every day is a holiday
I wake up when I want to
I do anything I wanna do
Can't wait for Tuesday

Now let me just post this GAS real quick before I have to run to work. 🥲

Today's GAS is a **double-digit thermo**! Normal sudoku rules apply. Each thermometer contains a series of 2-digit numbers (such as 14, 16, 21, 37. etc.), which increase when reading from the round bulb to the tip.



SudokuPad: <https://sudokupad.app/t36v9jinfo3>

July 16, 2024: When I Go Deaf

by Bill Murphy

Walkthrough for Clover's Double Digit Thermo: <https://youtu.be/AldvmttZHW0>

A skeleton walks into a bar orders a beer and a mop

Today's GAS is a **Numbered Rooms** Sudoku! This is always a tricky one, so if you haven't seen this before, take a second to parse the rules and figure it out before you get started.

Normal Sudoku Rules Apply. Clues outside the grid give the digit that must appear in the Xth cell in the row or column from that direction, where X is the first digit in that row or column seen by the clue.

				5	9	1	5	
4				4				
7			7					
9			9					
3		3						
9		5					3	
							5	
						1		
					9			
				3				
	3	9	7	6				

<https://sudokupad.app/bevg5r8dy8>

July 17, 2024: Dots and Crosses

by Philip Newman

Walkthrough of "When I Go Deaf" by Bill:

<https://youtu.be/qTijX84aG6s>

Why did the man fall in the well? [see the solution on the Hints page]

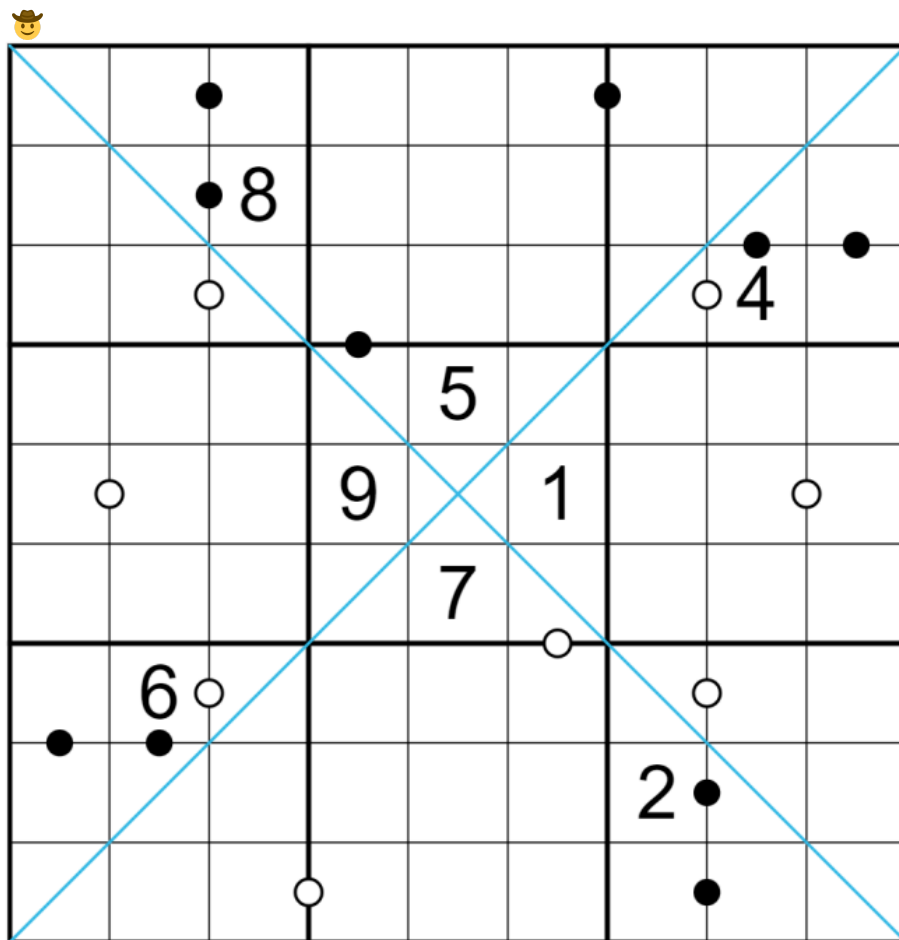
Why did the man miss his Amazon delivery? [see the solution on the Hints page]

Today's **GAS** is a **Diagonal Kropki Pairs Sudoku**!

Normal sudoku rules apply.

Diagonal: Digits along the indicated diagonals cannot repeat.

Kropki Pairs: Digits in cells separated by a white dot must be consecutive (have a difference of 1); digits in cells separated by a black dot must have a ratio of 2:1. (No negative constraint - other pairs of adjacent digits may have a difference of 1 or ratio of 2:1.)



Play on SudokuPad: <https://sudokupad.app/philip-newman/20240717-dots-and-crosses>

Play on f-puzzles: <https://f-puzzles.com/?id=26rrnlcg>

July 18, 2024: Very Little Ouroboros

by clover!

Good morning! Here's my walkthrough for Philip's "Dots and Crosses":

<https://youtu.be/BNSyD5ymExM>

We had a great time setting caterpillar last Saturday - so great that we're doing it again this weekend. Come join us on Memeristor's YouTube channel at

<https://www.youtube.com/channel/UCO3sj30rVauGHsUwt7gmySA> this Saturday morning - continuing all day - to see more wild and wonderful 6x6 sudoku setting.

And to build some anticipation ~~and because I couldn't let Philip be the only one~~, I've made you a little caterpillar of my own. Mine ate its own tail, though - oops.

