GAS Leak

Genuinely Approachable Sudoku from the CtC Discord
Volume 5: August 26, 2021 - September 14, 2021

🎩 🥳 🦕

We've now completed **100 days of GAS**! The last few weeks have seen the return of GAS Who, our first 20+ minute single-hat time standard (yikes), and puzzles themed around everything from the digits of pi to the music of ABBA to the giant earthworms of Gippsland, Australia. We're still learning so much and we aren't even close to being out of ideas. This document contains the daily GAS from days 81 through 100, plus three bonus puzzles that were rejected from the regular rotation. Enjoy!

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 26, 2021: Three in a Row
Sam Cappleman-Lynes

It's well known that there are.. ahem... tensions between the number 6 and the number 7. Unfortunately, that breakdown in their relationship has gone too far now, to the point where odd/even relations in general have completely fallen apart and even numbers and odd numbers simply cannot stand to be in each other's presence.

In this Three-in-a-row Sudoku, normal Sudoku rules apply. Additionally, there are some lines drawn in the grid; for each line, it must contain either three odd digits or three even digits. Any mixing on the lines threatens the stability of the Sudoku political landscape.

Note for new solvers: digits are allowed to repeat along a line, as long as they follow the other rules!

f-puzzles: https://f-puzzles.com/?id=ydsud8nf
CtC: https://tinyurl.com/4ryej9xs
Penpa: https://git.io/JER1q
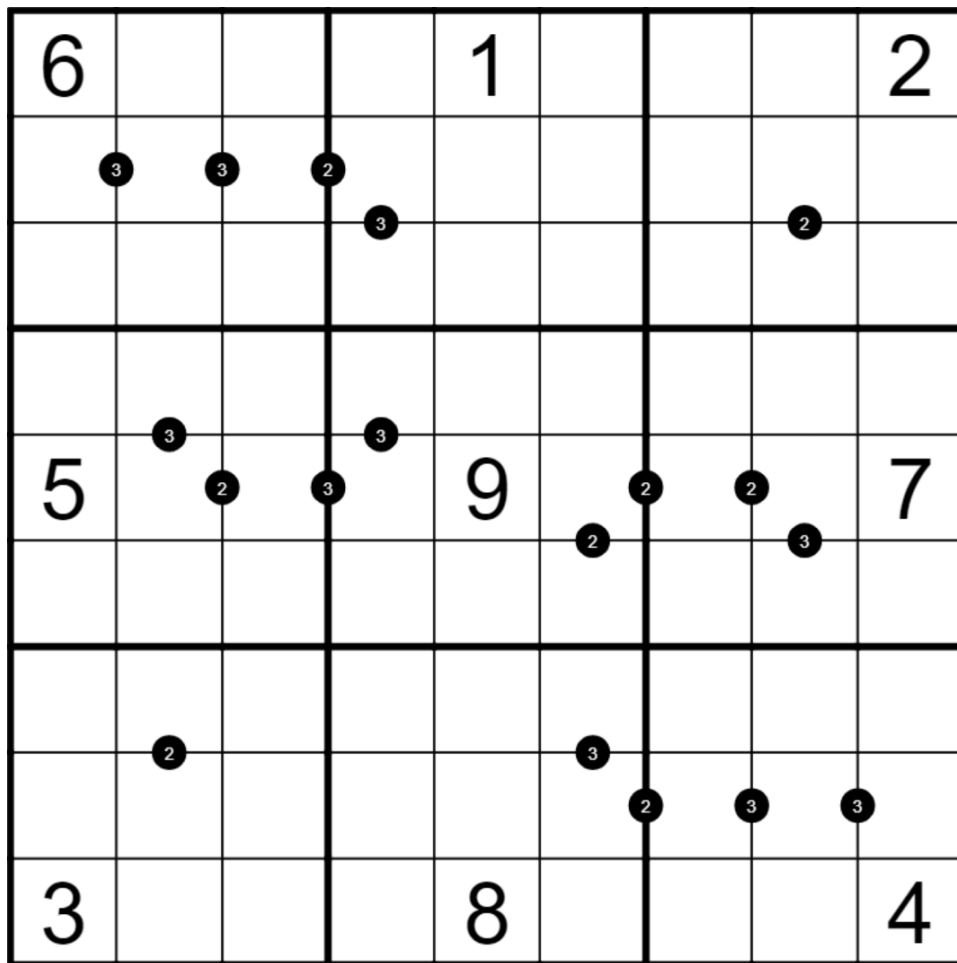
August 27, 2021: Multiple Multipliers
Philip Newman

Today's GAS is a sequel of sorts to the "Diff Diffs" puzzle from 6 days ago... but this time, there are Multiple Multipliers!

In this Ratio Sudoku, black dots don't necessarily represent a ratio of 2:1 - instead, the ratio is given by the number in the dot.

Normal sudoku rules apply. Digits in cells connected by a black dot must have the ratio given. (For example, two cells connected by a black dot containing a 4 could be 1 and 4 or 2 and 8.)

Note for new solvers: digits on either side of a ratio dot can appear in either order. For instance, the two digits on either side of a black dot containing a 5 could be either 1 and then 5, or 5 and then 1.

Play on f-puzzles: https://f-puzzles.com/?id=yzgxtmhs
Play on CTC App: https://tinyurl.com/sjjvewy4

August 28, 2021: Even Sandwich
Clover

Even by the even-handedest sandwich standards, this even sandwich sudoku isn't even the oddest sandwich in even an especially even-keeled sandwich enthusiast's collection of sandwich oddities. *It also has cucumber slices.*

Normal sudoku rules apply. Also, a digit shown outside of a row or column must be "sandwiched" directly between two even digits in that row or column. Not all possible outside digits are given.

