# GAS Leak

Genuinely Approachable Sudoku

from the CtC Discord


Volume 27:

April 1 – April 30, 2023

Happy April!

Remember April Fools Day ;-)

Solvers please note: f-puzzles is undergoing some maintenance and ownership transfer and may be down occasionally over the next few days.

Have fun solving!

*Engy*

**April 1, 2023: Big Fish**
Bill Murphy

We at GAS HQ quite often get comments about the puzzles, "Oh, this is tricky today" "Wow that was easy", etc. etc.

I have a degree which qualifies me to teach, but the thing I find to be more important is I spent several years learning, "What does 'accessible' mean?" There's so many things that we can do as GAS setters can do to modify the difficulty of the puzzle, so many knobs that we can turn, so to speak, and I think that is super important for us to take hold of, because it creates an interesting and varied experience for the solver. Yes, some puzzles are easier, some are harder. Some rulesets are harder to understand then others. Some two hat times are generous, some are highly competitive.

All of this is true and important, but the real question that keeps me up at night is…What if I turned all those difficulty knobs down to 1? What happens then?

So, I present today's Most Accessible Sudoku Ever.

Normal Sudoku Rules Apply. (among others)


Rules from the links:

Normal Sudoku Rules Apply. Make r4c4 a shade of blue of your choice. Ignore those renban lines, it's not really doing anything other than make the fish. Make r4c4 another shade of blue. Not that one, what's wrong with you. Wonder if you forgot there was an anti-knight condition on 8 in this puzzle, then Ignore the obvious swordfish on 9 in r159, you wouldn't need it to solve this puzzle anyway, Bill wouldn't post it for gas if the average solver needed it. Write a fancy word across the positive diagonal without repeating a number. Digits inside a cage must sum to the given total and must not repeat. Digits along a between line must be between the digits in the cells at either end. Des yeux qui font baisser les miens, Un rire qui se perd sur sa bouche, Voilà le portrait sans retouches, De l'homme auquel j'appartiens, Quand il me prend dans ses bras, Qu'il me parle tout bas. Digits along a thermometer must increase from the bulb. A bonus hat to solvers who parboil a quartered head of cauliflower for 4 minutes, then brown some butter in a frypan and add ground cumin and baste the cauliflower until golden brown. Finish with a light sprinkling of cumin, lime juice and zest and serve. Why'd you make r4c4 blue? Get rid of it. Make the negative diagonal green. You should probably put 8 in r9c9 or the puzzle wouldn't be unique without it. Reflect the 1s, 2s, 5s and 6s along the X-Axis. Rotate all epsilons 180 degrees til they look like 3s. Finally, replace all orange cells with 6s.

F-puzzles: https://f-puzzles.com/?id=2mkofggh
CTC: https://tinyurl.com/2uaaejfy

**April 1, 2023: April Fools, 2023: Emergency Sudoku**
clover!

*i am so sorry. the accessibility commission will be having a very stern word with bill. to apologize, i've dug up this sudoku from the backlog for you all…*

good morning, Friends!

I seem to have Lost the ruleset to today's gas, thanks to the Lamentable state of my Office here at headquarters. but a Mess shouldn't cause this lovely puzzle to go Ignored! you'll simply Need to work out the rules yourself. i'm sure they weren't too terribly Obscure: this is gas, after all! Enjoy!

oh, and some region borders within the grid have already been provided. 💁

**April 1, 2023: It's April, Phil**
Sam Cappleman-Lynes

Okay, this is getting ridiculous. It's been hours since Philip Newman promised us a normal GAS today and in 30 minutes it won't even be "today" any more for me. I'm taking matters into my own hands. Did you know that @bakpao never removed my permissions to post in this channel? Neither did he.

Normal Sudoku rules apply. Digits separated by a white dot must be consecutive. If two digits separated by a black dot then one must be double the other. If two digits are not separated by a dot, then either, neither, or both of these conditions may be met.

Americans must rotate the puzzle by 180 degrees before solving.



f-puzzles: https://f-puzzles.com/?id=2l6hcx37
CtC: https://tinyurl.com/4yat8h6w
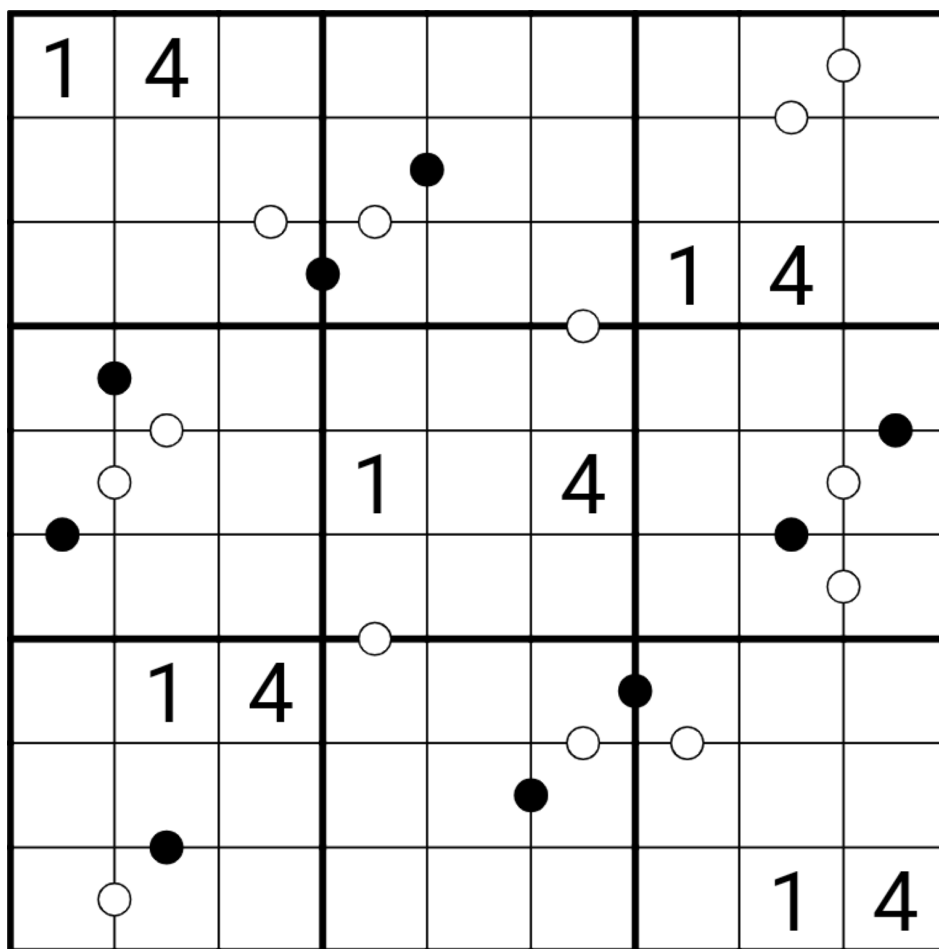
**April 1, 2023: Snailed It!**
Philip Newman