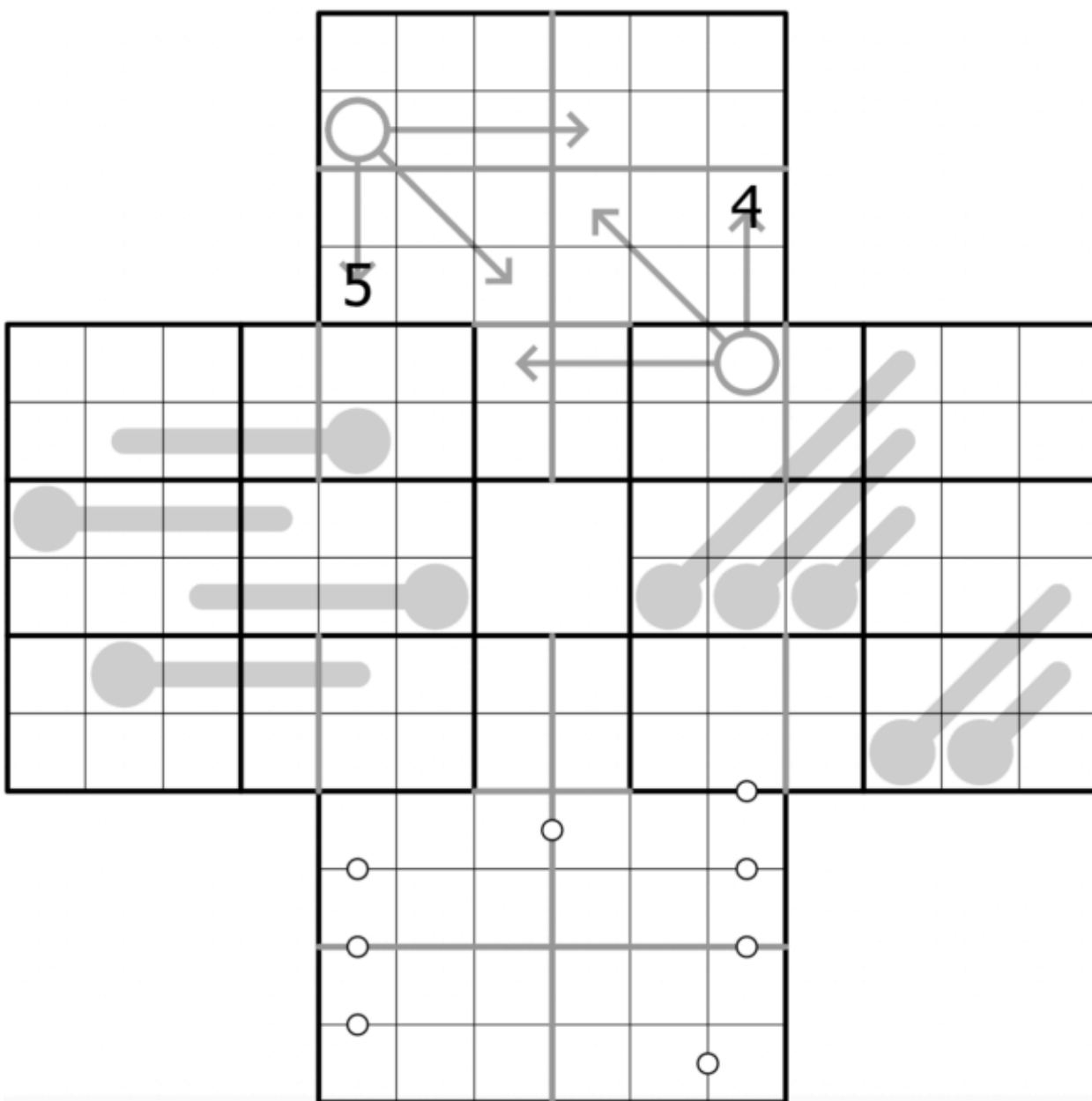
↓↓ ↓↓ (The puzzle is on the next page) ↓↓ ↓↓

Normal 6x6 sudoku rules apply within each of the four grids. Digits in overlapping areas must obey sudoku rules for both grids.

Arrow: digits along arrows sum to the value in the attached circle.

Thermo: digits along thermometers must increase, starting from the round bulb.

Consecutive pairs: digits separated by a white dot are consecutive. Not all possible dots are necessarily given.



July 19, 2024: Arithmetic Series

by Philip Newman

Walkthrough of "Very Little Ouroboros" by clover:

<https://youtu.be/pTYr0IgD5Qc>

Did you know that Renban originally used cages or shaded regions? Sometimes it's useful to go back to that to avoid overlapping lines.

Today's **GAS** is a **Arrow Renban Sudoku**!

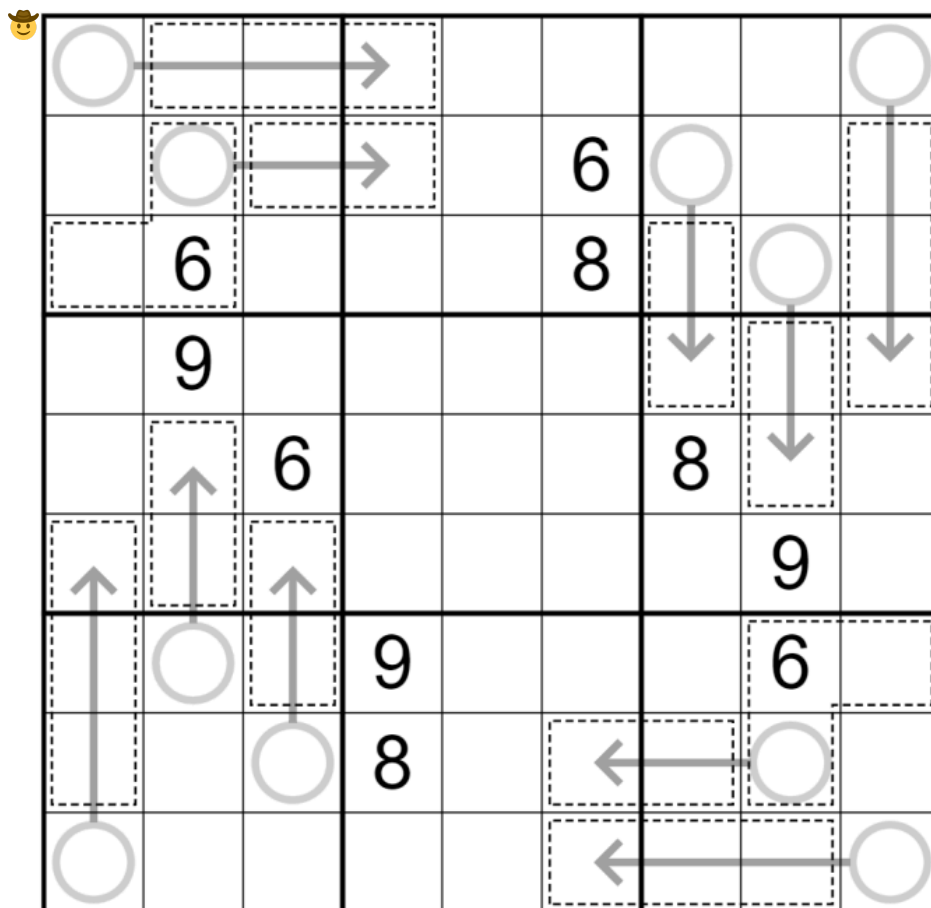
Normal sudoku rules apply.

Arrow: Digits along arrows must sum to the circled total.

Renban: Digits in cages must form a non-repeating consecutive set, in any order. (For example, a 4-cell renban cage could be 4352, but not 5679 or 2312.)