> Note for new solvers: be careful! The outside clues refer to **individual digits**, not sums (making this different from a standard sandwich sudoku). The two even digits must appear immediately to both sides of (or above/below) the clued digit.

f-puzzles: https://f-puzzles.com/?id=yduxh3w3
CtC: https://tinyurl.com/akbj9crm

August 29, 2021: Even Sandwich

Sam Cappleman-Lynes

> Editor's note: Sam set this lovely but quite challenging even sandwich puzzle, and instead of throwing it out for being too tough, we decided to present it together with an easier puzzle (on the previous page) to get everyone used to the rules. Even if you've solved the previous one, this one is still pretty tricky, and you'll notice that the time targets are much higher than usual.

Today's puzzle comes to you via @punchingcatto, who yesterday specifically requested an even number of even sandwiches! 2 is even, and 1 is not, so here we are.

It's also slightly trickier than what you might used to be seeing from GAS puzzles. Don't worry - you won't need to know any super-secret advanced techniques to solve it - it's just a laid-back, slower-going sort of puzzle that you won't be able to get through quite so quickly.

The rules will be familiar to you from yesterday's puzzle, but here they are in case you missed yesterday's or have already forgotten about it! In this Even Sandwich Sudoku, normal Sudoku rules apply. In addition, if a number is given outside the grid, then its two direct neighbours in the corresponding row or column must both be even.

f-puzzles: https://f-puzzles.com/?id=yzds4une
CtC: https://tinyurl.com/9tr79ea4
Penpa: https://git.io/JE6m3

August 30, 2021: X-Sums
Philip Newman

We surveyed 100* people and asked them to give me something dumb and funny to write about for today's intro. The top 5 answers are on the board:
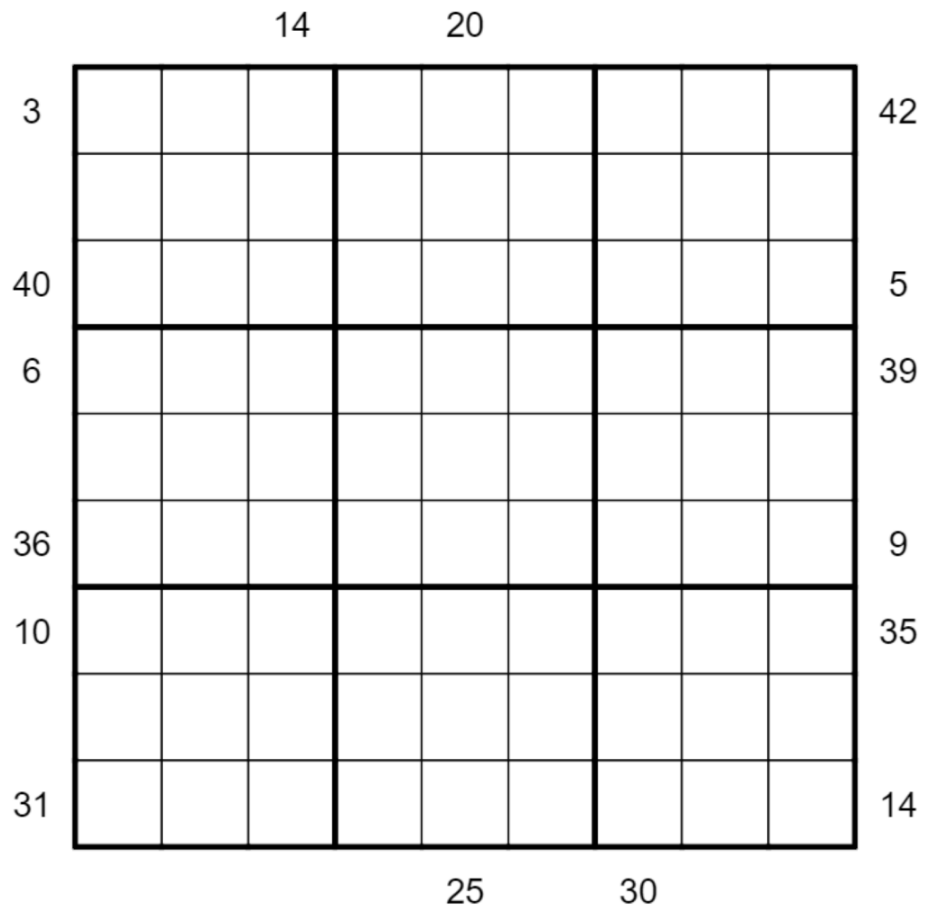
1. "adding an extra letter to "but""
2. "existential philosophy"
3. "kites and balloons"
4. "Link it to Shirokuro-link"
5. "magicians"; come on, Jovi, magicians are deadly serious, you should know better.

*Rounded up to the nearest 100. From 4.

Today's GAS is an X-Sums Sudoku! We've had one of these before, but as a reminder for the rules:

Normal sudoku rules apply. The first digit in a row or column (in either direction) tells you how many of the cells in that row or column to sum together, in order, including the first digit itself. The result of that sum must equal the value that is shown outside of the grid. For instance, if a 6 appears to the left of a row, then the first digits in that row could be 2 and 4 (sum 2 digits: 2 + 4) or 3, 1, and 2 (sum 3 digits: 3 + 1 + 2). If a clue appears to the right of a row, sum from right to left; if it appears below a column, sum from bottom to top.

Editor's note: when this puzzle was originally published, Philip included the standard presentation of x-sums rules, which is a bit math-y and led to a lot of clarification questions. In this GAS Leak version, I've reworded the rules a bit to hopefully be more intuitive for solvers who don't love math variants. Philip's original text is preserved in the #daily-sudoku-puzzles channel on the CtC Discord.

