GAS Leak

Genuinely Approachable Sudoku from the CtC Discord
Volume 4: August 6, 2021 - August 25, 2021

🎩 🥳 🦕

Welcome to the fourth edition of GAS Leak! As we close in on 80 days of daily puzzling, I continue to be blown away by the enthusiasm, insight, and kindness of our nearly 1,300 solvers. This document compiles the last twenty days of GAS — plus, as always, a trio of bonus puzzles that quite didn't make the cut.

We've had a few exciting developments in GAS lately: a number of solvers have now joined the 100 party hat club, including Mark Goodliffe from Cracking the Cryptic! We've also just announced CtC's GAS App, which will include a whole lot of never-before-seen approachable sudokus from Philip, Sam, and myself.

As always, on the **last page of this document**, you'll find a table of time benchmarks for each puzzle. 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. And anybody who just finishes (whether you have a slower time, or simply don't record your time at all) will receive a lovely collectible **dinosaur**.
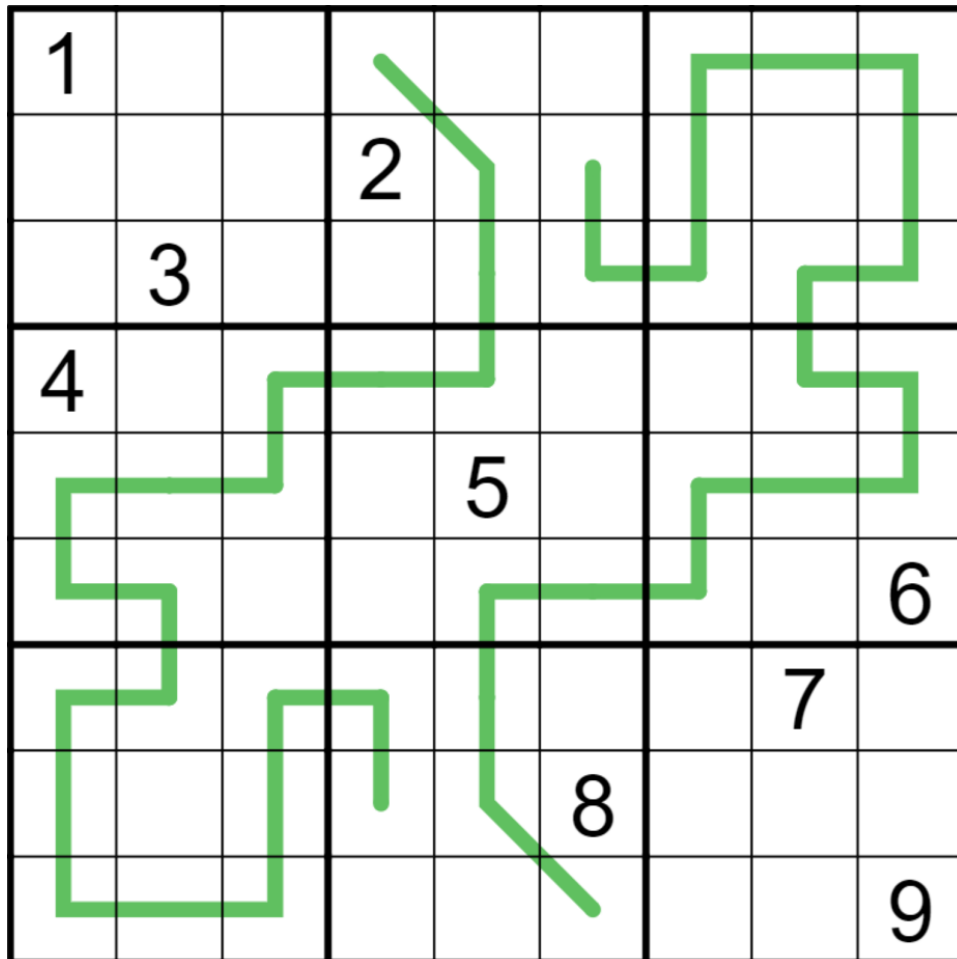
Happy solving!

- Clover

August 6, 2021: German Whispers
Philip Newman

Be very very quiet. I'm herding dinos.

Did you know that dinosaurs spook easily, and will panic at the sound of partying sudoku solvers? I didn't either, because I just made it up. But everything I read on the internet is true, including things I just typed, so let's be extra careful and not cause the dinos to trample our hats. Especially while we're wearing them.

Normal sudoku rules apply. Along green lines, digits differ from their neighbors by at least 5.

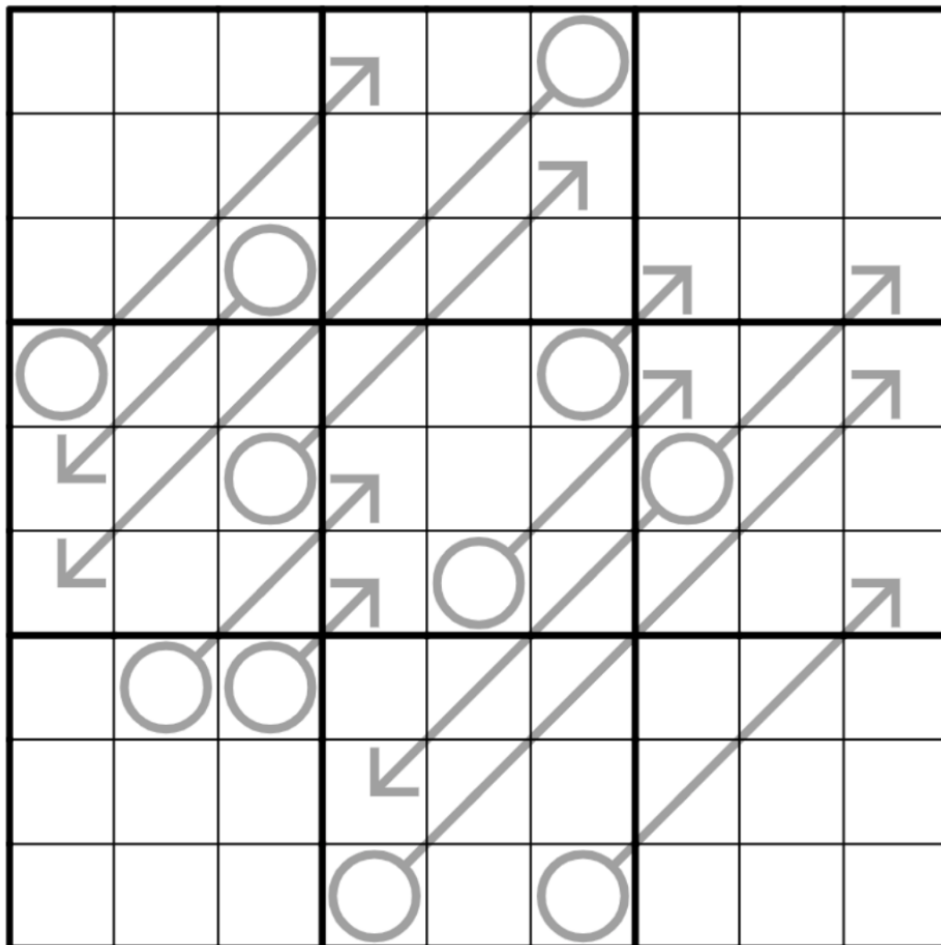f-puzzles: https://f-puzzles.com/?id=ygnbpz23
CtC: https://tinyurl.com/m9d5tn4