GAS 101 Hints:

1. [see Hints page at the end of this document]
2. [see Hints page at the end of this document]



Play on SudokuPad: <https://sudokupad.app/philip-newman/20240719-arithmetic-series>

Play on f-puzzles: <https://f-puzzles.com/?id=2ay4m65k>

July 20, 2024: Sidona

by Bill Murphy

Walkthrough for Arithmetic Series: <https://youtu.be/o03L4G08gaU>

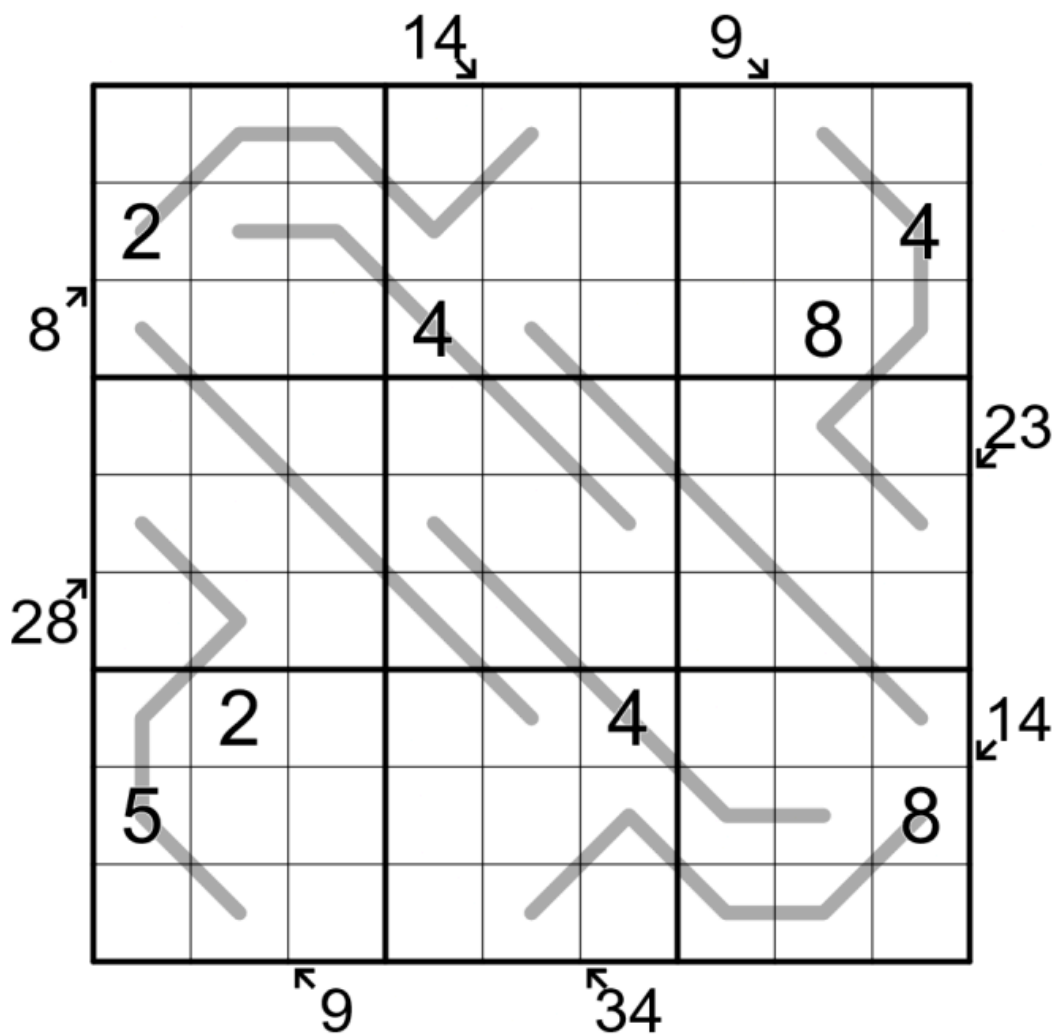
Gang, I am sorry to inform you, I am once again going through it this week. It's OK though, Philip did provide a massive distraction.

Here at GAS HQ, we're now into the mid 1100 puzzles and we'd never actually done a look at the genres of sudoku we've actually covered and the variant mash-ups we'd done. There were SO MANY different combinations of ones we hadn't done and that's just the common variants! (don't hold out hope for a numbered rooms/greek carpets mashup any time soon)

Granted, not all combinations of variants actually provide anything interesting to look at, but I got very very inspired and uh, I've set the next month of GAS puzzles for me. Might kick my feet up and relax!

Like, can you believe we'd never done a Little Killer Palindrome sudoku before?

Normal Sudoku Rules Apply. Clues outside the grid give the sum of digits along the indicated diagonal. Digits along grey lines must read the same backwards or forwards.



<https://sudokupad.app/qcij3qgadg>

July 21, 2024: Irregular
by clover!

Wakthrough for Bill's "Sidona": <https://youtu.be/DwlxHG0uchI>

In a highly irregular turn of events, Bill and Philip swapped spots this week! In an even more irregular turn of events, today's GAS is an **irregular sudoku**.

Normal irregular sudoku rules apply: place the digits 1 through 9 in the grid so that each row, column, and outlined region contains each digit once.

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

SudokuPad: <https://sudokupad.app/lw29wufeem>

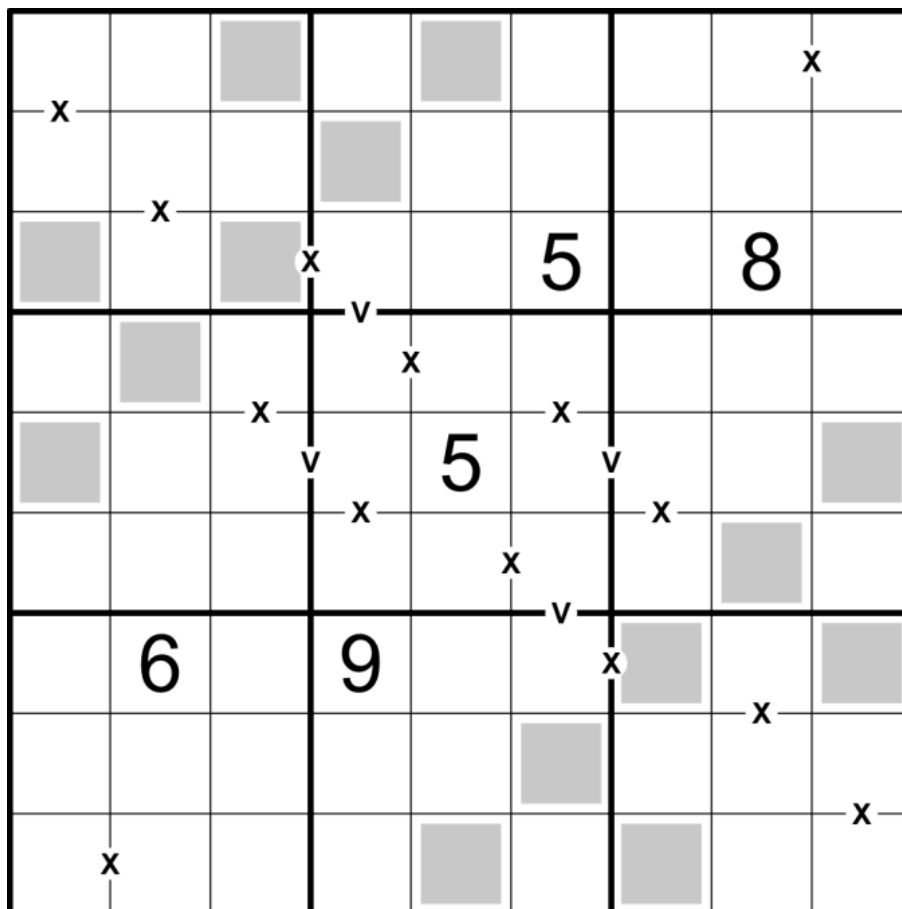
July 22, 2024: Even More Forever
by Bill Murphy