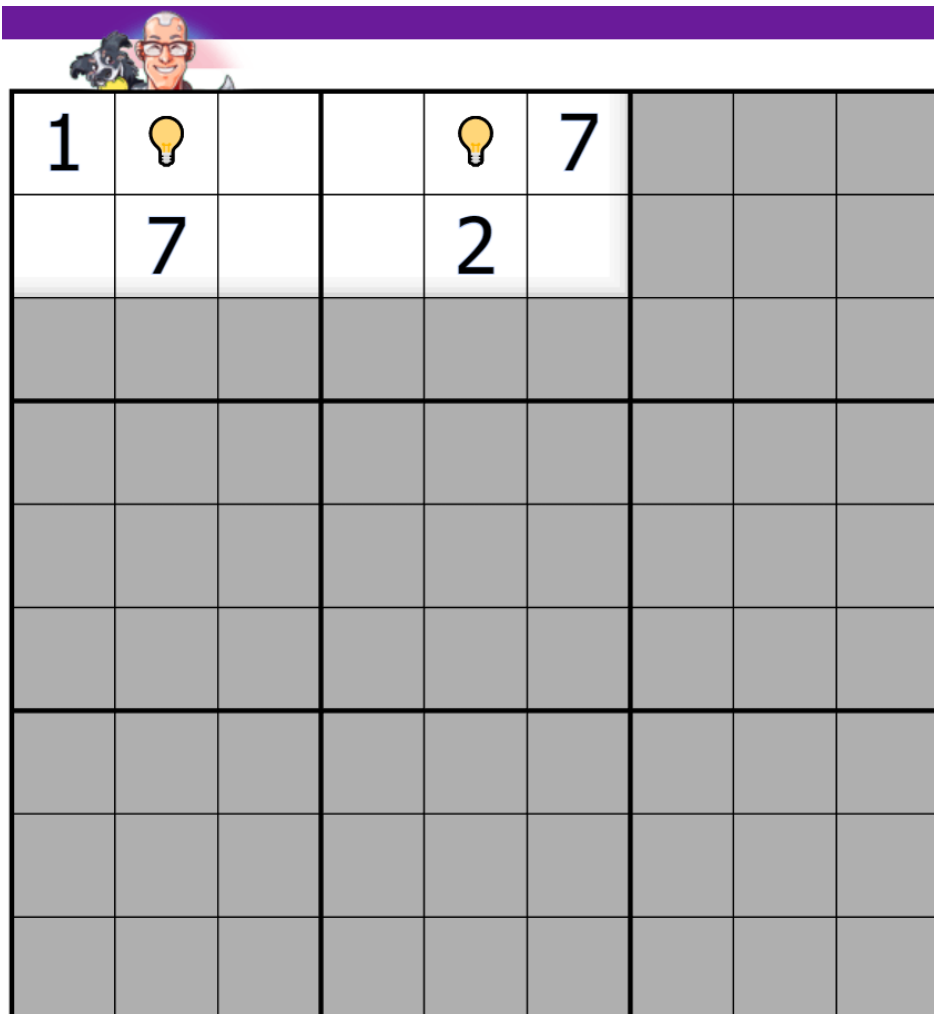It's finally here! The long awaited premiere of this incredible sudoku.

I am attaching a solution guide to this post. Please do not read until you have solved the puzzle. As the title of the solution guide suggests, this is the World's Easiest Sudoku! So you will not have any problems solving it. That's not what the solution guide is for! No peeking!

Instead, the solution guide is to be read in its entirety after solving the puzzle, just in case you happened to miss some small bit of elegance in the path. It was important to me to record this for posterity, so that this is not lost to the sands of time as just another random Philip GAS.

Without further ado…

Normal sudoku rules apply. **And that's it!**

Get a bonus hat  for identifying what's so special about this puzzle without reading the solution guide! (Then go read the solution guide.)

| 1 | 💡 |  |  | 💡 | 7 |  |  |  |
|  | 7 |  |  | 2 |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |

Play on f-puzzles: https://f-puzzles.com/?id=2jallawh
Play on CTC App: https://tinyurl.com/2zzeuuan

Download the „Solution Guide" from Discord:
https://cdn.discordapp.com/attachments/87512423846554694/1091875599380918373/The_Worlds_Easiest_Sudoku.pdf

**April 1, 2023: The Resolution**
clover!

Thanks for bearing with us during yesterday's madcap April Fool's event. As promised, here's the post where we let everybody in on all of the jokes. 🙂

Bill Murphy's puzzle was, of course, the least accessible classic sudoku he could manage to invent. That said, it was unique and logically solvable, as long as you followed the rules with care:

- Replace all given 2s with 5s, 5s with 2s, epsilons with 3s, and 6es with 9s.

- Place 6es in all orange (or, on some screens, yellowish) cells.

- Place an 8 in r9c9.

Bill sent an additional message (without a ping) early in the day, revealing that he'd sneakily posted the "clean" version of his puzzle in #voice-chat-2 . Here's a link to that puzzle:

https://tinyurl.com/2h3he55r

Next, to solve my puzzle, you needed to observe the strange capitalization in the original post:

> good morning, **F**riends!
>
> **I** seem to have **L**ost the ruleset to today's gas, thanks to the **L**amentable state of my **O**ffice here at headquarters. but a **M**ess shouldn't cause this lovely puzzle to go **I**gnored! you'll simply **N**eed to work out the rules yourself. i'm sure they weren't too terribly **O**bscure: this is gas, after all! enjoy!

The capitalized letters spell out FILLOMINO; searching this term on this server reveals a fillomino GAPP - with rules helpfully included - set by yours truly. The rules of fillomino are also reproduced here:

> Divide the grid up into regions of various sizes. Every number in the grid has to be in a region of that size: for instance, if there's a "3" in the grid, it needs to end up in a 3-block region. Regions of the same size can't touch orthogonally.

Here's a link to solve the puzzle on puzz.link:

https://puzz.link/p?fillomino/9/9/i5g2o2312g5h1j2i5m1h25h3l3h4m2g3g4g1h42k4gi2891 44gi28900003vo000vu0000

By the way, my hat times were flipped intentionally, and you're free to interpret your own results however you'd like! Is there an implication that you only get a single hat if your time is between the two times given? I'm not sure!

Next was Sam Cappleman-Lynes's puzzle - this was a standard (but very nicely designed) kropki pairs sudoku, just a touch harder than typical GAS.

The joke here, of course, was that Sam had gone rogue out of frustration with Philip's delayed posting - but in reality, despite no longer being on the GAS team, Sam has kept his posting/testing channel permissions in case we ever need his help (or for cases where it would make for an excellent prank).

Here's a link to Sam's puzzle - but in this case the link is unaltered from yesterday:

https://tinyurl.com/4yat8h6w

Finally, the main event of the day: Philip Newman's "very easy" classic. This puzzle shares its layout of givens with the classic sudoku known as "AI Escargot", also known as "the world's hardest sudoku". AI Escargot is, of course, not a remarkably hard puzzle compared to some of what's been published (although I wouldn't recommend attempting it by hand), but its highly recognizable layout made this clever nod to sudoku history possible.

Philip's puzzle, on the other hand, was standard GAS - until you got to the attached walkthrough, which depicts perhaps the most delightfully obscure solve path in history. (It's attached to Philip's original post!) Here's the puzzle:

https://tinyurl.com/2zzeuuan

And Bill's dramatic reading of the walkthrough:

https://youtu.be/cUsMfyrI0Zo

That should put everybody on even footing now, regardless of whether you followed along all day, solved a puzzle here and there, or skipped the event entirely. You're more than welcome to claim your hats from yesterday now by solving the less-silly versions. 🙂

And get ready for next year....


as always,
your humble servant,
Clover

**April 2, 2023: Anti-Curse**
Bill Murphy

Happy April 2st! Otherwise known as the day after the day where we let ourselves go full silly.

Let's just keep it simple today with a Classic Sudoku, because of the insanity yesterday and not just because I totally forgot to do any prep for the last week of term this weekend.

Normal Sudoku Rules Apply. (and nothing else this time)



f-puzzles: https://f-puzzles.com/?id=2owgcy85
CTC: https://tinyurl.com/yvpbwbk7

**April 3, 2023: Longbows**
Philip Newman

I know what you're thinking. "Didn't Philip say a couple weeks ago that 16 givens was the maximum for an already unique arrow puzzle? Doesn't this have 17 digits??"

You're right... but this puzzle was not already unique without givens. Far from it. It has four solutions without givens. So many.

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

Normal sudoku rules apply.