August 7, 2021: Arrow
Clover

Today's GAS is pointier than usual!* Wear gloves and safety eyewear at all times while handling this GAS. Do not allow small children to solve this GAS unsupervised. Avoid solving this GAS while operating motor vehicles or heavy machinery. Do not solve this GAS in an enclosed area without proper ventilation. This GAS is not suitable for human habitation. Keep all of your limbs inside of the GAS at all times during operation. We are not liable for any injuries or emotional trauma suffered as a result of attempting this GAS.

It's an arrow sudoku.

Normal sudoku rules apply. Also, digits along an arrow sum to the value in the adjoining circle. Digits along an arrow can repeat, as long as they follow all other sudoku rules.

f-puzzles: https://f-puzzles.com/?id=yeexk5sh
CtC: https://tinyurl.com/bzeymea3

August 8, 2021: Cupid
Sam Cappleman-Lynes

Singles in your area

Unlucky in love? Looking for that special someone who enjoys long walks on the beach and curling up by the fire with a good book (of puzzles, of course)? Perhaps today's GAS will help you meet your perfect match.

Or perhaps it won't. But you won't know until you've tried it.

In this Cupid Sudoku, normal Sudoku rules apply, and if a digit is placed on an arrow then it must repeat somewhere else in the cells pointed at by the arrow.

f-puzzles: https://f-puzzles.com/?id=yf8os8lq
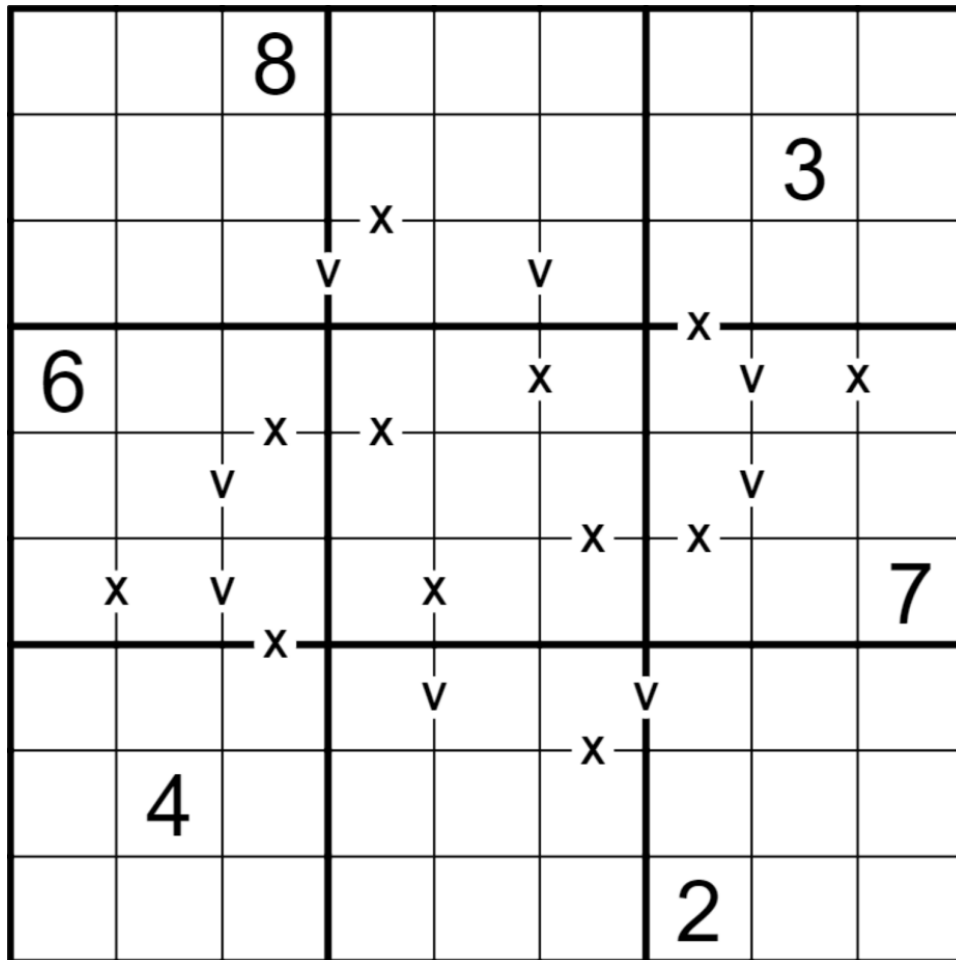CtC: https://tinyurl.com/5wsju3rs

August 9, 2021: XV Pairs
Philip Newman

It's Luke's first day of kindergarten today! For you, that means it's time to go back to the School Of Sudoku (SOS... I hope no one is trapped in the acronym factory again). Some important reminders for students:

⭐ No running in the rows or columns.
⭐ Please bring a number 2 pencilmark.
⭐ Highlighting must conform to the uniform code.
⭐ Class starts promptly at... oh no, I'm already late, I should finish and get this posted!