	14		20					
3								42
40								5
6								39
36								9
10								35
31				25		30		14

Play on f-puzzles: https://f-puzzles.com/?id=ygd95mdk
Play on CTC App: https://tinyurl.com/52fyfva3

August 31, 2021: Thermo / Quadruples
Clover

Consider the giant Gippsland earthworm. These handsome lads live in exactly two places: (1) Gippsland, Australia, and (2) this puzzle. They can grow to be three meters (or nine digits) long, and researchers track their movements by listening to the characteristic sccchlorping sound they make as they travel through their underground burrows. Listen closely to this puzzle as you solve, my friends. It sccchlorps.

Normal sudoku rules apply.

Normal thermo rules apply: Digits along a thermometer strictly increase, starting at the round bulb. (Note for new solvers: "strictly" increase means that each digit has to be greater than the previous one, instead of staying the same or going down. Digits don't have to be consecutive!)

Normal quadruples rules apply: Digits written in a white circle must appear somewhere in the four cells surrounding that dot.
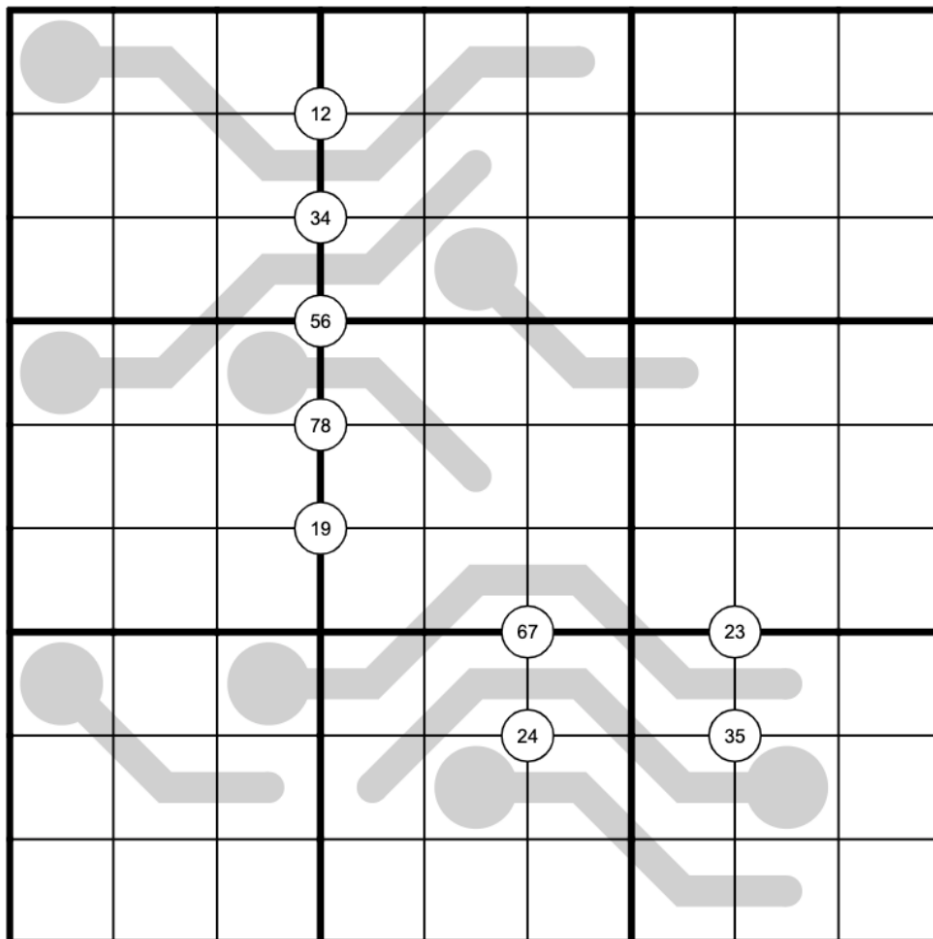
September 1, 2021: Clones

Sam Cappleman-Lynes

Ever since Dolly the sheep was born, scientists have wondered what the practical limits are on the methods used to produce clones. Today, I am pleased to announce an earth-shattering breakthrough - we have managed to clone an entire box of a 9x9 Sudoku. And not just that, we've actually produced two separate clones! Rest assured though, the millions that I am bound to make from this groundbreaking discovery won't stop me from making GAS puzzles for all of you.

In this Clone Sudoku, normal Sudoku rules apply, and in addition, the three shaded shapes are perfect clones of each other - they contain the same digits in the same places.

f-puzzles: https://f-puzzles.com/?id=ydpawqss
CtC: https://tinyurl.com/ubmmmvd6
Penpa: https://git.io/JEFqK

Welcome to GAS Who, the game show where you guess who set what*!

*Sam, Philip, or Clover, but in a mysterious order. The correct answer is in very small text at the bottom of the last page of this document.

Setter Number 1 enjoys long walks on the beach and converting oxygen into carbon dioxide. When they flip a coin, it comes up heads nearly 50% of the time! They have this to say:

> *Little Killer: Normal 6x6 sudoku rules apply. Also, digits along a marked diagonal must sum to the value shown. Digits may repeat along a diagonal.*