**Arrow: Digits along arrows must sum to the circled total. (Digits may repeat if allowed by other rules.)** <--- this is especially important today!
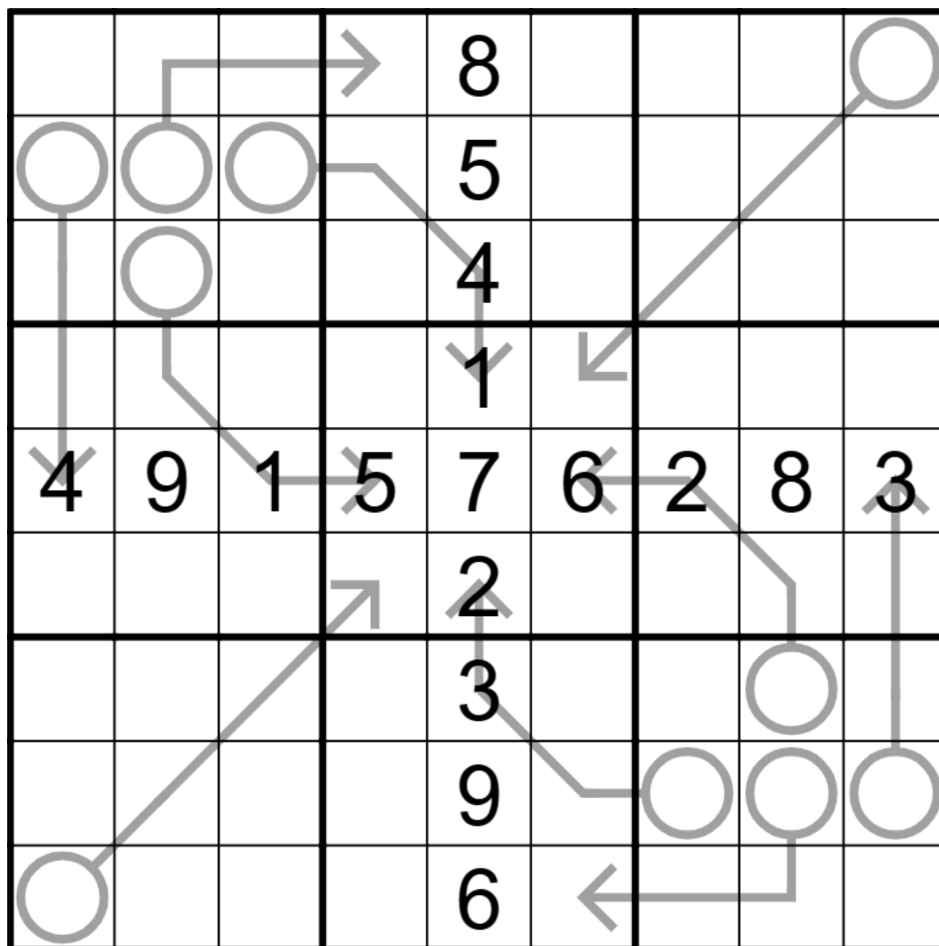
**April 4, 2023: Difference Arrow**
clover!

Today's GAS is a **difference arrow sudoku**. Like the famous Miracle Sudoku, this puzzle only contains two given digits, a 1 and a 2. It's funny how much difference a couple of extra constraints can make!

Normal sudoku rules apply. Also, digits along an arrow must sum to the value in the attached circle. Clues in white dots show the difference between the two adjoining digits. (For instance, if a dot contains a "3", then the digits to either side of it could be 1 and 4, 5 and 8, etc.)



f-puzzles: https://f-puzzles.com/?id=2nrlxqkd
CtC: https://tinyurl.com/2wnccz4e
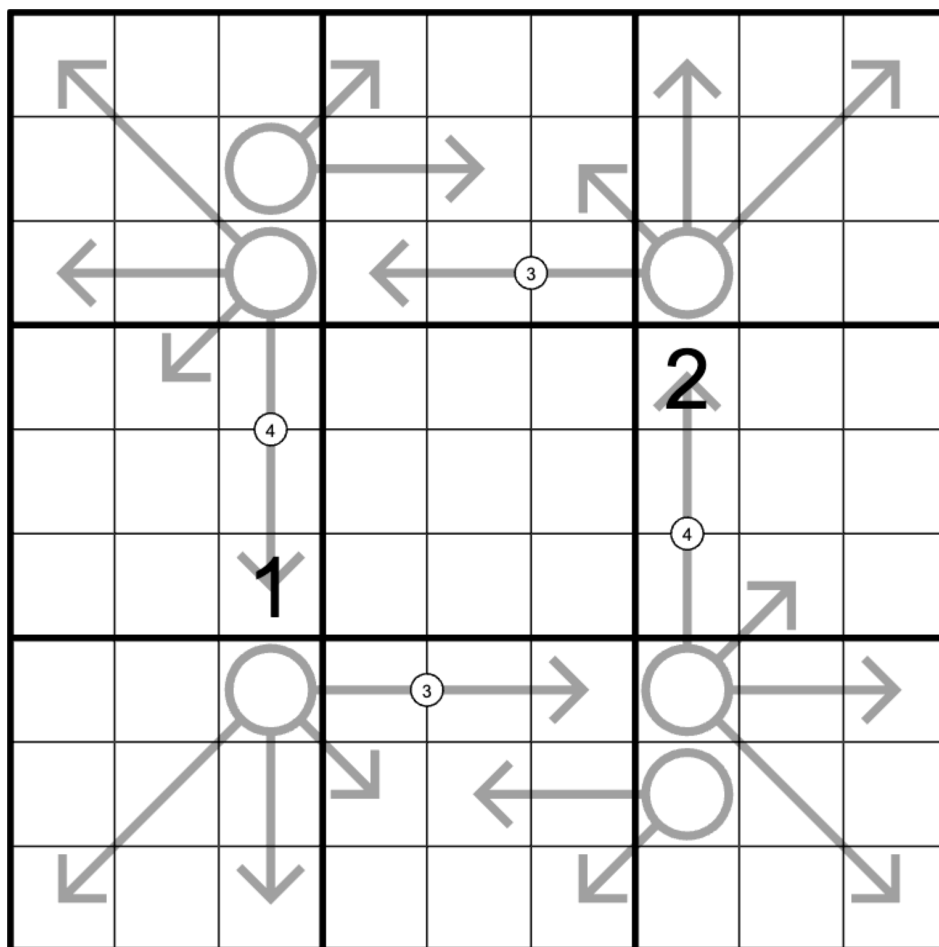
**April 5, 2023: Brand New Bass Guitar**
Bill Murphy

April fool's ❓‼️  Only for April 1st‼️ ❓

That's a weak mindset. That's low performance 📉👎👎

I am a fool every day 🗓️  The Grind 💪💪💪 never stops 📈❌🛑

I am in this for the long run 1️⃣🏃

No quitter mindset here 🚫🏆

Today's GAS is a Thermo Sudoku that I nearly forgot to post because I was too busy setting! Clover had to @ me, can you imagine, another 7 hours without GAS? Incredible.

*Normal Sudoku Rules Apply. Digits along a thermometer must increase from bulb to tip.*



f-puzzles: https://f-puzzles.com/?id=2h93x2zh
CTC: https://tinyurl.com/yuyakr4p
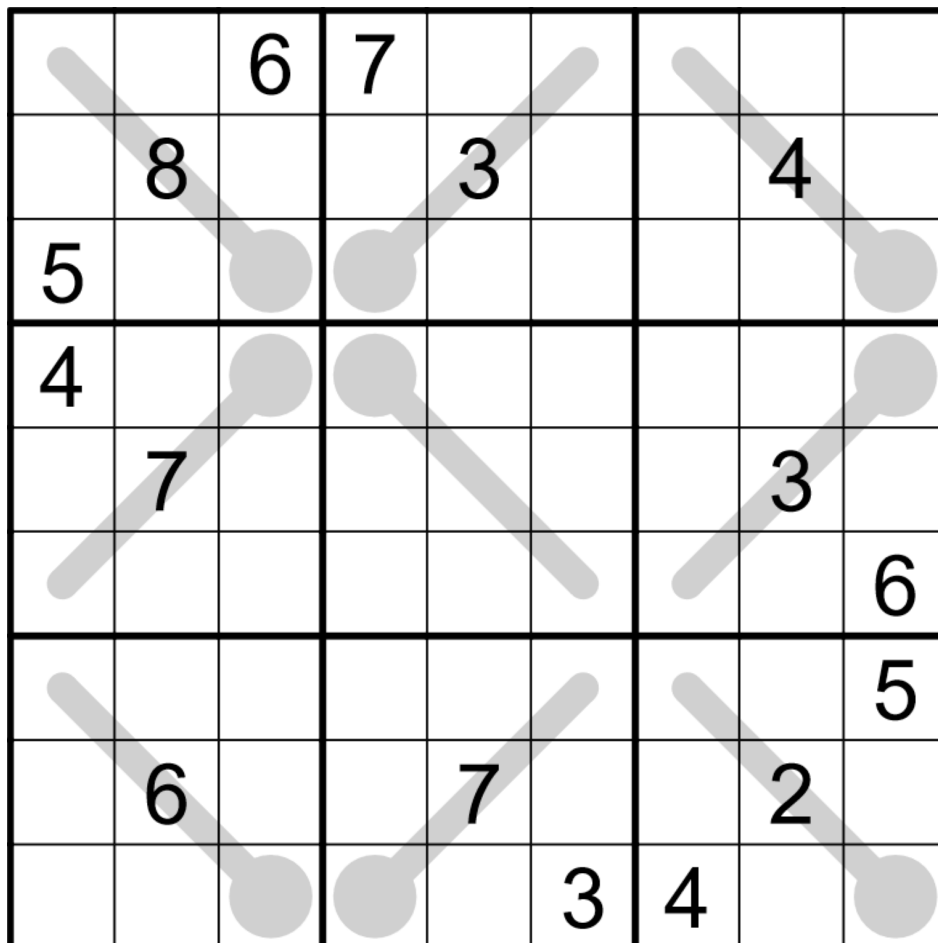
**April 6, 2023: Bent Quadruples**
Philip Newman

Welcome to today's **Sauropod Naming 101**.