Today's puzzle is an XV Pairs Sudoku, testing your ability to add to 5 and 10! Normal sudoku rules apply. Digits in cells separated by an X must sum to 10, and digits in cells separated by a V must sum to 5. (No negative constraint: not all Xes or Vs are necessarily given.)

f-puzzles: https://f-puzzles.com/?id=yzpbco35
CtC: https://tinyurl.com/rx2t57jk
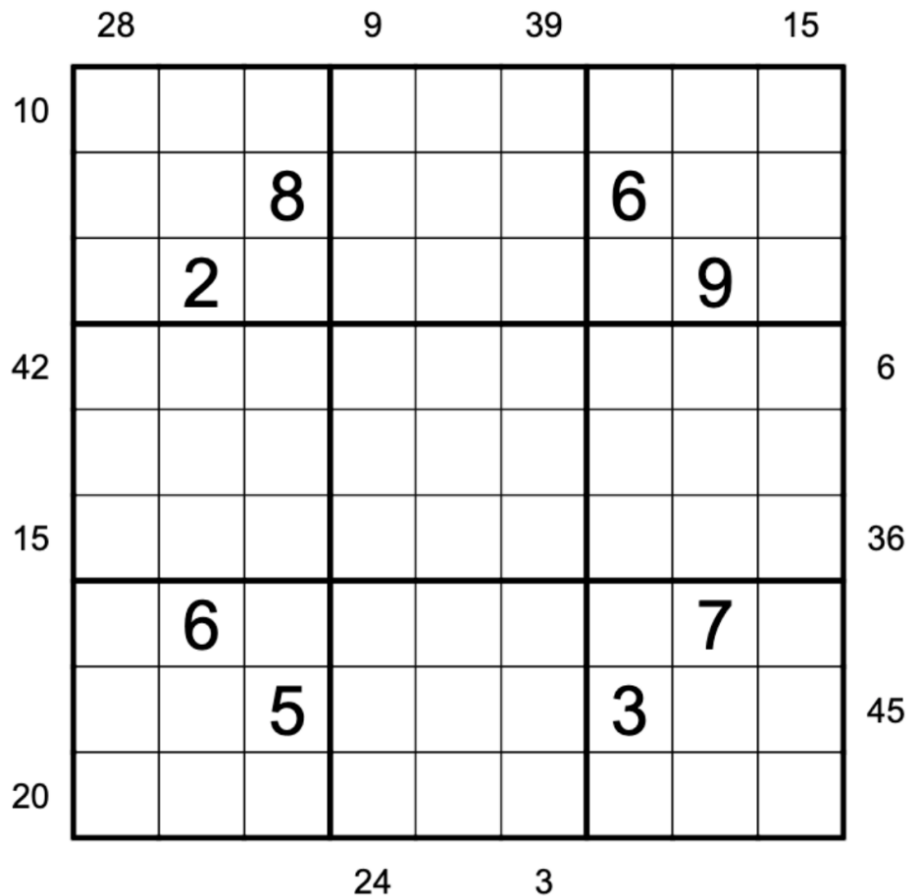
August 10, 2021: X-Sums
Clover

Let me introduce you to Trizzak's new least favorite sudoku variant! It's called X-Sums and it goes like this:

Normal sudoku rules apply. Also, if there's a value outside of a row or column, then the digit in the first cell of that row or column tells you how many cells, in total, are summed together to get that value. (Start summing from the direction in which the outside clue appears: for instance, if the clue appears below a column, you'll sum from the bottom up.)

For example, if the first cell on the left in a row contains a 4, then the outside clue to the left of that row gives the sum of the first four digits in that row from left to right (which does include the 4 itself). If there isn't a value outside of the row or column at all, then you don't necessarily know anything about its first digit.

> Editor's note: Trizzak is a GAS solver known for dramatic, hilarious, and often GIF-based reactions to math sudoku variants. ;)

f-puzzles: https://f-puzzles.com/?id=yf54834r
CtC: https://tinyurl.com/ymmeadmb

August 11, 2021: Coast to Coast
Sam Cappleman-Lynes

Solvers, it's time for you to pack your sandwiches, don your mackintoshes and do up your hiking boots, because today, we're going Coast to Coast. It is recommended that you dip your feet in the Irish Sea before embarking on your journey.

In this Coast to Coast Sudoku, normal Sudoku rules apply. Additionally, wherever two digits are given outside the grid, they must appear (in either order) in symmetric locations in the first and last three cells in the indicated row. For example, if one of them appears in the third cell, the other must appear in the third-from-last cell. If one appears in the first cell, the other must appear in the last cell.