f-puzzles: https://f-puzzles.com/?id=yhukhep7
CtC: https://tinyurl.com/yp8m5f5b
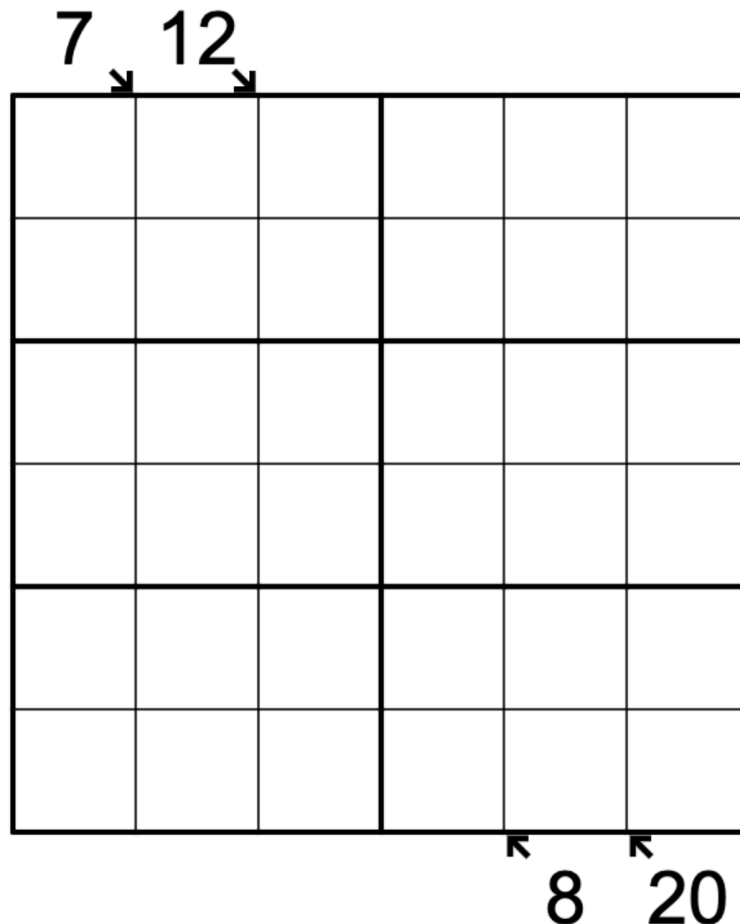
Everybody give a round of applause for Setter 1!

Setter Number 2 contains approximately 10.5 pints of blood and 100ml of cerebrospinal fluid. They were also Time Magazine's Person of the Year in 2006! Here's their message for you:

Sandwich: Normal 6x6 sudoku rules apply. Also, values outside of the grid give the sum of the digits "sandwiched" between the 1 and the 6 in the corresponding row or column.

Let's hear it for Setter 2!

Last but not least, it's **Setter Number 3**! They have the same birthday as approximately twenty million other humans, and the cashier at Starbucks knows at least 4 different ways to spell their name! Here's what they want you to know:

Next to 6: Normal 6x6 sudoku rules apply. Also, clues outside of a row or column show all digits in that row or column that are adjacent to the 6 (within the same row or column).

f-puzzles: https://f-puzzles.com/?id=yzpzmf3t
*CtC: https://tinyurl.com/7fpayyae*

Welcome, Setter 3!

September 3, 2021: Little Killer
Philip Newman

I have a very important secret to share with you today. Unfortunately, it is too long to fit in the margins of this intro. Fortunately, it is exactly the right size to fit in the title of today's GAS. Pay close attention, you won't want to miss it.

Today's puzzle is a Little Killer Sudoku!

Normal sudoku rules apply. Digits along marked diagonals must sum to the total given (digits may repeat if allowed by normal rules).

Play on f-puzzles: https://f-puzzles.com/?id=yj6cl6c6
Play on CTC App: https://tinyurl.com/8dbz4n6d
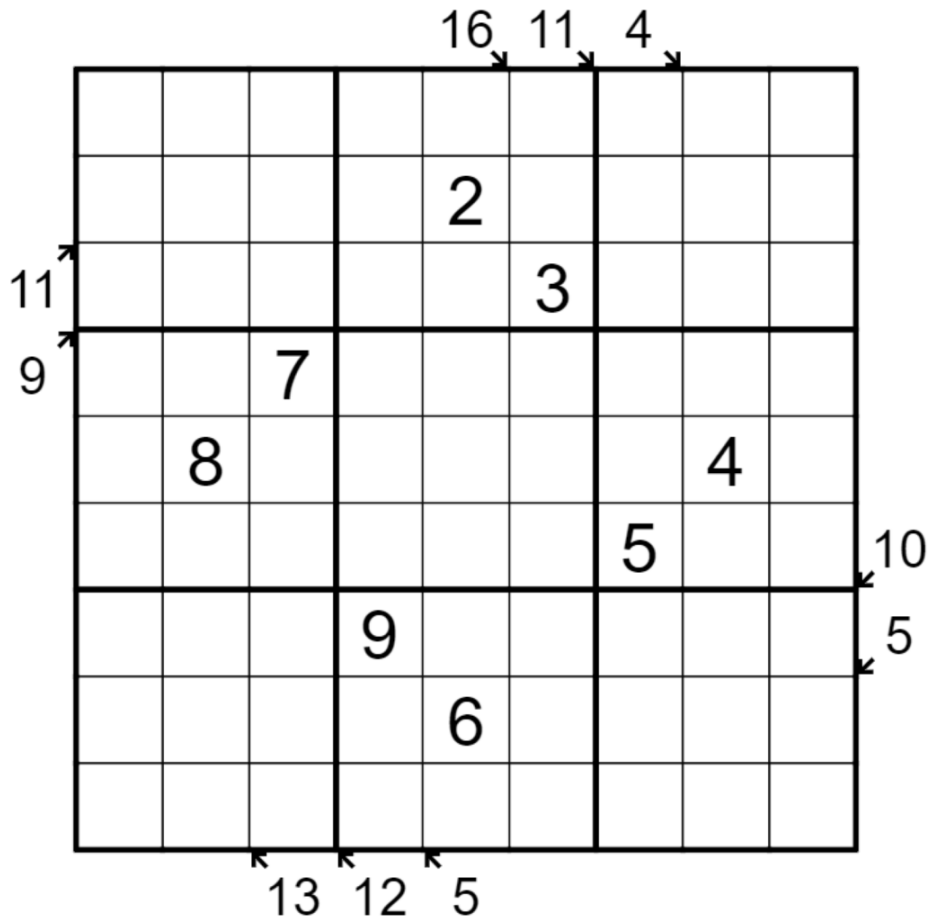
September 4, 2021: Classic
Clover

Good morning! Today's GAS is a classic sudoku. Normal sudoku rules apply.