Walkthrough for Irregular: <https://youtu.be/xh7CWUepAP8>

e**XV**ited for **even** more unusual sudoku combinations?

Today's GAS is an **XV Even Sudoku**!

Normal Sudoku Rules Apply. Cells containing grey squares must contain even digits. Cells separated by an X must sum to 10. Cells separated by a V must sum to 5. Not all Xs or Vs are given.



<https://sudokupad.app/pxcvhii20q>

July 23, 2024: Round and Round

by Philip Newman

Walkthrough of "Even More Forever" by Bill:

<https://youtu.be/O2GMCr6FAaU>

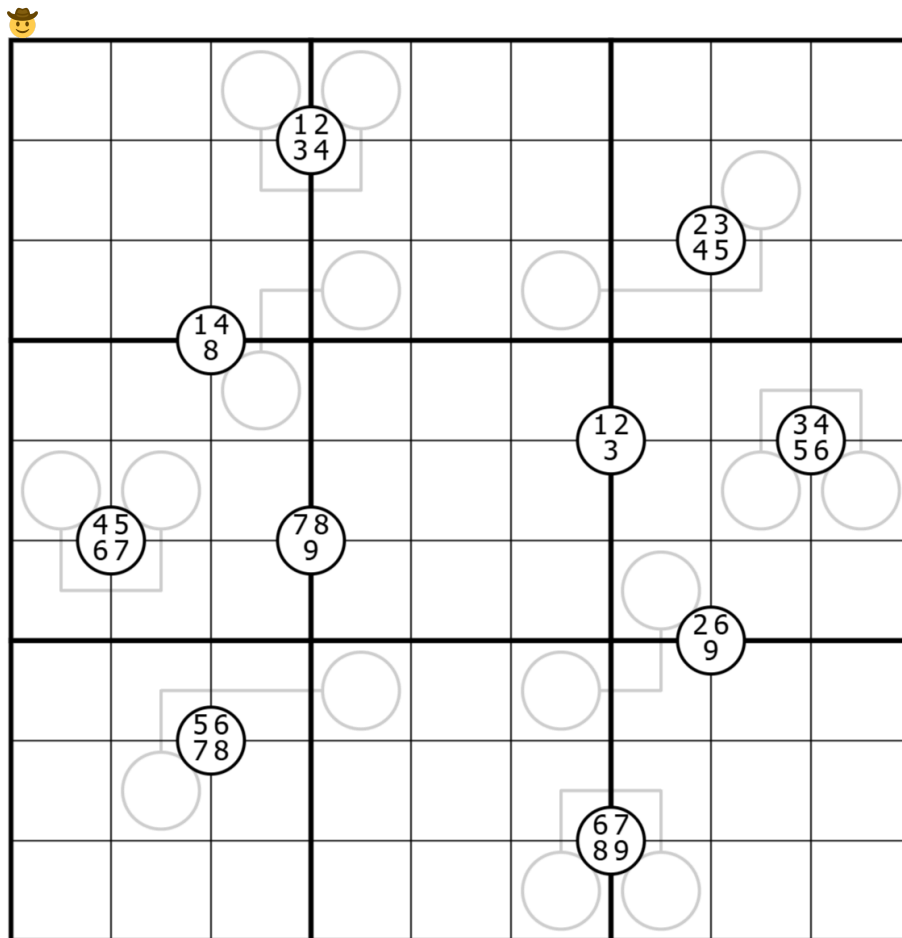
"Seeing into forever isn't as scary as people say. Time is an infinite loop. This moment, like all moments, exists in a perpetual state of being. Meow."

Today's **GAS** is a **Between Lines Quadruples Sudoku**!

Normal sudoku rules apply.

Between Lines: Digits along a line must have values strictly between the values in the circles on the ends of that line.

Quadruples: Digits in corner circles must appear in the surrounding four cells, in some order.



Play on SudokuPad: <https://sudokupad.app/philip-newman/20240723-round-and-round>

Play on f-puzzles: <https://f-puzzles.com/?id=22yj4bdz>

July 24, 2024: Top Heavy Sudoku

by clover!

Walkthrough for Philip's "Round and Round": <https://www.youtube.com/watch?v=L6F8iPVb0Fs>

Today's GAS is a **top heavy sudoku**. Please be very careful while solving, as it's liable to tip over if you push it too hard.

Fill the grid so that each row, column, and outlined 3x3 region contains the digits 1-7 once each, plus two empty cells. Everywhere that one digit appears directly above another digit (with no blanks between them), the digit on top must be larger than the digit on bottom.