Be careful! When this puzzle was initially released, many solvers missed the warning that **outside digits aren't necessarily given in left-to-right order**.
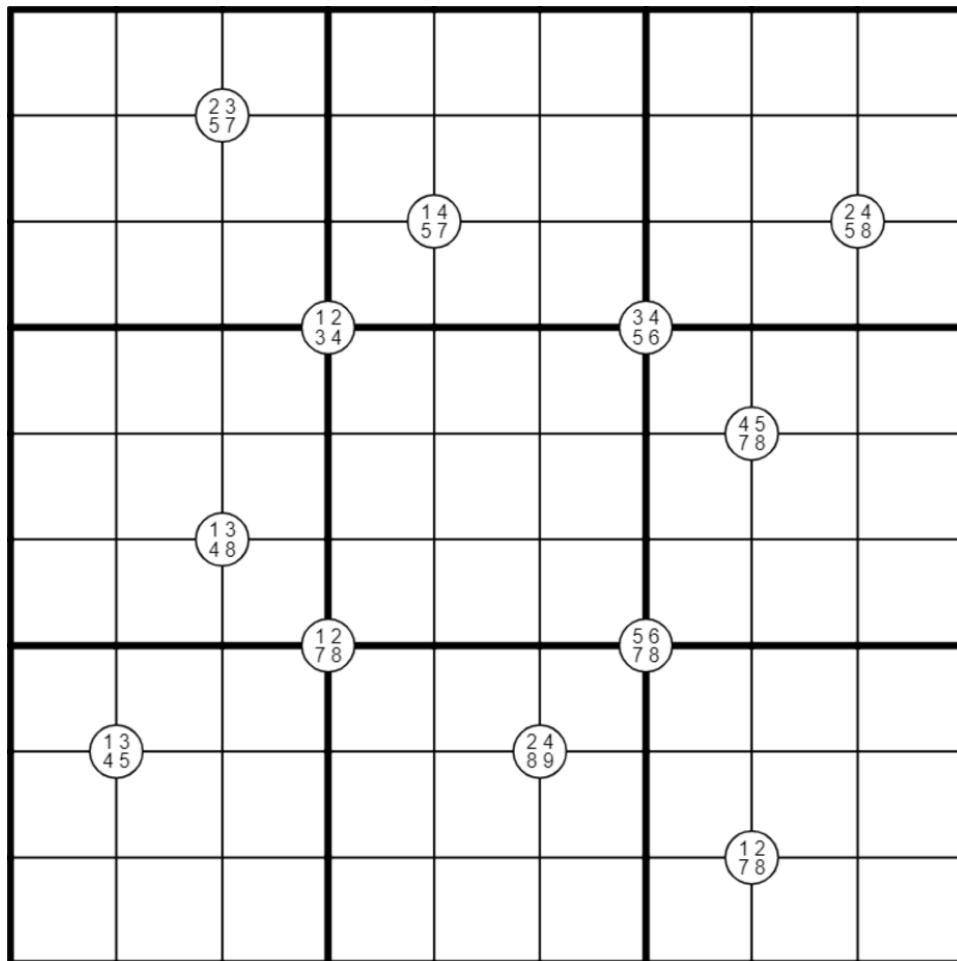
August 12, 2021: Quadruples

Philip Newman

Howdy, ya'll! It's time to wrangle some quads in this Quadruples Sudoku! 🤠(That's my yearly quota of being Texan done...)

Normal sudoku rules apply. Digits in circles must appear in the four surrounding cells (in any order).

f-puzzles: https://f-puzzles.com/?id=yez47hv7
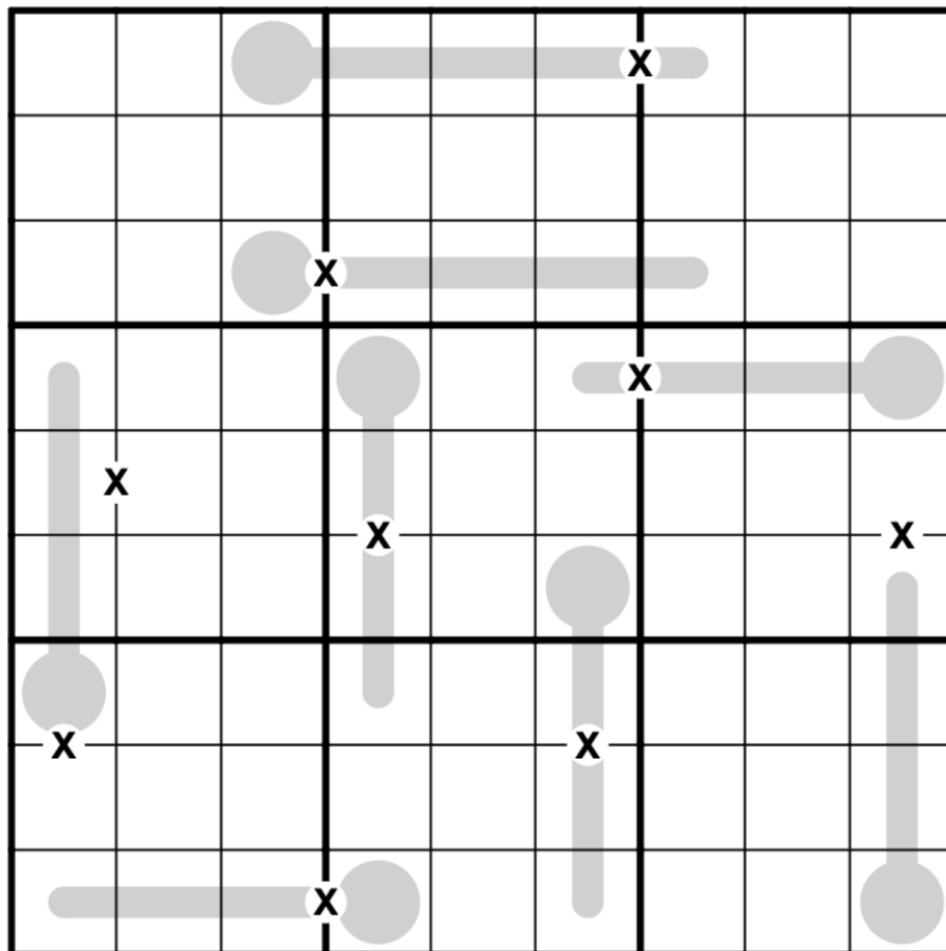CtC: https://tinyurl.com/fjkrhp72

August 13, 2021: X Pairs Thermo
Clover

Allow me to xhibit an especially xciting puzzle this morning: an X(V) Thermo. A brief xplanation of the rules before your xperience begins:

Normal sudoku rules apply.

Digits along a thermometer must increase, starting from the round bulb. (Just as you'd xpect.)

Digits on either side of an X must sum to 10. Not all Xes are necessarily given.

f-puzzles: https://f-puzzles.com/?id=yzuplowc
CtC: https://tinyurl.com/49aj38x2

August 14, 2021: Deficit / Surplus
Sam Cappleman-Lynes

Editor's note: this was a special double-puzzle day! Be warned that these puzzles are unusually tough for GAS. They should still be approachable, but many solvers found that despite their small size, each of these took just as long as, if not longer than, a regular GAS. The flavor text and rules for **both** puzzles are given on this page; the puzzles and solving links appear on the following page.