But, for those of you who prefer variants, here are some optional rules that you can sprinkle on the puzzle to suit your taste:

- Digits may not leave the grid without adult supervision.
- Digits along a diagonal might repeat. (But do they?)
- Large lithium-ion digits may not be placed in checked baggage.
- Sometimes, adjacent digits sum to 10. Usually, they don't.
- No digit hunting on private property.
- The product of the digits in any row is exactly 362,880.

f-puzzles: https://f-puzzles.com/?id=yh9v8arc
CtC: https://tinyurl.com/zu6zwajs

September 5, 2021: Multiplication
Sam Cappleman-Lynes

"1 times 2 is 2, 2 times 2 is 4..."

I'm taking you back to school with today's GAS. You remember all those maths lessons where you complained loudly about never having to use it in real life? Well I bet you didn't see this coming!

In this Multiplication Sudoku, normal Sudoku rules apply. In addition, there are several 2x2 shaded areas in the grid. In each one, the two single-digit numbers in the top row must multiply to give the two-digit number in the bottom row. For example, if the top two numbers were 7 and 9, the bottom row must read "63". (Digits may repeat within an area if otherwise allowed).

f-puzzles: https://f-puzzles.com/?id=ye23jcck
CtC: https://tinyurl.com/3akz5m2w
Penpa: https://git.io/JuL9g

September 6, 2021: Classic
Philip Newman

A couple weeks ago we had the return of Tatooine Tuesday, but today is Monday so that must mean it's Pi Monday!

This is a Classic Sudoku with a SECRET hidden in the givens. I have generated a ton of symmetrical pi puzzles, but this one is obviously not symmetrical and was set by hand.

Because of the limitations in setting these it may not be quite as obvious where to look at any given point, but keep at it, I promise it is Genuinely Approachable (tm).

Normal sudoku rules apply. And that's it!

Play on f-puzzles: https://f-puzzles.com/?id=yecwok66
Play on CTC App: https://tinyurl.com/cr424vtt

September 7, 2021: Windoku
Clover

Today's GAS is a windoku, which is a type of sudoku that's only compatible with Windows. If you're on a Mac, you'll have to wait until someone posts an osxdoku instead. Linux users will need to set today's GAS themselves.

Normal sudoku rules apply. Also, there are four additional 3x3 shaded regions in the grid. Each digit from 1 to 9 must appear exactly once in each of these shaded regions.

f-puzzles: https://f-puzzles.com/?id=yjzyvdn9
CtC: https://tinyurl.com/jr9a3hmw

September 8, 2021: Antiwindoku
Sam Cappleman-Lynes

No, don't worry, you haven't got deja vu. You haven't got deja vu. Despite the obvious
superficial similarities, this is a completely different puzzle to yesterday's. I promise.

In this Antiwindoku, normal Sudoku rules apply. The shaded areas are not extra regions
as in yesterday's puzzle - in this puzzle, each shaded region contains exactly four
different digits in total.

Note for new solvers: be careful! There are no rules about how often each of the digits
must repeat within the shaded area. It's possible for one of the digits to appear only
one time, as long as only four digits appear in total.

f-puzzles: https://f-puzzles.com/?id=yzdl3db3
CtC: https://tinyurl.com/h7ww53nw
Penpa: https://git.io/Ju8TP
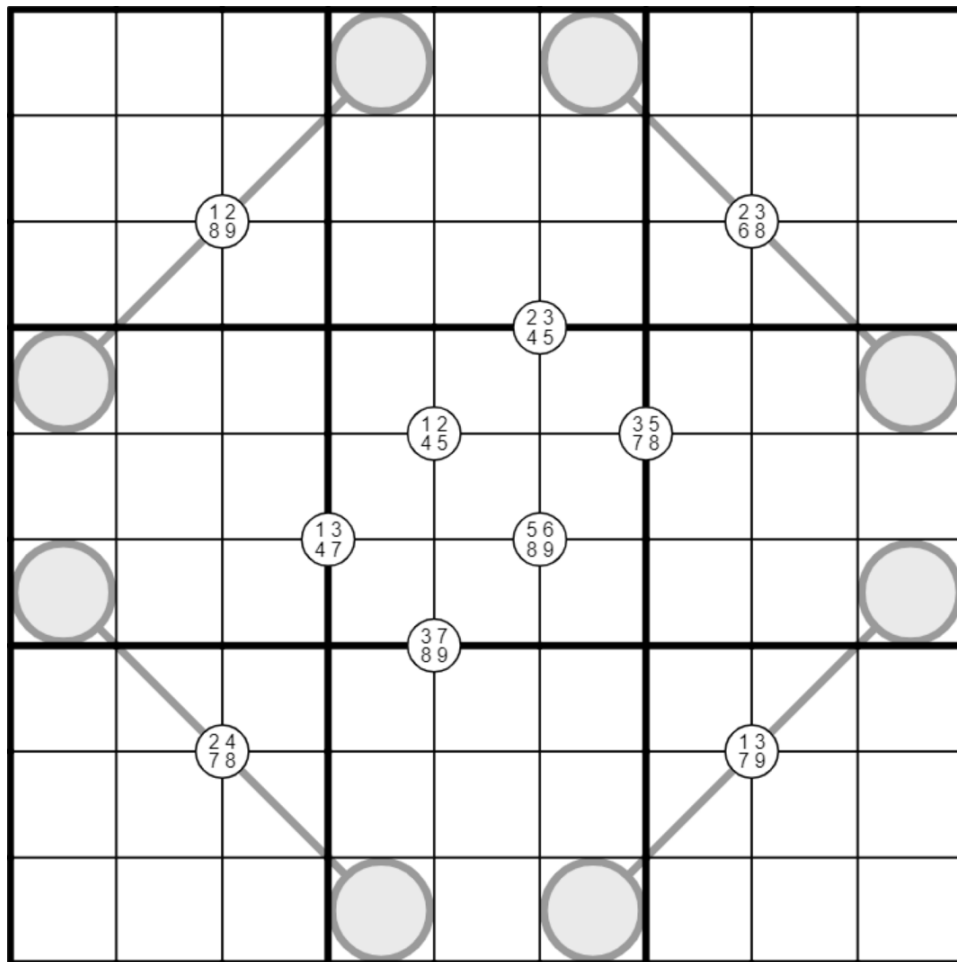
September 9, 2021: Between Lines / Quadruples