			2		1			
			7		6			
	2			1			7	
7								1
	4						2	
			1		7			
	1			2			6	

SudokuPad: <https://sudokupad.app/opigiz8kvq>

July 25, 2024: Favourite

by Bill Murphy

Walkthrough for Top Heavy Sudoku: <https://youtu.be/8ymmN8mc3Uo>

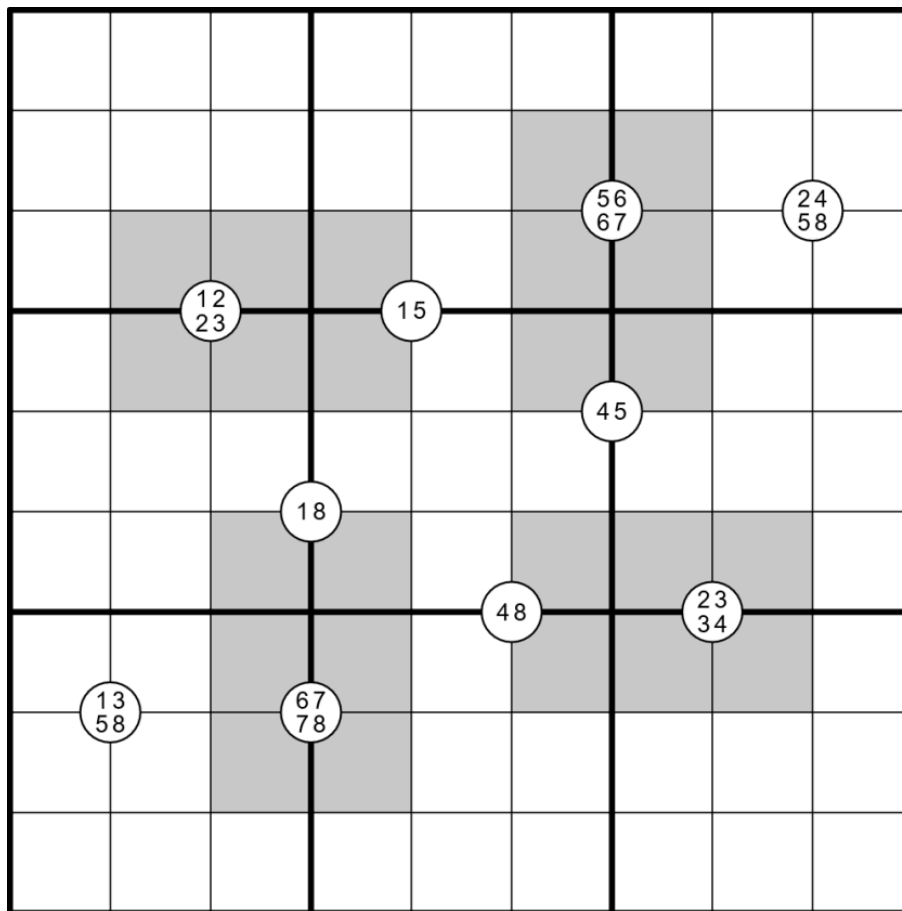
I forgot to say it the other day, shoutouts to the absolute legends of GAPP Industries for hitting the big 1K Puzzle mark!

Much love to them! Go show them some love and give some pencil puzzles a go!

I guarantee y'all will learn stuff the more you do!!

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

Normal Sudoku Rules Apply. Digits in white circles must appear in the surrounding four cells. Digits in shaded areas must appear in identical positions in identically shaped spaces in the grid.



<https://sudokupad.app/cwi4ca0sjk>

July 26, 2024: XVX

by Philip Newman

Walkthrough of "Favourite" by Bill:

<https://youtu.be/zEQi2pR5P6w>

There's no 'U' in this puzzle, but...

Oh, I guess there is a 'U' in this pUzzle.

There are two 'U's in this sUdokU.

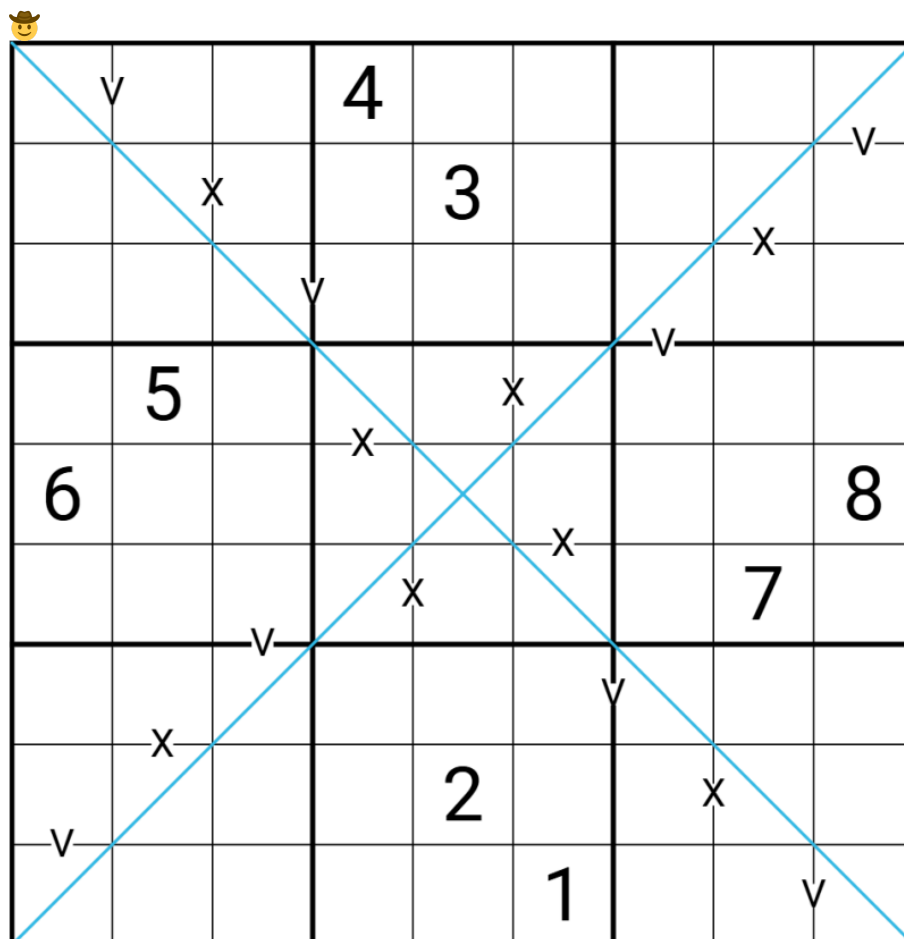
But there's no 'U' in SVDOKV!

Today's **GAS** is a **Diagonal XV Pairs Sudoku**!

Normal sudoku rules apply.

Diagonal: Digits along the indicated diagonals cannot repeat.

XV Pairs: Digits in cells separated by a 'V' must sum to 5; digits in cells separated by an 'X' must sum to 10. (No negative constraint - other pairs of adjacent digits may sum to 5 or 10.)



Play on SudokuPad: <https://sudokuapp.philip-newman.com/20240726-xvx>

Play on f-puzzles: <https://f-puzzles.com/?id=24s4vlln>

July 27, 2024: Betweenban
by clover!

Good morning darlings, no walkthrough today. I spent my evening yesterday having emergency dental surgery, which is an experience that sucked slightly more than breaking my pelvis ten years ago, but slightly less than solving a Braille sudoku. (If you know, you know.) I'll make every effort to have a walkthrough up for you within the next few days!