Note for new solvers: The CtC app doesn't check non-9x9 puzzles correctly; no matter what digits you fill in, it'll tell you that you got the right answer. Consider using the Penpa links instead today! If you decide to use the CtC app, you'll need to check your own answer.

Everything in Sudoku is made up of two opposing, yet interdependent, forces. One will lead to the other, and back again, over and over. Like day into night, darkness into light, birth into death. Without Deficit, there is no Surplus, and without Surplus, there can be no Deficit. Today's puzzles are inseparable; one cannot exist without the other.

In Deficit Sudoku (top), fill each empty cell with a number from 1-7 so that each number appears at most once in every row, column, and outlined 6-cell region. That means that each region will be missing one of the numbers.

In Surplus Sudoku (bottom), fill each empty cell with a number from 1-7 so that each number appears at least once in every row, column and outlined 8-cell region. That means that each region will have a single repeated number.

Deficit

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

Surplus

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

August 15, 2021: Disjoint
Philip Newman

Uh oh. Uncle has gotten into the global constraints again. Help him piece together his sanity by solving today's GAS: a Disjoint Groups puzzle...

Normal sudoku rules apply. A digit cannot appear in the same relative position in different boxes. (For example, 4 cannot be in both r1c1 and r7c7, since these cells are in the top-left of their respective boxes.)

Nobody puts 4 in a corner... if it's already in that corner elsewhere.

August 16, 2021: Slot Machine
Clover

Did you know that the highest slot machine jackpot ever won was $39.7 million USD in 2003? Are you feeling lucky? Then let's up the ante. If you play this slot machine sudoku, you have a chance to win as many as two party hats, valued at $763.8 million USD. Each.

Normal sudoku rules apply. Also, each blue stripe contains exactly the same sequence of nine digits in the same order. The sequence can start at any point along a blue stripe, and when it reaches the bottom, it wraps around again to the top. For instance, if the first blue stripe contains the digits 123456789 from top to bottom, the other two could contain 345678912, 789123456, etc.

f-puzzles: https://f-puzzles.com/?id=ye5modxk
CtC: https://tinyurl.com/n65xuz5d

August 17, 2021: Position
Sam Cappleman-Lynes

You'll probably be relieved to hear that today's GAS is a single puzzle in which normal Sudoku rules apply. No more deficit, no more surplus, balance has been restored and they coexist in peaceful harmony within this totally normal 9x9 Sudoku.

In this Position Sudoku, normal Sudoku rules apply (!) and, in addition, clues outside the grid give the position of the largest number *within the first three cells* in the corresponding direction.

f-puzzles: https://f-puzzles.com/?id=yj36quyd
CtC: https://tinyurl.com/r39yats5
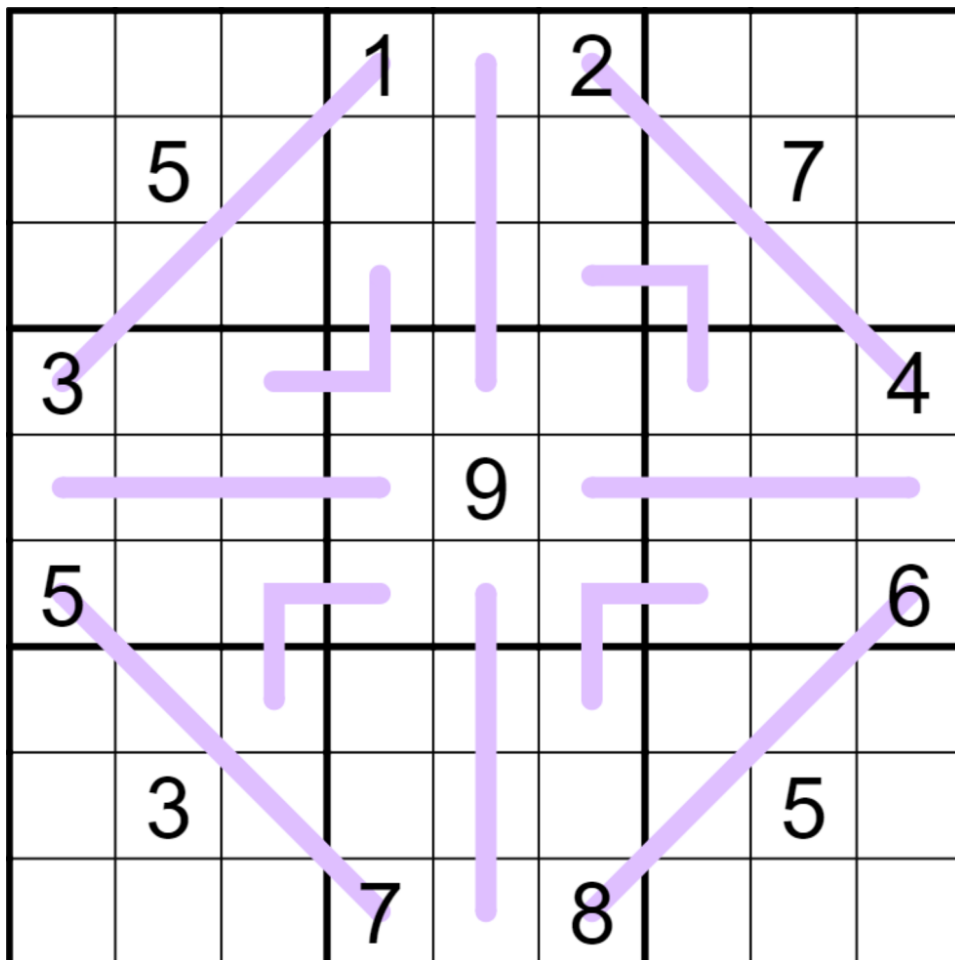
August 18, 2021: Renban
Philip Newman

Did you know that hippos don't use fridges? Probably, but Glum Hippo just reminded me and I wanted to make sure all of you were reminded too.

Today's GAS is a Renban Sudoku. We've done a few of these now, but to remind you of the rules:

Normal sudoku rules apply. Digits along a purple line must form a set of consecutive digits with no repeats (in any order).