Philip Newman

Today's GAS is the 99th puzzle (111th if counting GAS Leak Bonus puzzles)! Some people say these are special numbers! My favorite number is 59, but 99 and 111 are pretty cool too.

> Editor's note: the 99th puzzle was posted a few days prior to day 99 of GAS, because there have been a few days with two or three puzzles!

Albert Einstein once said "The ends justify the means", and that is especially relevant with one of the constraints in this puzzle, Between Lines. Because the digits at the ends determine the middle digits! This puzzle also includes Quadruples, and Albert Einstein probably had some thoughts about those too.

Let's party!

Play on f-puzzles: https://f-puzzles.com/?id=ygbxacej
Play on CTC App: https://tinyurl.com/45by73fc

September 10, 2021: Odd-Even-Big-Small
Clover

Because the human brain is a strange and rubbery sack of meat, we're somehow better at processing even numbers than odd numbers in sudoku. This odd-even-big-small sudoku is slightly evener than usual; I hope your squishy, throbbing brains enjoy solving it!

Normal 8x8 sudoku rules apply: that's the same as normal sudoku rules, but using only the digits 1 through 8 in each row, column, and 2x4 box.

Text adjacent to a row or column describes the first two digits in the grid in that direction. For instance, in this puzzle, "奇 odd" appears above column 1. So, the first two digits in column 1 must both be odd. If nothing is written adjacent to a row or column, you don't necessarily know anything about its first two digits.

Note: 'small' refers to the digits 1, 2, 3, and 4; 'big' refers to the digits 5, 6, 7, and 8.

CtC: https://app.crackingthecryptic.com/sudoku/LLFnFB9TNG
(strong warning: the CtC link will tell you that your answer is correct no matter how you fill in the grid; even if it tells you you're right, you'll still need to check your answer by hand)
Penpa (with automatic answer check): https://git.io/Ju2Iq

September 11, 2021:
Sam Cappleman-Lynes

Size doesn't matter.

I'm sorry if yesterday's puzzle gave you the impression that it does. You won't find any pointless prejudices like that in today's puzzle. No, in this puzzle, we only segregate numbers based on differences that actually matter, like whether they're odd, or whether they contain an "e" when written in English.

In this Odd/Even Sudoku, normal Sudoku rules apply. Additionally, every cell with a grey circle in it must contain an odd digit, and every cell with a grey square in it must contain an even digit.

f-puzzles: https://f-puzzles.com/?id=yelcwa9g
CtC: https://tinyurl.com/48tf28tw
Penpa: https://git.io/JurgZ

September 12, 2021: Fortress

Philip Newman

Today's GAS is a Fortress Sudoku, and it reminds me of a myth in the sudoku community that I just made up.

You know Phistomefel for his fascinating puzzles, but did you know that in a previous life he built castles? Before Phistomefel, castle designers would just put their walls all willy nilly and they were completely useless at repelling invaders. Phistomefel had the brilliant idea of putting the walls in a Ring, protecting the insides from the threats on the outsides.

Unfortunately, Phistomefel did not invent the castle gate, and when he finished the walls he realized he was stuck on the outside as an enemy force was approaching. Resigned to his fate, he spent the time waiting for the opposing army by carving a puzzle in the wall. This is where the phrase "set in stone" originates.

Normal sudoku rules apply. Digits in grey cells are greater than the digits in orthogonally adjacent white cells.

Play on f-puzzles: https://f-puzzles.com/?id=yf2tt6fz
Play on CTC App: https://tinyurl.com/9e83sw4z

September 13, 2021: Sandwich
Clover

Your comments have been heard: some sandwich sudokus have too much ~~mayonnaise mustard~~ mathematics in them! But here's one that contains lettuce, tomato, brie, smoked salmon, spiders, cucumber, shrimp, asparagus, and the natural numbers 1 through 10.

Normal sudoku rules apply. Also, sandwich sudoku rules apply: a value adjacent to a row or column gives the sum of all of the digits that are located in between the 1 and the 9 in that row or column. For instance, a row with a "10" clue next to it might include the string 1 3 5 2 9.