Since we started naming our sauropod offerings way back in June 2021, I have made an effort to use a legitimate and never-before-used classification of sauropod (or at least a close relative in Sauropodomorpha). Occasionally, I spend far longer than is reasonable to find the perfect pairing of dino and adjective to go along with the day's **GAS**. (And today, I am spending far longer than is reasonable writing this intro *about* finding a dino.)

At least once previously I have slipped in a sauropod name with a questionable taxonomic status. In January, the dino was a *Megacervixosaurus*, which is only informally named (*nomen nudum*). Today's dino, on the other hand, is *nomen dubium*. *Clasmodosaurus* is only known from three fossilized teeth and its status as a sauropod has been in doubt since its discovery in 1898, but it has been accepted as a sauropod since 1986.
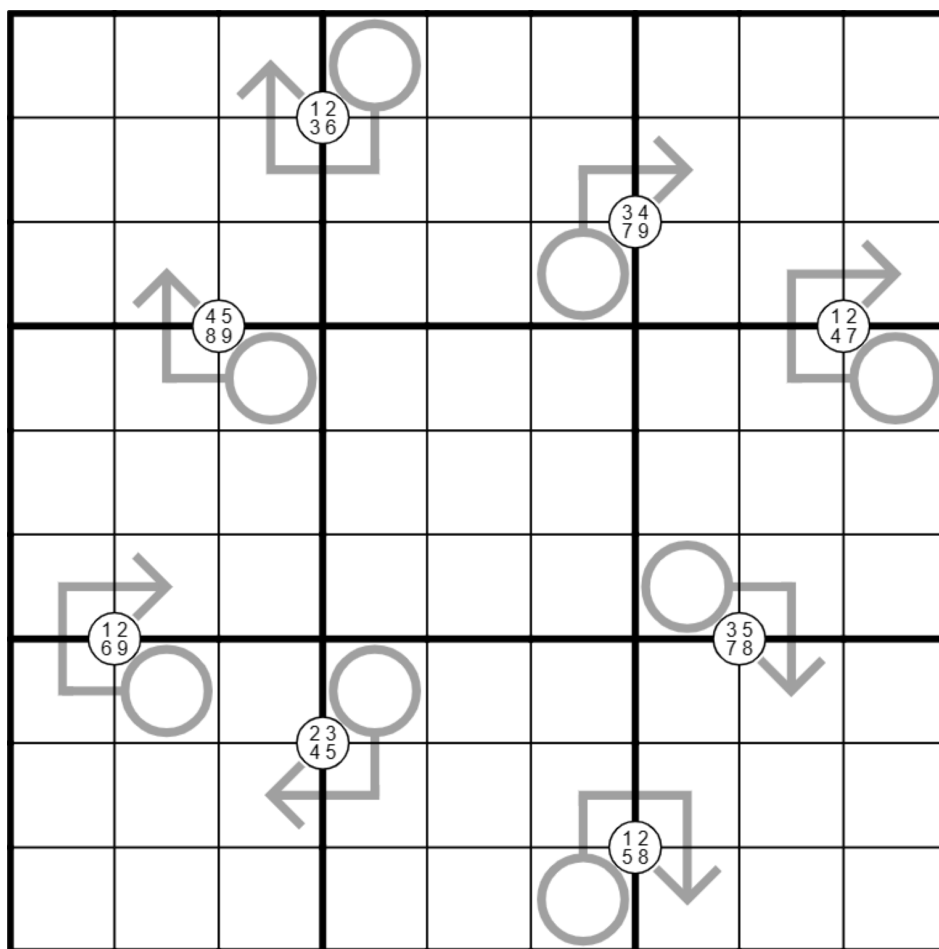
The type species is *Clasmodosaurus spatula*, which I found amusing, and the teeth have the unusual trait of having a polygonal cross section (whereas most dino teeth have a round cross section).

What does this have to do with today's **GAS**, an **Arrow Quadruples Sudoku**? Nothing really. I just wanted to use clockwise as an adjective to match the arrows. 🤷‍♀️

Normal sudoku rules apply.

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

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

Play on f-puzzles: https://f-puzzles.com/?id=27b4aadr
Play on CTC App: https://tinyurl.com/bd9brmca

**April 7, 2023: Sum Sandwiches**
clover!

Are you feeling a bit peckish today, GAS solvers? Would you like... sum sandwiches? 😉

In today's **sum sandwiches** GAS, normal sudoku rules apply. Also, clues adjacent to a row or column indicate certain digits which are equal to the sum of their two neighbors in that row or column. For instance, if a "3" appears adjacent to a row, then the 3 in that row must be surrounded by a 1 and a 2 within the same row. Not all possible clues are necessarily given.



f-puzzles: https://f-puzzles.com/?id=27fgpd6x
CtC: https://tinyurl.com/4nanyhbc

**April 8, 2023: Jörminigandr**
Bill Murphy

Min-maxing is the character-building strategy of maximizing a specific desirable ability, skill, or other power of a character and minimizing everything else, seen as undesirable. The result is a character who is excessively powerful in one particular way, but exceedingly weak in others.

Min-maxing has a history of controversy among players and game designers. Game designers may dislike min-maxing because it discourages variety in play through extreme specialization. It can also 'break' the difficulty balance of a game--making parts of a game too easy or too hard--since games are usually tuned with the goal of providing a reasonable (and thus enjoyable) level of challenge throughout for all normal character builds.

Min-maxing in sudoku design however, can be especially powerful in math-y puzzles. Like today's **Region Sum Lines** Sudoku.

*Normal Sudoku Rules Apply. Digits along a line must sum to the same total in every box the line passes through.*

f-puzzles: https://f-puzzles.com/?id=2y9o7ttf
CTC: https://tinyurl.com/2p8jyyxs
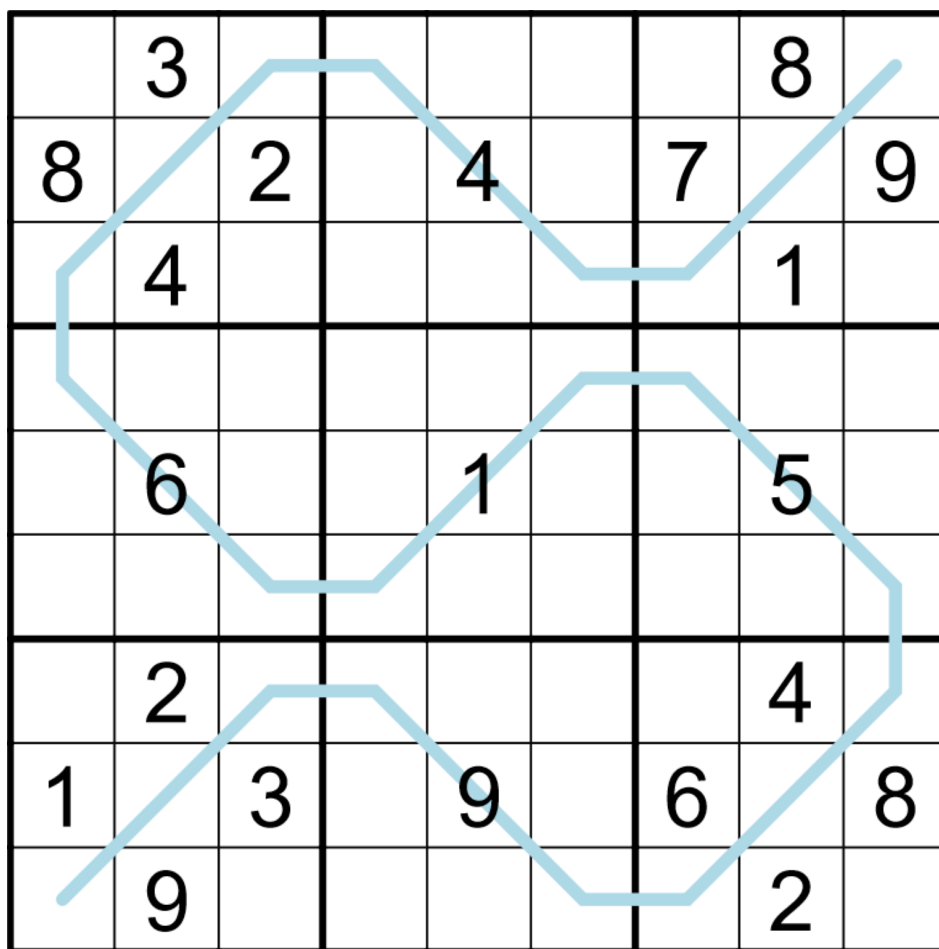
**April 9, 2023: Panini Press**
Philip Newman

Short intro today! What is your favorite sandwich?