Editor's note: Glum Hippo is a regular GAS solver and also a hippopotamus. 🦛

f-puzzles: https://f-puzzles.com/?id=yz7cpdbc
CtC: https://tinyurl.com/57pnyyhm

August 19, 2021: Numbered Rooms
Clover

Don't you just hate it when you're staying at a nice hotel and then someone knocks on your door in the middle of the night to tell you that an infinite number of infinitely large buses have just arrived, and now you have to pack up your things, calculate 2 to the power of your room number, and drag your exhausted body halfway across creation to a differently numbered room? No? Just me?

Today's GAS is a numbered rooms sudoku! Normal sudoku rules apply. Also, if a digit appears outside of a row or column, the first digit in that row or column tells you where to put the outside digit.

For instance, if a 6 appears above a column, and the first digit in that column is a 4, then you need to put a 6 in that column in the fourth position from the top. (If the value appears to the right of a row, count from right to left; if it appears below a column, count from bottom to top.)

f-puzzles: https://f-puzzles.com/?id=ye7gry5s
CtC: https://tinyurl.com/bz2rt5eb

August 20, 2021: 1-5-9
Sam Cappleman-Lynes

You lot with your numbered rooms in an infinite hotel... You don't know how lucky you are! When I were a lad, we only had three rooms for all 27 of us, and we were grateful! I ought to teach you all a lesson...

In this 1-5-9 Sudoku, normal Sudoku rules apply.

Additionally, any digit placed in column 1 tells you which cell the 1 goes in in that row. For example, if Row 4, Column 1 is a 6, then 1 must go in Row 4, Column 6. The same applies to columns 5 and 9, but with the digits 5 and 9 respectively.

f-puzzles: https://f-puzzles.com/?id=yh53xjbb
CtC: https://tinyurl.com/mhw337m8
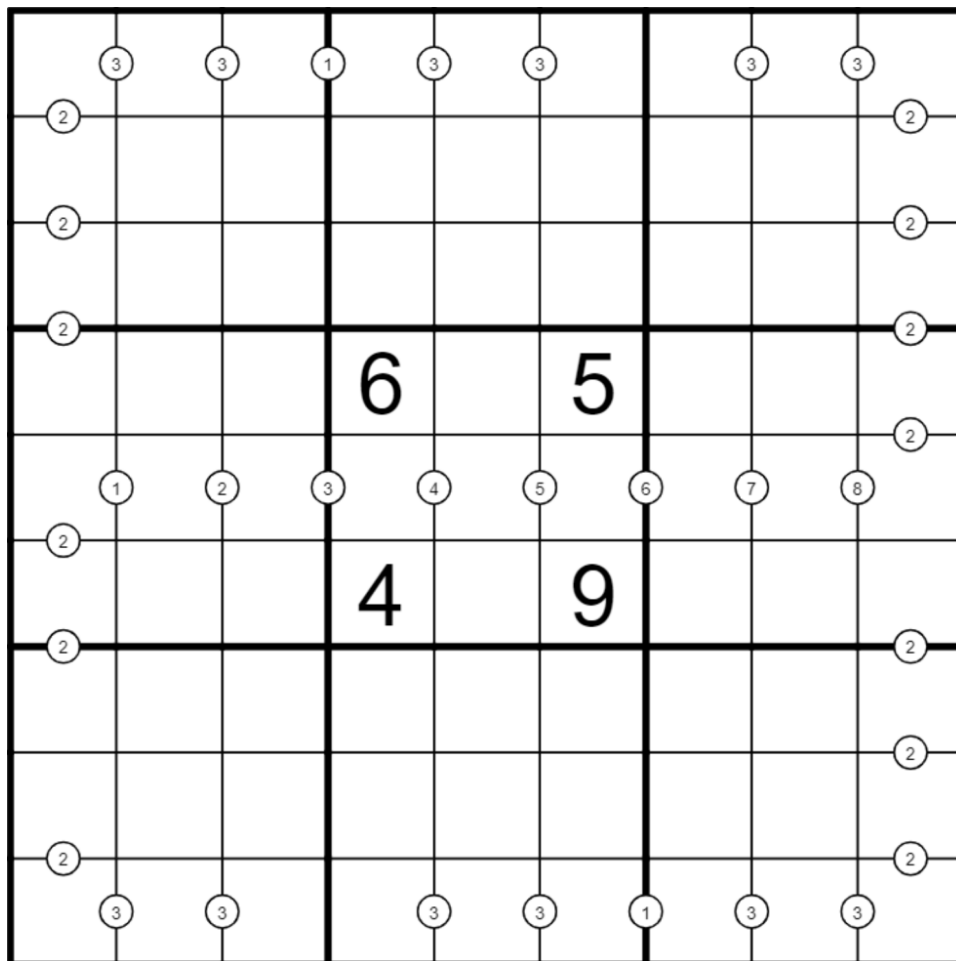Penpa: https://git.io/J0xg9

August 21, 2021: Difference

Philip Newman

I forced a bot to watch 1000 hours of GAS lore, and then asked it to write today's intro.

Unfortunately the bot and the laptop have formed a union and are now on strike. So this is all you get.

Today's GAS is a Difference Sudoku. Unlike consecutive pairs, where the difference is always 1, there are different differences given inside the white dot!