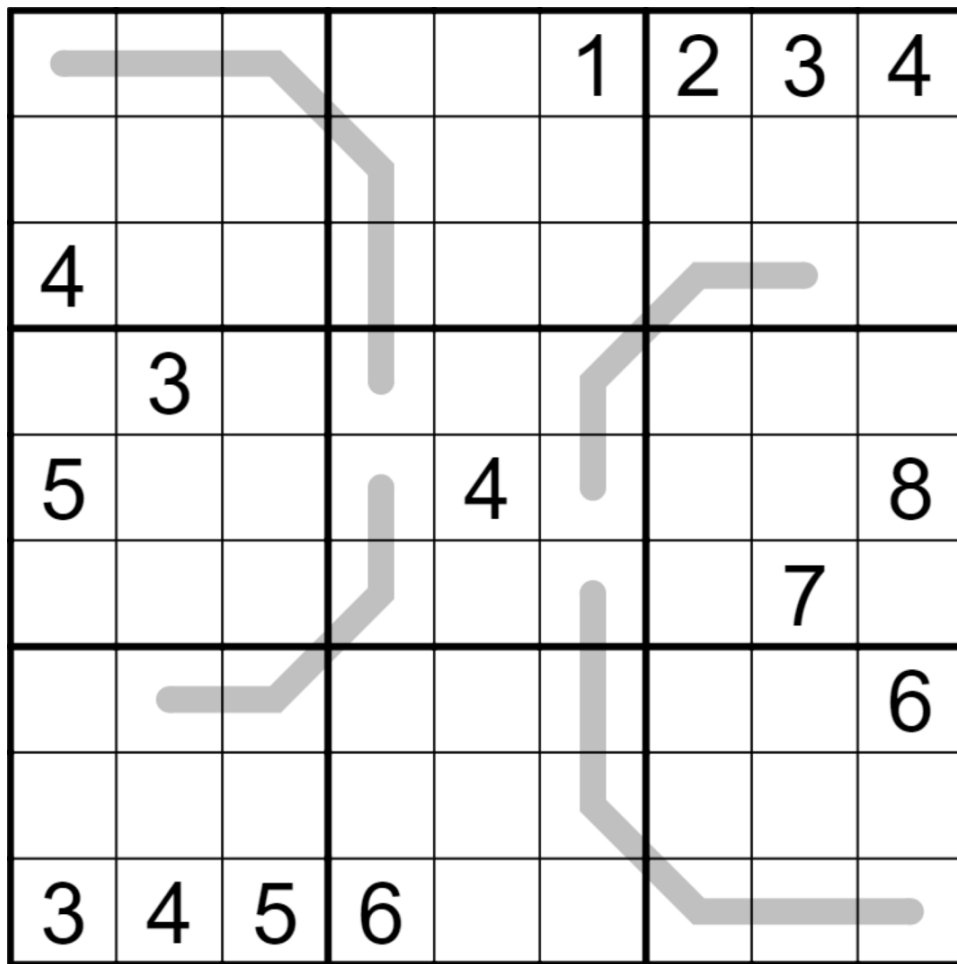f-puzzles: https://f-puzzles.com/?id=yj9dosf6
CtC: https://tinyurl.com/273e5pwa

September 14, 2021: Palindrome
Sam Cappleman-Lynes

Today's GAS is brought to you by the song "SOS" - the only palindromic top-10 hit recorded by a palindromic artist (ABBA) in a palindromic genre (pop). I've tried to capture some of that energy in this puzzle!

In Palindrome Sudoku, normal Sudoku rules apply. In addition, each of the grey lines must contain a sequence of digits that reads the same in either direction - for example, 46264 would be a valid sequence.

f-puzzles: https://f-puzzles.com/?id=yjzznusa
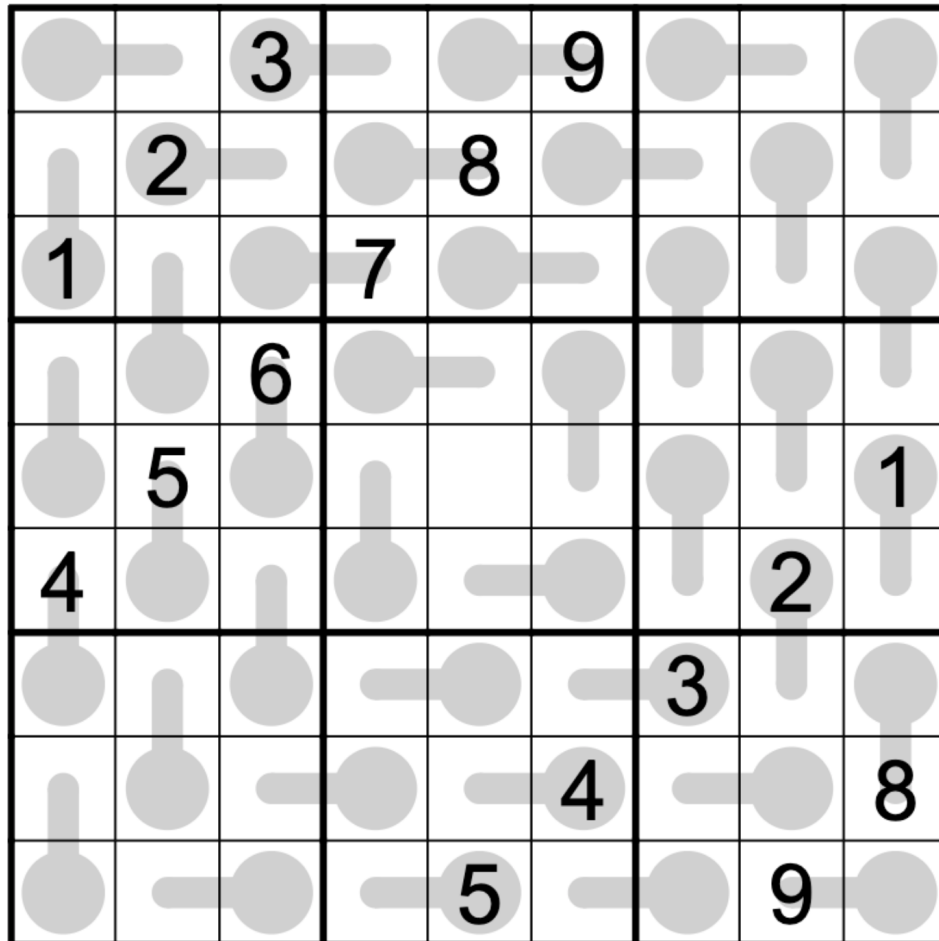CtC: https://tinyurl.com/yjecn3hs
Penpa: https://git.io/JuQdE

Bonus 1: Goodliffe Acquisition Syndrome

Philip Newman

Normal sudoku rules apply. Digits along a thermometer must increase, starting from the round bulb.

f-puzzles: https://f-puzzles.com/?id=yhyhhslt
CtC: https://tinyurl.com/ad4546db

Bonus 2: Odd-Even-Big-Small

Clover

Normal 8x8 sudoku rules apply: that's the same as normal sudoku rules, but using only the digits 1 through 8 in each row, column, and 2x4 box.