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

Normal sudoku rules apply.
**Sandwich: A value outside of the grid is a sandwich clue — it tells you the sum of the digits between the 1 and the 9 in that row or column, not including the 1 and 9 themselves.**
**Thermo: Digits along thermometers must strictly increase from bulb to tip.**



Play on f-puzzles: https://f-puzzles.com/?id=2b9n94ag
Play on CTC App: https://tinyurl.com/5zcxtutm
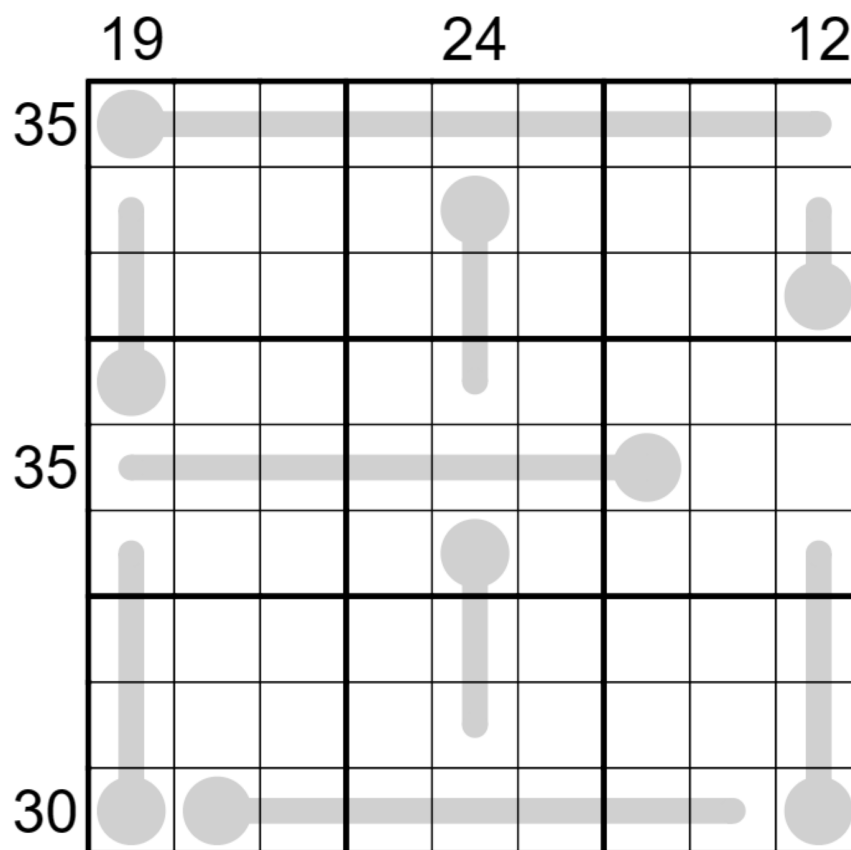
**April 10, 2023: Hashtag Sudoku**
clover!

Today's GAS is a #sudoku. Make sure to tag your posts with #sudoku so we can keep the discussion neat and orderly and so that newcomers can find all #sudoku-related discussion. If you'd like to discuss #sudoku, please do so in the #sudoku channel, where only #sudoku is permitted.

Normal sudoku rules apply. #sudoku rules also apply: each of the four diagonal blue lines contains the digits 1 through 9 exactly once each.



SudokuPad: https://tinyurl.com/y8wvpf94

**April 11, 2023: patreon.com/svencodes**
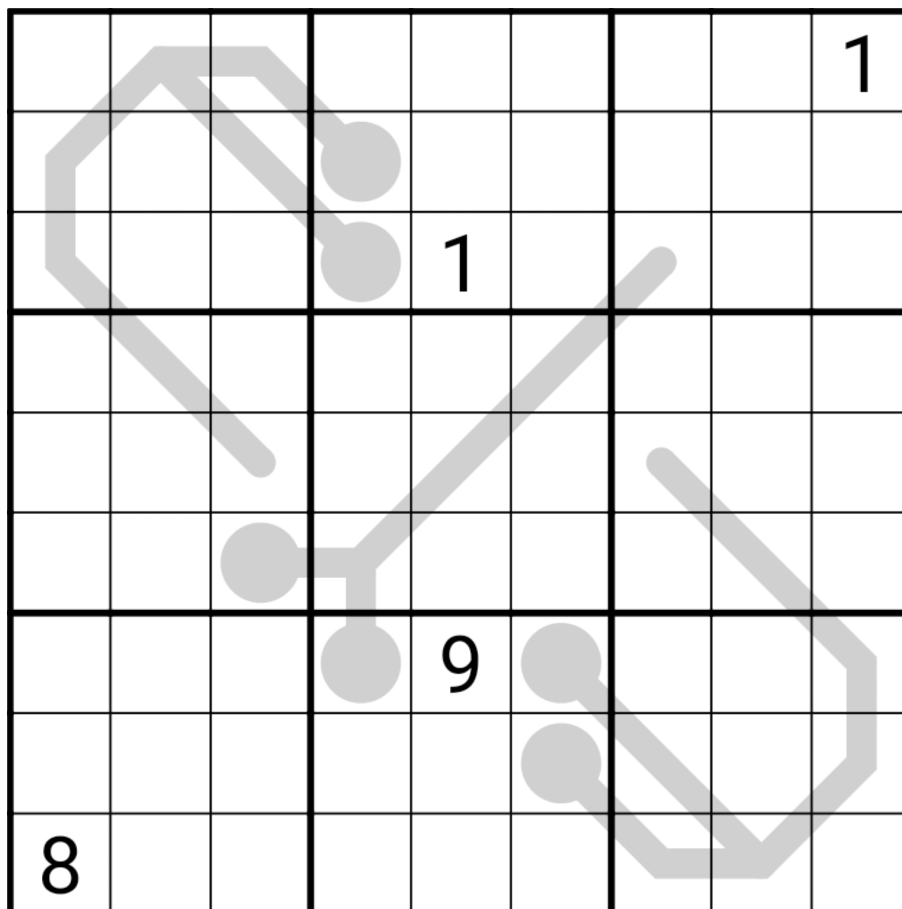Bill Murphy

Today's GAS was inspired from a comment from Sven, programmer of the CTC webapp about how he spent a lot of time and effort to program the weirdness of multi-headed thermometers.

When asked for comment, Sven had this to say:

> A new addition to SudokuPad's SMART Select (tm) capability is the ability to accurately select cells equidistant along thermos. What does "equidistant" mean? Glad you asked! In 64 lines of the finest artisan algorithm, Every tip and bulb is investigated, and every branching thermo line is measured and explored.

Today's GAS is a Thermometer Sudoku! Normal Sudoku Rules Apply. Digits along a thermometer must increase from bulb to tip.