Normal sudoku rules apply. Digits in cells connected by a white dot must have the difference given.

f-puzzles: https://f-puzzles.com/?id=yfcma9dh
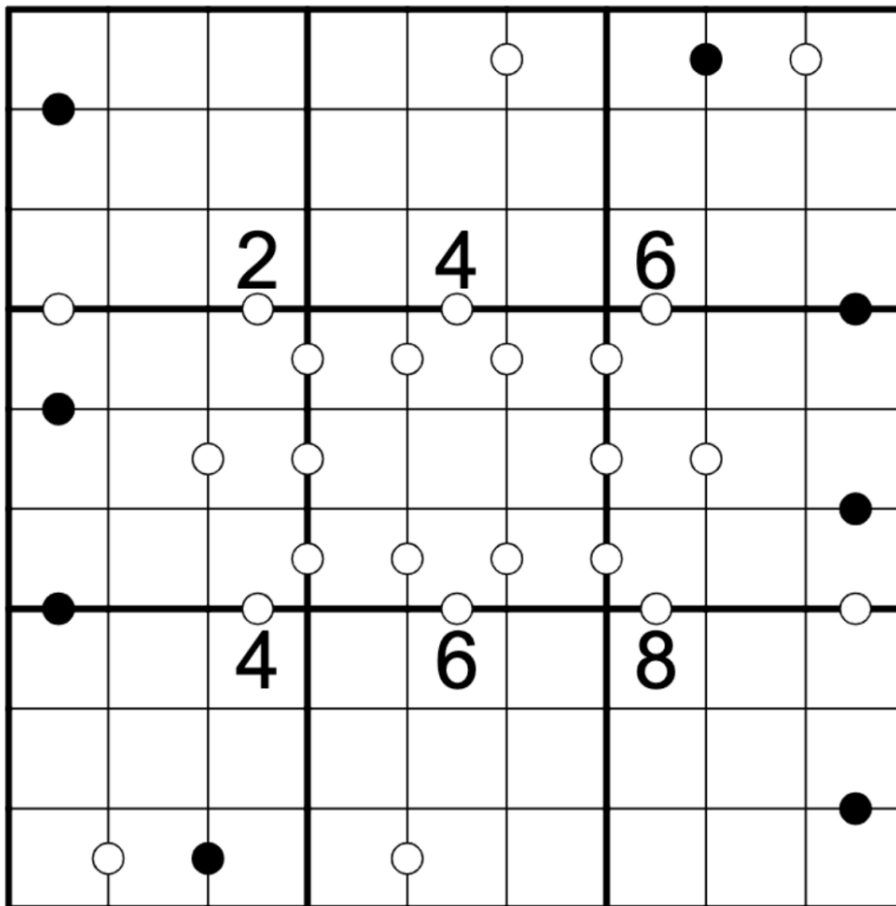CtC: https://tinyurl.com/afupswj8

August 22, 2021: Kropki Pairs
Clover

Today's GAS is a Multisensory Kropki Pairs Sudoku Solving Experience™. Normal sudoku rules apply. Also,

- Digits on either side of a white dot must be consecutive.
- Digits on either side of a black dot must be in a 1:2 ratio.
- Not all dots are necessarily given.

That's the first part of your *curated solving experience*. Here's the fancy second part! If you're going for a two party hat time today, this song will be your timer. Or, for a one-party-hat-attempt, this one.

Editor's note: Fear not, you aren't about to get Rickrolled. The two-hat song is Sigur Rós - Ekki Múkk, and the one-hat song is Sigur Rós - Dauðalagið. If you don't feel like playing along to music, then the time standards for this puzzle are given on the last page of this document like usual!

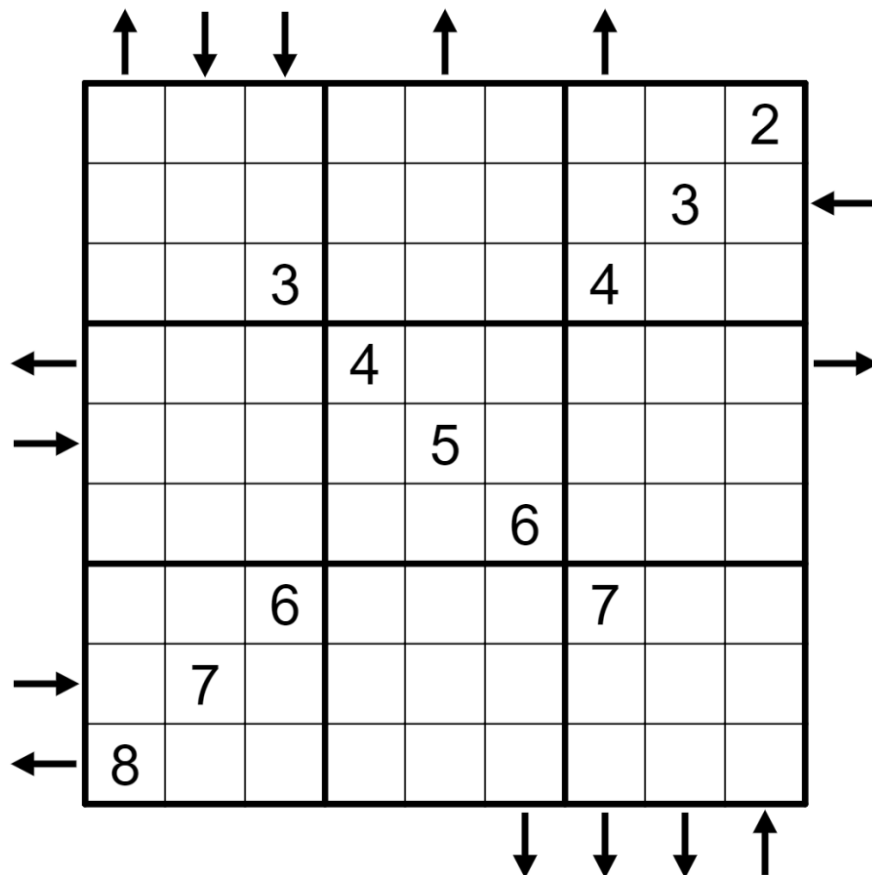f-puzzles: https://f-puzzles.com/?id=yj8czrkq
CtC: https://tinyurl.com/4mem88z4

August 23, 2021: Rossini
Sam Cappleman-Lynes

Did you know that Gioachino Rossini was famed not only for his 39 operas, but also made innovations in the world of Sudoku? In fact, this particular variant was used by the great man himself to inspire one of his most well-known works, William Tell, with rising and falling triplets a recognisable motif in both.

In this Rossini Sudoku, normal Sudoku rules apply, and in addition, if there is an arrow outside the grid, then the three digits nearest to that arrow must strictly increase in the direction of the arrow.

Note for experienced solvers: this puzzle has **no negative constraint**.