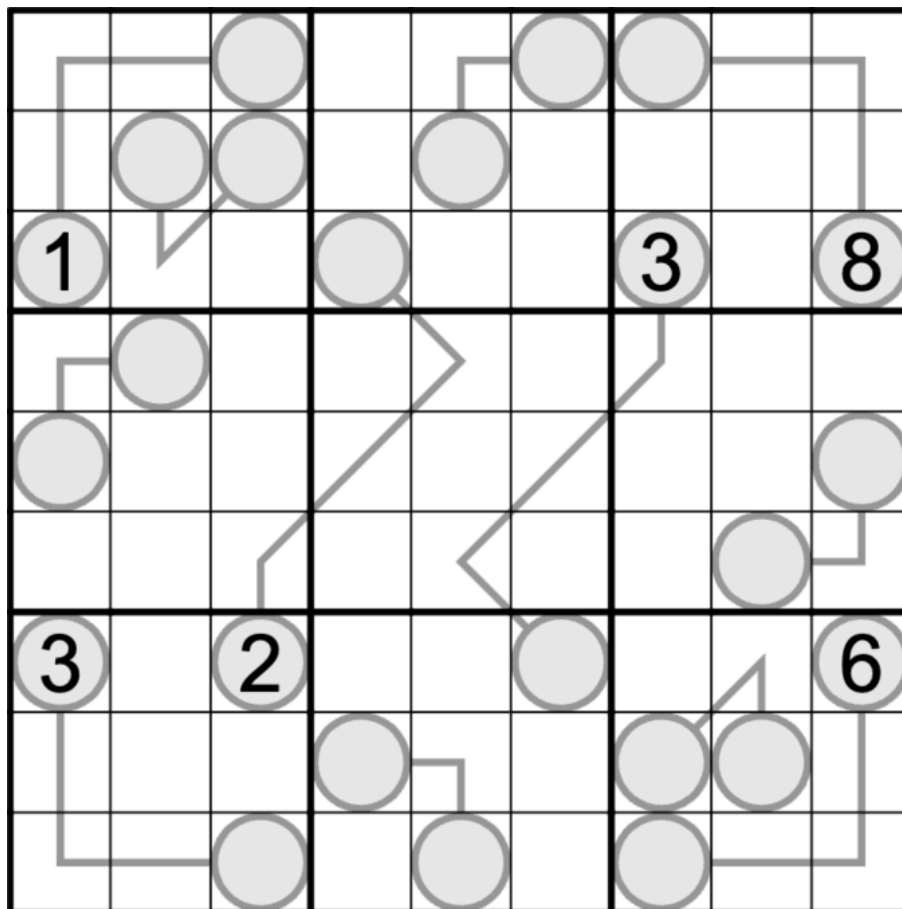
Also, please join us today, 19:00:00 [GMT] at <https://twitch.tv/sudokucon> for a very interesting competitive setting stream featuring myself, @Niverio, and @rockratzero, if you want to see how well I don't set puzzles when I'm on the good drugs. Anyways:

Today's GAS is a **betweenban sudoku**. Normal sudoku rules apply. Lines are BOTH BETWEEN LINES AND RENBANS.

Digits along a line must have values in between the values in the attached circles.

Also, each line (including its circles) contains a set of consecutive digits, which are not necessarily in order.

For instance, if two circles contain 3 and 7, then the digits on their line must be 4, 5, and 6, in any order.



July 28, 2024: Wake In Might

by Bill Murphy

Walkthrough for Betweenban: <https://youtu.be/weiiXNA6YEg>

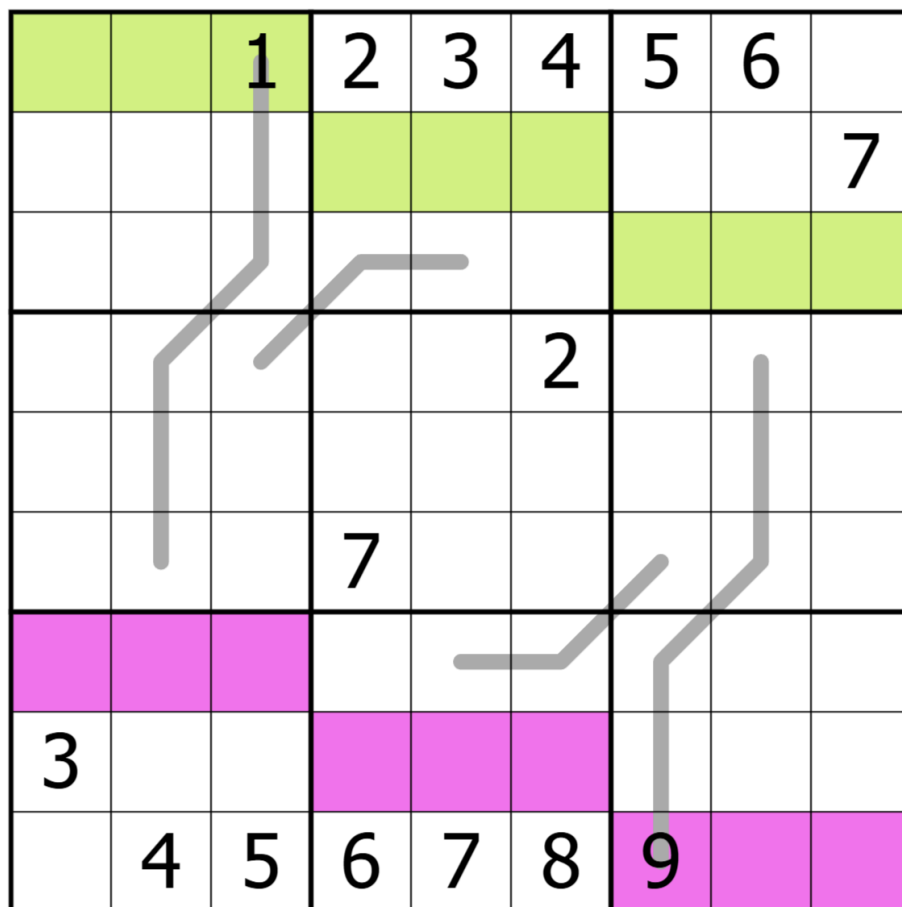
Did you know chocolate has a maximum number of bug parts it can have before it can't be sold? The number isn't 0, btw.

I brought this up during the "shelob attacks" scene in the return of the king marathon group chat yesterday and thought i would share it with you all right now.

Also, august is coming! We totally forgot about our tradition, but we're cooking! I'll hit y'all with the details proper next time I see y'all.

Today's GAS is an **Extra Regions Palindrome** Sudoku!

Put the digits 1-9 in each box, row, column and shaded region. Digits along a line are palindromes and must read the same in both directions.



<https://sudokupad.app/oswu98s9k2>

July 29, 2024: Six by Nine

by Philip Newman

Walkthrough of "Wake In Might" by Bill:

<https://youtu.be/52wRXwskNRU>

DON'T PANIC!

Today's puzzle is a bit spicy, but it's my birthday so you just have to live with it. You can do it! Just don't forget your towel.