A cowboy hat on me to anyone who's subscribed to Sven's Patreon.
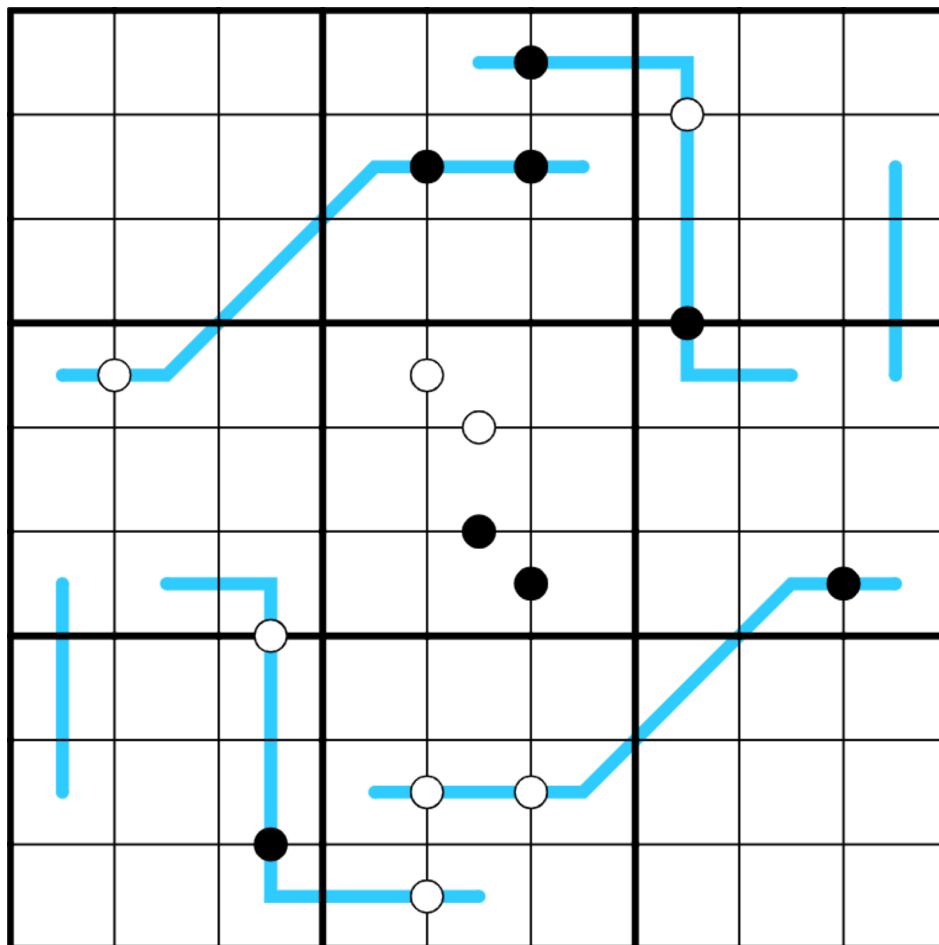www.patreon.com/svencodes



F-puzzles: https://f-puzzles.com/?id=2d433xz9
CTC: https://tinyurl.com/mujv62k6

**April 12, 2023: Summetric Placement**
Philip Newman

Continuing my current ongoing series of paired variants, we have today a combination of variants that are mathy but without the stigma of giant (read: two-digit) numbers as clues.

Wait... are mathy variants scarier when they have numbers as clues, or when they don't?

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

Normal sudoku rules apply.
**Region Sum Lines: Along each line, the digits in every region it passes through have the same sum.** For example, r4c1 + r4c2 = r3c3 = r2c4 + r2c5 + r2c6
**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 digits may also be consecutive or have a 2:1 ratio.)



Play on f-puzzles: https://f-puzzles.com/?id=26vvrh4u
Play on CTC App: https://tinyurl.com/37p3e9zx

## April 13, 2024: Position Sums
clover!

Notorious GAS tester (and I guess he sets the puzzles, too) William Wolfgang "Puttin' the Ass Back in Classic Sudoku" Murphy had this to say about today's **position sums GAS**:

> this is one of the cleanest, neatest, kindest position sums sudoku i've ever seen
> the two hat time should still be 8+ on principle for position sums is my two cents

No problem, Bill. 🙂

Normal sudoku rules apply.

Also, the topmost two digits in each column, or the leftmost two digits in each row, are "A" and "B". The clues immediately adjacent to the grid tell you the sum of A+B (that is, the sum of the closest two digits) in some rows or columns.

For the clues slightly further away from the grid, take the sum of the "Ath" and "Bth" digits in that row or column, counting left to right or top to bottom. For instance, if A and B in the 9th column were 4 and 6, then the sum of the 4th digit and the 6th digit from the top in that column would be 9.

|        | Ath+Bth |     | 10  |     | 3   |     | 9   |     | 9   |
|--------|---------|-----|-----|-----|-----|-----|-----|-----|-----|
|        | A+B     | 3   | 9   |     | 10  |     | 17  |     | 10  |
| 4      |         | 1   |     |     |     |     |     |     |     |
|        |         |     |     |     | 6   |     |     |     |     |
| 5      | 13      |     |     | 9   |     | 3   |     |     |     |
|        |         |     | 1   |     |     |     | 4   |     |     |
| 8      | 10      |     | 4   |     |     |     |     | 7   |     |
|        |         |     | 3   |     |     |     | 5   |     |     |
| 4      |         |     |     | 2   |     | 4   |     |     |     |
|        |         |     |     |     | 7   |     |     |     |     |
| 4      | 9       |     |     |     |     |     |     |     | 9   |

SudokuPad: https://tinyurl.com/yzbdsvxc

**April 14, 2023: Home Maker**
Bill Murphy

Ok, so listen. Let me explain.

About four months ago at GAS HQ, we were joking about what we'd put on our business cards. I couldn't think of anything better than Cool Puzzles For Fun until yesterday when thinking about today's **Classic Sudoku**, I came up with *Putting the 'ass' in classic sudoku since 2022*, that's what Clover meant when she posted that in yesterday's intro.

Since she stole my bit for today's intro, the other two business cards were:

**Clover Moon**
*Problems Solved - Problems Caused*

**Philip Newman**
*People Like You See A Problem*
*I See An Opportunity To Create Worse Problems*

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



F-puzzles: https://f-puzzles.com/?id=28vodhf6
CTC: https://tinyurl.com/29st98fz

# April 15, 2023: Squaring the Circles
Philip Newman

Today's **GAS**, a **Fortress Quadruples Sudoku**, comes with an extra challenge from Bill: if you normally use the pencilmark conflict checker, you are encouraged to turn it off for this puzzle! I've bumped the hat times up a bit to account for this. (I've also given you six completely unnecessary given digits, because I'm such a nice guy.)

Normal sudoku rules apply.
**Fortress: Digits in grey cells must be greater than digits in orthogonally adjacent white cells.**
**Quadruples: Digits in corner circles must appear in the surrounding four cells, in some order.**



Play on f-puzzles: https://f-puzzles.com/?id=25sucxlz
Play on CTC App: https://tinyurl.com/y6yxkxx4
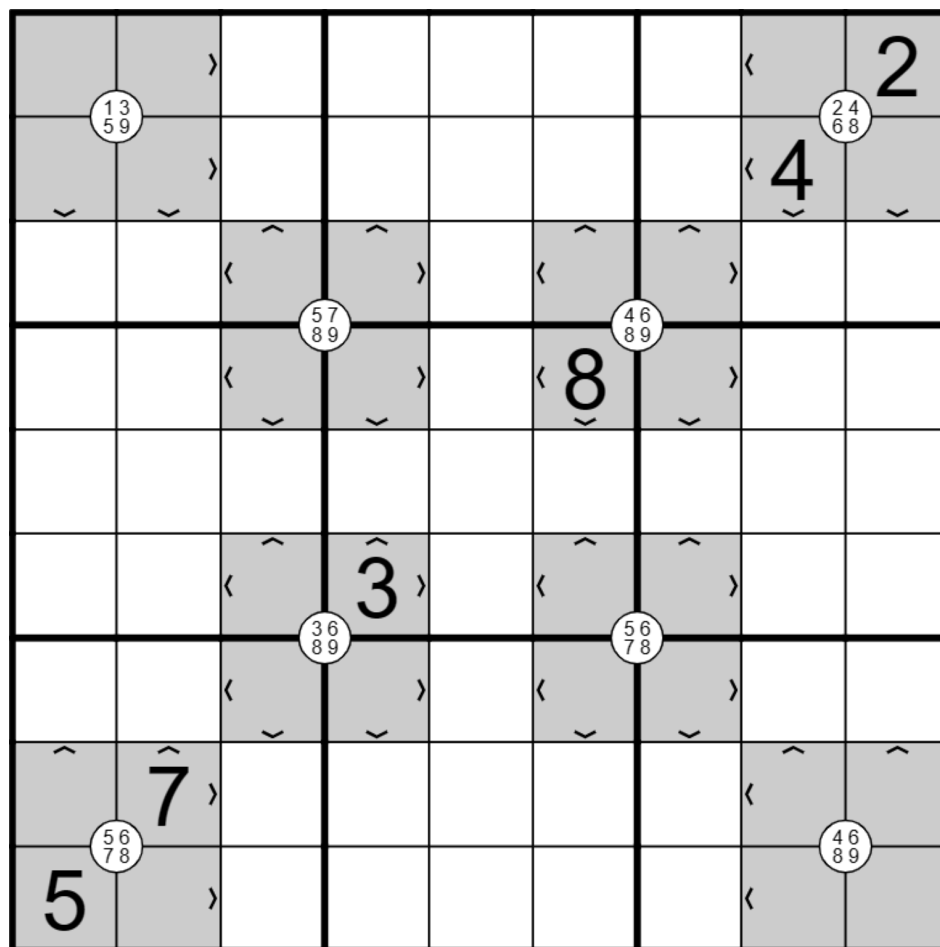
**April 16, 2023: Killer Sudoku**
clover!