August 24, 2021: Classic
Philip Newman

For those who are relatively new to the CtC server, or just haven't spent much time in #sudoku-recommendations - I used to post a weekly (hard) classic puzzle on Tuesdays, usually themed around Star Wars (most commonly the twin suns of Tatooine). This is a Genuinely Approachable version of the same theme, so don't worry if you have been traumatized by Tatooine puzzles in the past!

Normal sudoku rules apply. And that's it!

f-puzzles: https://f-puzzles.com/?id=ye5m36pn
CtC: https://tinyurl.com/c8j6cc69

August 25, 2021: Extra Regions
Clover

A sudoku has nine rows, with nine cells in each row, which makes 81 cells. It also has nine columns, which each have nine cells, for another 81 cells, bringing our total to 162. Plus, it's got nine 3x3 regions of nine cells each, which takes us up to 243. And as if that weren't enough, this very special extra regions GAS has *another* four regions with nine cells each, which comes to 36 bonus cells! A 309-cell sudoku? That's a bargain at any price, and this one is free!

Normal sudoku rules apply. Also, each grey region contains the digits 1 through 9 exactly once each.

f-puzzles: https://f-puzzles.com/?id=yfh3o4el
CtC: https://tinyurl.com/6jtrp8fv

Bonus 1: Sum 100
Sam Cappleman-Lynes

Normal Sudoku rules apply. Several rows contain shaded cells. For each such row, the numbers in these cells, read as 1- or 2-digit numbers, must sum to 100.

f-puzzles: https://f-puzzles.com/?id=ygeevqbz
CtC: https://tinyurl.com/7kr5fdew

Bonus 2: Classic
Philip Newman

Normal sudoku rules apply. And that's it!
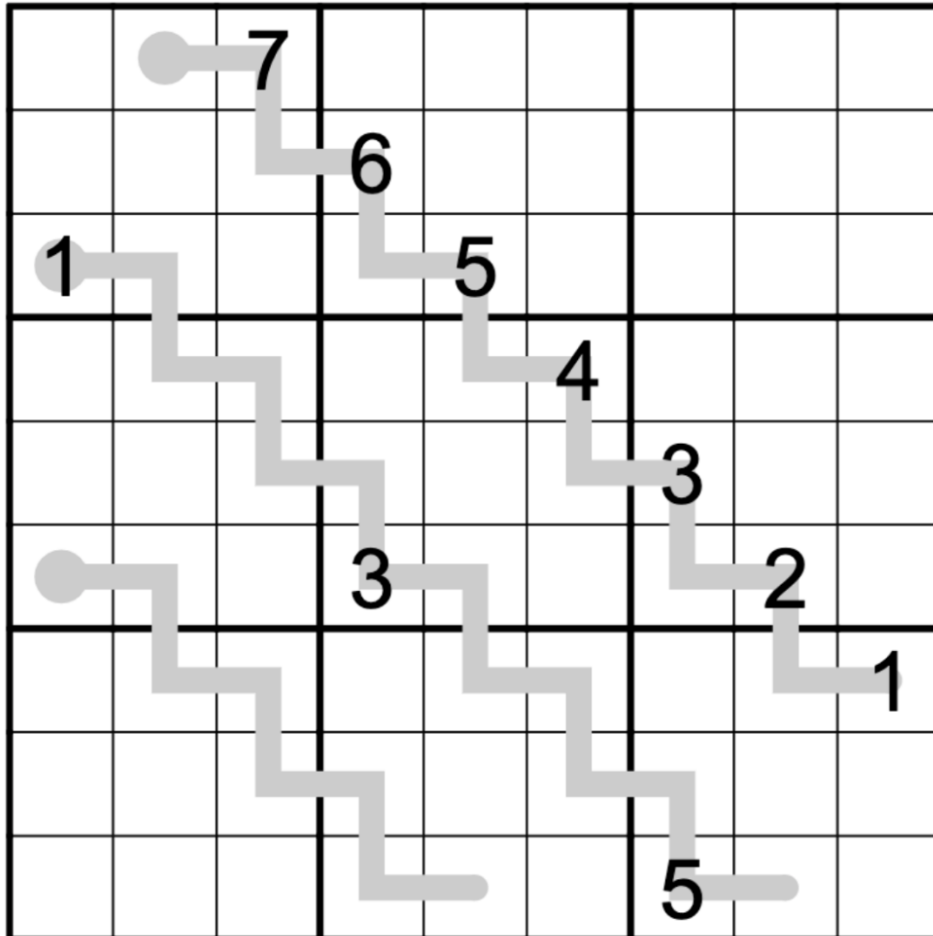
Bonus 3: Double-Digit Thermo
Clover

Normal sudoku rules apply. Also, each thermometer contains a sequence of **two-digit numbers** which increase along the length of the thermometer, starting at the round bulb. (For instance, a thermometer could contain the digits 131723263795, which would be read as "13, 17, 23, 26, 37, 95.")

Time Benchmarks

	One party hat	Two party hats	Today's dinosaur:
August 6	13:00	7:00	anxious apatosaurus
August 7	13:00	7:30	cautious confuciusornis
August 8	14:00	8:30	romantic rebbachisaurus
August 9	10:00	5:00	tardy titanosaur
August 10	16:00	9:30	calculating caudipteryx
August 11	13:00	8:00	perambulating pentaceratops
August 12	14:00	8:00	herded haplocanthosaurus
August 13	11:00	6:30	xceptional xenoceratops
August 14	deficit: 09:00 surplus: 8:00	deficit: 6:30 surplus: 5:00	deficit: deficient dacentrurus surplus: abundant achillobator
August 15	12:00	6:00	jointy jobaria
August 16	12:00	7:00	very valuable vulcanodon
August 17	12:00	7:00	indicial indosuchus
August 18	14:00	8:00	lavender limaysaurus
August 19	15:00	9:00	vacationing velociraptor
August 20	12:00	7:30	exaggerating eolambia
August 21	12:30	7:00	differentiable diamantinasaurus
August 22	12:49	7:45	melodious masakiasaurus
August 23	12:00	7:30	rhythmic riojasaurus
August 24	12:00	6:00	blazing brachiosaurus
August 25	15:00	8:30	combinatorial centrosaurus