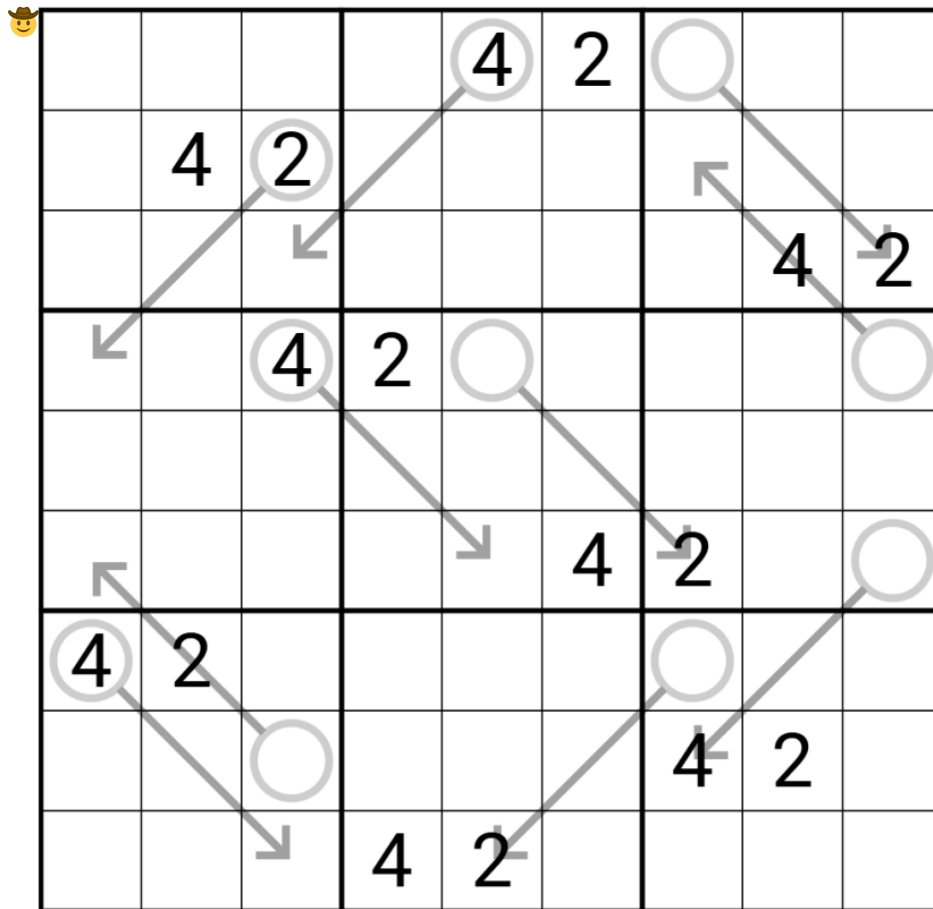
The second image is from a puzzle I will be sending as this month's Patreon bonus puzzle; it is very much not solvable in the form presented here (even if you knew the rules), but it's thematic so...

(If you decide I need a birthday present, join us at patreon.com/sudokutheory; and join clover at patreon.com/sudokucllover and Bill at patreon.com/WWMSudoku because they're awesome.)

Today's **GAS** is an **Arrow Sudoku**!

Normal sudoku rules apply.

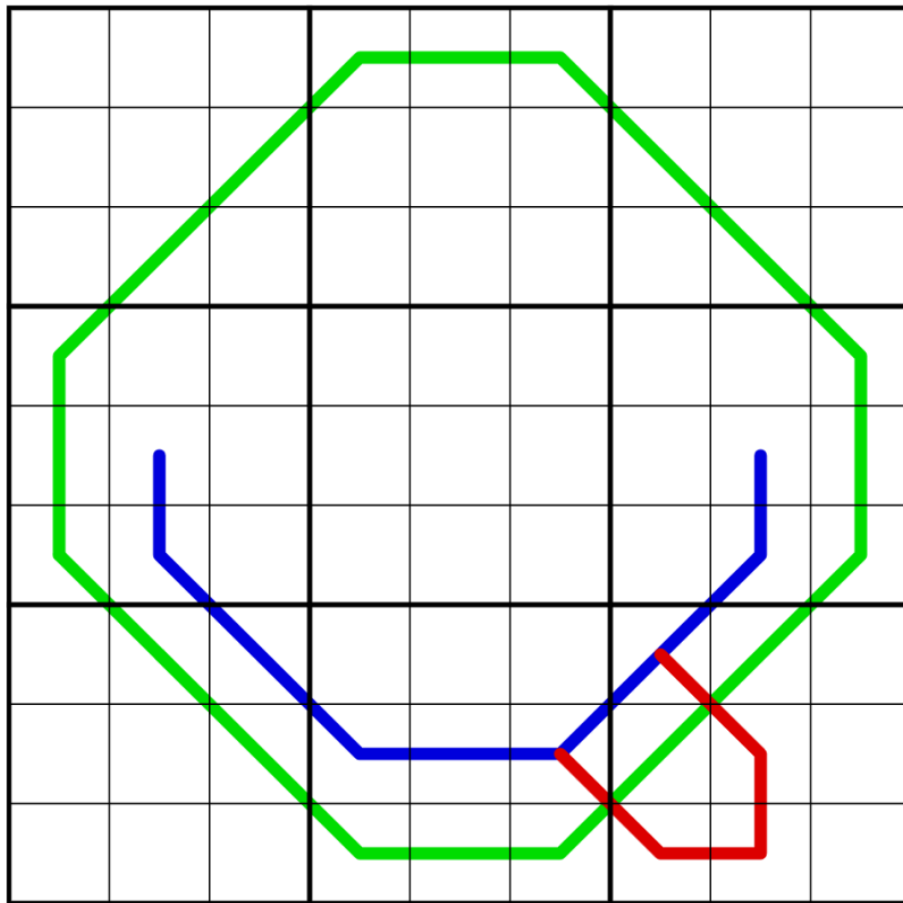
Arrow: Digits along arrows must sum to the circled total.



Play on SudokuPad: <https://sudokupad.app/philip-newman/20240729-six-by-nine>

Play on f-puzzles: <https://f-puzzles.com/?id=2467gwfk>

[Second Image: (not solvable!)]



July 30, 2024: X-Sudoku

by clover!

Good morning, friends! Here's a walkthrough for Philip's "Six by Nine":
<https://youtu.be/mo71VYMX0ro>

Now, remember last August (and the previous August), where you earned absolute piles of party hats for guessing the following days' variants?

No, I'm not bringing that up for any reason, I just wondered if you remembered. 😊

Today's GAS is a **sudoku X**, also known as diagonal sudoku! Normal sudoku rules apply. Also, each marked diagonal contains the digits 1 to 9 exactly once each.