In today's GAS, we simulate the problem of fitting sixteen identical awkwardly-shaped pieces of furniture into a 9-by-9 foot room. Here's my solution, which (purely by coincidence) is also a valid **killer sudoku** grid. Enjoy!

Normal sudoku rules apply. Also, digits in cages do not repeat and must sum to the indicated total.



f-puzzles: https://f-puzzles.com/?id=2334a38j
CtC: https://tinyurl.com/43mc486z

**April 17, 2023: DoppelGanger**
Bill Murphy

I've been doing GAS for six and a half months now! We're friends right? Cool. I feel like I can open up to you now 😊

Day 1 of GAS I told you that I wasn't three goblins in a trench coat and that's true. **However**, a large number of you did hit instantly upon the truth of the situation. I'm not three goblins in a trenchcoat, because **I am two goblins in a trenchcoat**.

They'd like to say hello today if that's ok. Their names are **Doppel** and **Ganger**. They're not quite identical, but they're pretty close. One of them is more purple and one of them is more green. They're pretty friendly, they only bite if you're a "good" member of the Liffe clan, whatever that means. There's nobody around these parts like that though, so you're all clear.

Today's **pair** of sudoku are a Renban Sudoku and a Parity Sudoku.

Doppel: *Normal Sudoku Rules Apply. Digits along a purple line contain a set of consecutive digits in any order.*
Ganger: *Normal Sudoku Rules Apply. Digits along a green line are either all odd or all even.*



Doppel:

f-puzzles: https://f-puzzles.com/?id=2o9k8m2t
CTC: https://tinyurl.com/3efj5ash

Ganger:

f-puzzles: https://f-puzzles.com/?id=2n5uqopd
CTC: https://tinyurl.com/4n9fdnmp

**April 18, 2023: Succession**
Philip Newman

It's **GAS 101** time again! Just a small spoilered hint today to get you going...

Today's **GAS** is an **Antiking Kropki Pairs Sudoku**!
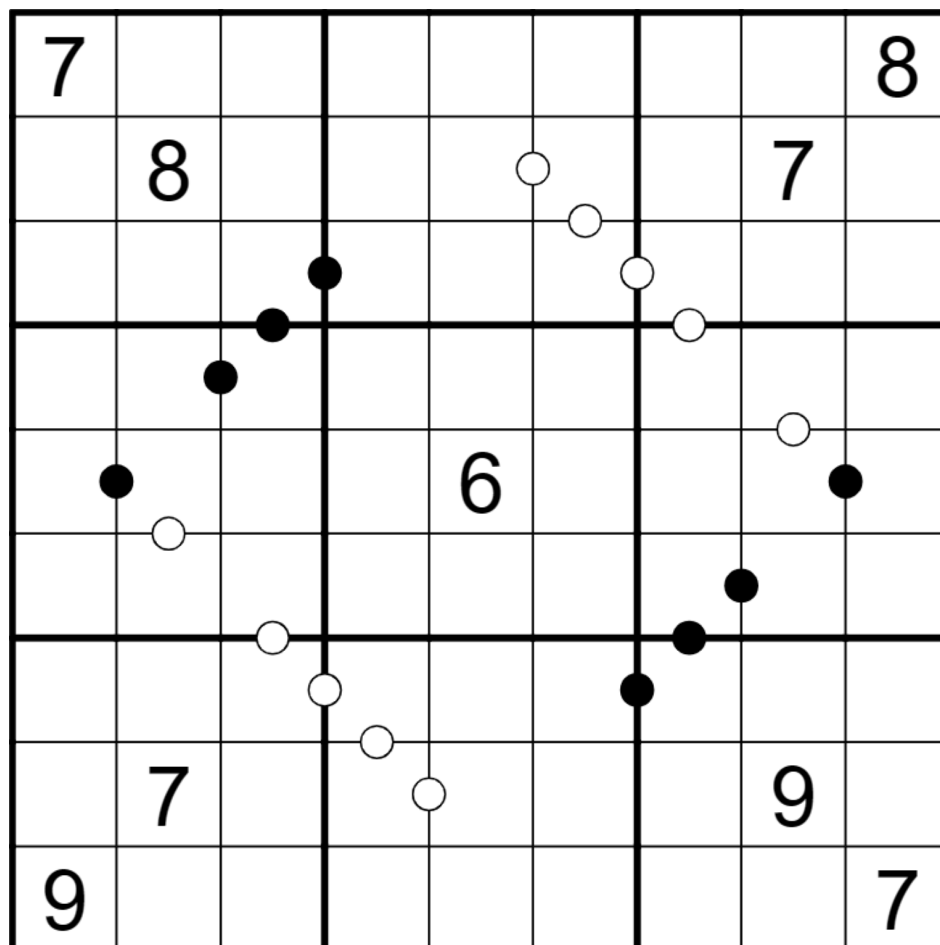
Normal sudoku rules apply.
**Antiking: Cells separated by a (chess) king's move cannot contain the same digit.**
**Kropki Pairs: Digits in cells separated by a white dot must be consecutive (have a difference of 1); digits in cells separated by a black dot must have a ratio of 2:1.**
(No negative constraint - other pairs of digits may also be consecutive or have a 2:1 ratio.)

[Hint on separate page in this PDF]

Solve in 8:00 or less for two party hats ; solve in 20:00 or less for one party hat . All other solvers will receive a Diagonalized Daxiatitan !
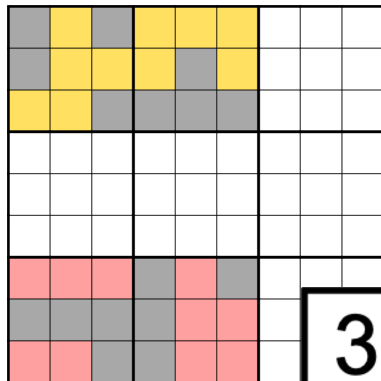


Play on f-puzzles: https://f-puzzles.com/?id=24dkhox4
Play on CTC App: https://tinyurl.com/48zmtvd7

**April 19, 2023: Odd Tapa Sudoku**
clover!

If the GAS and GAPP teams were switched, today's GAPP might be a perfectly ordinary **tapa**. But they haven't been - at least not until August - so you'll need to accept this less-than-ordinary *odd* tapa (sudoku) instead.

Normal sudoku rules apply. Also, in the completed grid, all odd digits form a single orthogonally connected group, and there are no 2x2 squares composed only of odd digits. The example image shows a valid way of filling in some cells with odd digits in orange, and two invalid ways in red.