Text adjacent to a row or column describes the first two digits in the grid in that direction. For instance, in this puzzle, "奇 odd" appears above column 1. So, the first two digits in column 1 must both be odd. If nothing is written adjacent to a row or column, you don't necessarily know anything about its first two digits.

Note: 'small' refers to the digits 1, 2, 3, and 4; 'big' refers to the digits 5, 6, 7, and 8.

	小 small		1			小 small		
偶 even				2					偶 even

小
small

偶
even

大
big

奇
odd

大
big

奇
odd

小
small

Penpa: https://git.io/JuAhF

Bonus 3: Odd-Even Bridge

Sam Cappleman-Lynes

Normal Sudoku rules apply. There are some pairs of circles connected by bridges. An odd digit in a circle tells you how many odd numbers are on the bridge. An even digit in a circle tells you how many even numbers are on the bridge. Circles are not part of the bridge. Digits may repeat on bridges.

f-puzzles: https://f-puzzles.com/?id=yjg2x562
CtC: https://tinyurl.com/jspr9xtd
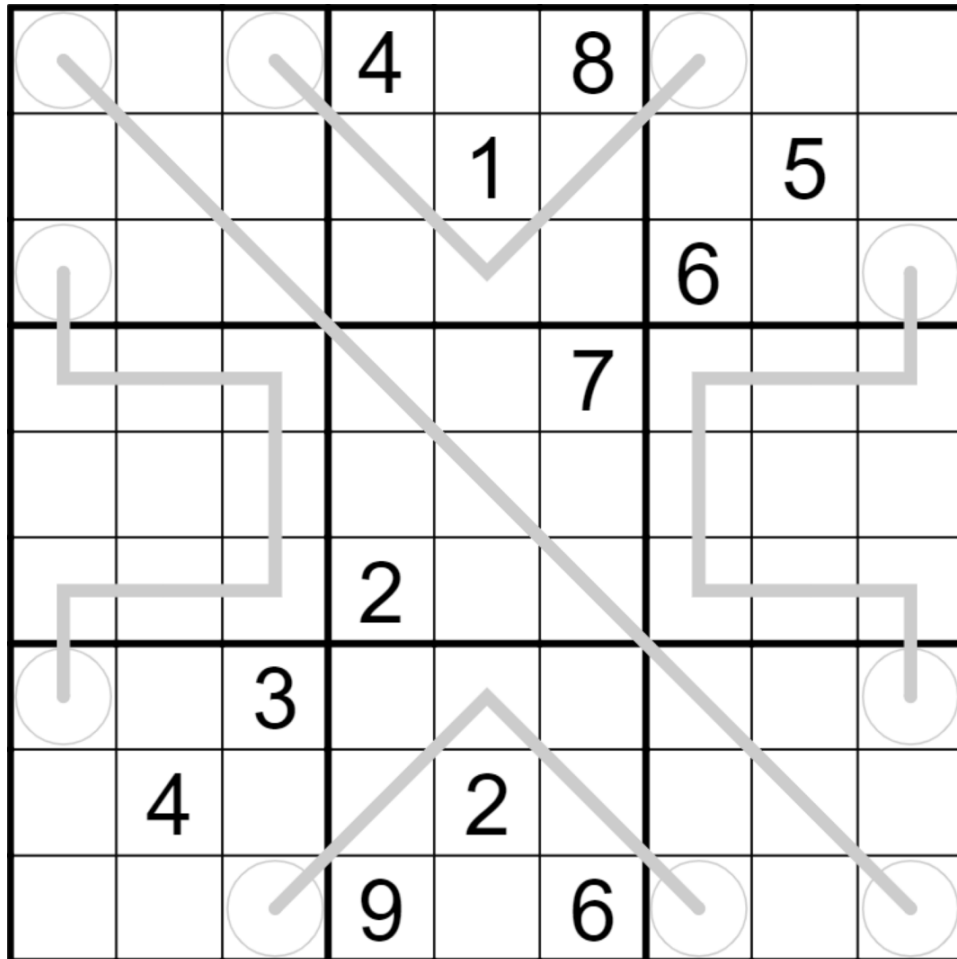
Time Benchmarks

	One party hat	Two party hats	Today's dinosaur:
August 26	15:00	9:00	schismatic saltasaurus
August 27	11:00	5:30	multiversal mamenchisaurus
August 28	13:00	7:30	prandial panoplosaurus
August 29	25:00	15:00	laid-back leptoceratops
August 30	14:00	7:30	mutant macronarian
August 31	13:00	7:30	wiggling wellnhoferia
September 1	8:00	5:00	identical iguanodon
September 2	20:00 (total for all three puzzles)	12:00 (total for all three puzzles)	quizzical qiupanykus
September 3	13:00	7:00	earth-shattering eusauropod
September 4	8:00	5:00	ordinary othniella
September 5	13:30	8:30	arithmetic apatosaurus
September 6	12:34	6:28	sπcy sπnophorosaurus
September 7	11:00	6:00	executable equijubus
September 8	12:00	7:00	opposite omeisaurus
September 9	16:00	10:00	retweeted rebbachisaurus
September 10	9:30	5:30	cognitive conchoraptor
September 11	11:00	6:30	prejudiced panguraptor
September 12	17:00	10:00	enclosed euhelopus
September 13	12:30	7:00	delicious daspletosaurus
September 14	10:30	6:00	reflected rhabodon