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

SudokuPad: <https://sudokupad.app/bi3gxfh0hc>

July 31, 2024: Android Alley / Pointless Experience [two puzzles]

by Bill Murphy

Walkthrough for X-Sudoku: <https://www.youtube.com/watch?v=DK3d93SLi-U>

Sorry about the mess last time gang. I've been dealing with a situation for the last nine months that culminated pretty ferociously this week and I'm proud of finding a way through with grace in a situation with no winners. I'm OK though, I am surrounded by beautiful family, friends and coworkers, who bought me flowers today to support me.

I try not to talk about myself a lot on the internet any more as there's frankly too much about people, let alone me, but I have absolutely become a new person in the last five months at my new job. I still teach, but I teach a lot of short courses and incursions to teenagers. While some weeks I teach more than I did before, others I get to spend exploring technologies and discovering new ways of teaching. I've gotten better at 3D printing and learnt gene splicing, laser cutting, sublimation printing, how to use a band saw and this week, I learnt how to use an embroidery machine.

Technically, this is Dimension 20 fanart, but I'm putting my creation for the week up because if it's sisyphian for you rn, I am with you and we will make it through.

As today's my last chance to post whatever I want before **Additional Hat August**, you better believe today's GAS is **Two Classic Sudoku!**

If you're new here, let me lay it down for you:

Every day in August, you can get a bonus hat if you guess what the day's GAS is going to be before we post it. Post your spoiledred guesses starting today!

We give no clues, but there tends to be something which might help you narrow it down if you're paying attention.

Honour System, if we don't @ u, and u guessed it, it's yours.

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



Android Alley:

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

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

<https://sudokupad.app/027q3vbr62>

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

Pointless Experience:

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

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

<https://sudokupad.app/2gmeuaq8jc>

Bonus 1: 9/10

Bill Murphy

Normal sudoku rules apply. Cells separated by an X or V must sum to 10 or 5 respectively. All XV clues are given.

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

<https://sudokupad.app/4bleg1kpg7>

Bonus 2: X-Pairs Yourself

Bill Murphy

Normal sudoku rules apply. Cells connected by an X must sum to 10. Clues outside the grid give the sum of the first X cells seen from that clue, where X is the first digit in the row or column, from the direction of the clue.

		X		X		X		X
10	X							
24								
13	X							
18	X							
24	X							

<https://sudokupad.app/5ylch8ninn>

Bonus 3: Killer Sudoku

Philip Newman

Normal sudoku rules apply.

Killer: Digits in cages cannot repeat and must sum to the total given.

6					17			
		10	7					
	16				8	12		
21								9
			22				14	
						20		
18								
			23					
	13					24		

<https://sudokupad.app/bc6xjrlnsx>

Bonus 4: Surplus Sudoku

Clover

Fill the grid with the digits 1-7, so that each digit appears exactly once in each row and column, and each digit appears at least once in each outlined region.

		1			4	
			1			
2					5	
	3					
				4		1
3		6				
				2		5

<https://sudokupad.app/iz52d92af3>

Bonus 5: LC Sudoku

Clover

Normal sudoku rules apply. L clues appear between two numbers that sum to 50, which are adjacent in the same row or column. C clues appear between two numbers that sum to 100, which are adjacent in the same row or column. Some numbers may consist of two digits. Two-digit numbers must be read from left to right or top to bottom.

For example, because a C appears between r9c6 and r9c7, it's possible that $r9c56+r9c7=100$, or alternatively, that $r9c56+r9c78=100$.

	1	2	C					
					L			2
			C	5	1			3
		L				C		C
		8				8		
		7				4		
C		C						
4				5	8	C		
5								
						C	3	4

<https://sudokupad.app/z1d4f289i5>

Time Benchmarks

			
	Two party hats	One party hat	Todays dinosaur:
July 1, 2024	7:30	14:00	Ill Ilokelesia
July 2, 2024	10:00	20:00	Precious Prosauropod
July 3, 2024	6:00	11:00	negative Nyasasaurus
July 4, 2024	7:00	13:00	Charitable Charonosaurus
July 5, 2024	8:08	16:16	PASTEDE ON Plateosauravus
July 6, 2024	6:00	11:00	nother negative Nyasasaurus
July 7, 2024	8:00	14:00	Black and Yellow Yaverlandia
July 8, 2024	9:00	20:00	Interesting Issi
July 9, 2024	6:00	11:00	loved Loricatosaurus
July 10, 2024	8:00	15:00	Odd Othnielia Out
July 11, 2024	8:00	16:00	Maxwellian Melanorosaurid
July 12, 2024	7:00	11:00	Atlepotela Aletopelta 😊
July 13, 2024	7:30	14:00	Rehashed Hypacrosaurus
July 14, 2024	10:00	25:00	Geometrid with delusions of Grandeur
July 15, 2024	8:30	16:00	case-of-the-Mondays Caudipteryx
July 16, 2024	7:00	13:00	Bare Bones Bravoceratops
July 17, 2024	7:30	14:00	Dotted Diplodocid
July 18, 2024	10:00	20:00	round Raptorex
July 19, 2024	9:00	20:00	Swapped Sauropodomorph (Is it obvious yet that I'm running out of new long-necked friends? 😭)
July 20, 2024	8:00	15:00	No Loose Ends Neimongosaurus
July 21, 2024	8:00	15:00	highly irregular Haplocanthosaurus
July 22, 2024	8:00	15:00	Equal Equijubus
July 23, 2024	7:30	15:00	Sus Saurischian
July 24, 2024	7:30	14:00	tipsy Tyrannosaurus Rex
July 25, 2024	7:00	13:00	Genuinely Approachable Pencil Pyraptor! 📝
July 26, 2024	7:00	13:00	Spelling Saltasauroid
July 27, 2024	6:00	11:00	toothless Torvosaurus
July 28, 2024	8:00	15:00	Hairy Hagryphus
July 29, 2024	10:00	22091040:00	Marvin the Morbid Mamenchisaurid
July 30, 2024	7:00	13:00	ex-Ekrixinatosaurus
July 31, 2024	11:00	20:00	Zeroed Zuolong

Hints and other spoiledred texts

Hint for July 8, 2024:

GAS 101 Hint: To get started think about the white dots which connect a cell on a renban line with a cell off the renban line; these are more restricted than they might appear at first!

Jokes for July 17, 2024:

Why did the man fall in the well? He didn't see that well.

Why did the man miss his Amazon delivery? He didn't see that good, either.

Hints for July 19, 2024:

GAS 101 Hints:

1. A 3-cell renban must contain a middle digit, so the sum of the digits 3 times that middle digit. (Something similar is true for any odd-length arithmetic series!)
2. A 2-cell renban must contain one odd and one even digit, so the sum of the digits is odd.