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

**April 20, 2023: Wanna be Starting Sumthing**
Bill Murphy

**INT: Bill's Office, 8:42pm**

*Bill has just come home from an evening gym session, had a shower and remembered it's his turn to post GAS*

Bill: OH NO I FORGOT TO PREP SOMETHING FOR GAS
@Daily Sudoku Solver will be ever so sad if I do not post a puzzle. Let's see what I've got in the filing cabinet.
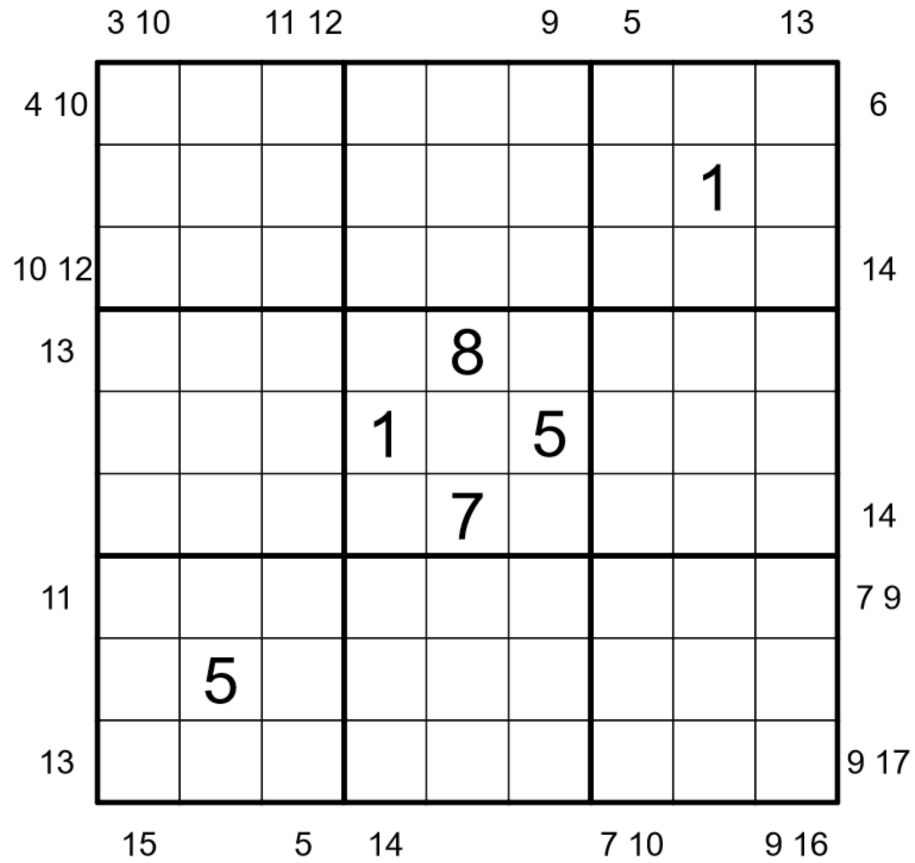*Bill ruffles through his files*
Bill: Gah, untested, untested, Anti-king, Anti-king, Anti-King, Classic, Nine Pins Sudoku, you can't post that! Clover will have your head!
*a pause, as golden light emerges*
Bill: OHO, what's this?! Oh yeah, an actual Bill Murphy invention and not just some idea you stole from an old World Sudoku Championship booklet? Well, why shouldn't I get to post my weird ideas occasionally?

Today's GAS I'm calling *Starting Sums Sudoku*. (If it has an actual name or has been invented already, Sam Cappleman-Lynes will @ me in the next hour)

*Normal Sudoku Rules Apply. Clues outside the grid give the sum of either the first and second or the second and third cells seen from the direction of that clue. If multiple clues are given, the order of the clues must be determined. eg. If 3 is given as a clue, the first three cells could read 1 2 9 or 9 1 2. If 3, 10 is given as a clue, then the first three cells could read 1 2 8 or 9 1 2.*

Sudoku grid with outside clues:

Top clues (left to right): 3 10 | 11 12 | 9 | 5 | 13

Left clues (top to bottom): 4 10 | 10 12 | 13 | 11 | 13

Right clues (top to bottom): 6 | 14 | 14 | 7 9 | 9 17

Bottom clues (left to right): 15 | 5 | 14 | 7 10 | 9 16

Given digits in grid:
- R2C8: 1
- R4C5: 8
- R5C4: 1, R5C6: 5
- R6C5: 7
- R8C2: 5

f-puzzles: https://f-puzzles.com/?id=29vodcwp
CTC: https://tinyurl.com/yejtp3m3

**April 21, 2023: Cross Purposes**
Philip Newman

Today's puzzle is on the trickier side of **GAS**. It comes with this strong endorsement from none other than Bill Murphy:

> i got like a minute into this saw what was up chuckled to myself and went "not today satan" and closed the tab

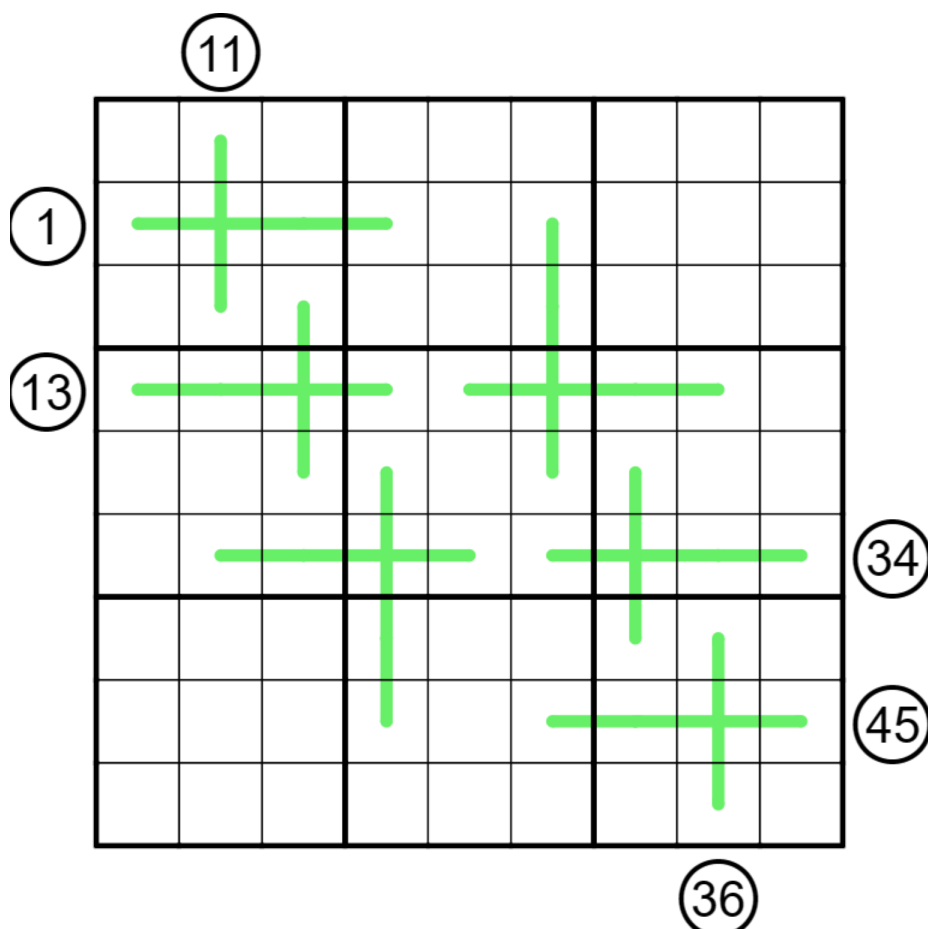Anyway, I like it, and I believe in you!

Today's **GAS**(?) is a **German Whispers X-Sums Sudoku**!

Normal sudoku rules apply.
**German Whispers: Digits in cells directly connected by a green line must differ by at least 5.**
**X-Sums: Clues outside the grid tell you the sum of the first X digits in the corresponding row or column, starting with the digit adjacent to the clue and continuing away from the clue, where X is the adjacent digit.** (For example: ?????7534 (19) would be a valid fill for a row where 19 is the sum of the rightmost 4 digits.)

[Hints on separate page in this PDF]

Play on f-puzzles: https://f-puzzles.com/?id=23ppfkpy
Play on CTC App: https://tinyurl.com/yckpc3p8

**April 22, 2023: Entropic Lines**
clover!

You've been clamoring for an easier GAS for a few days, so let's borrow an idea from the 19th-century Russian playwright Anton Chekhov:

> Only entropy comes easy.

Thanks Anton (can I call you Anton?) - great idea! Let's have an **entropic lines sudoku**.

Normal sudoku rules apply. Along each line, every set of three adjoining digits must have one digit from (123), one from (456), and one from (789). Note that this means every line has a repeating pattern of high/medium/low, such as LMHLMH or LHMLHM.



f-puzzles: https://f-puzzles.com/?id=2bg3z3vw
CtC: https://tinyurl.com/2p94ur99
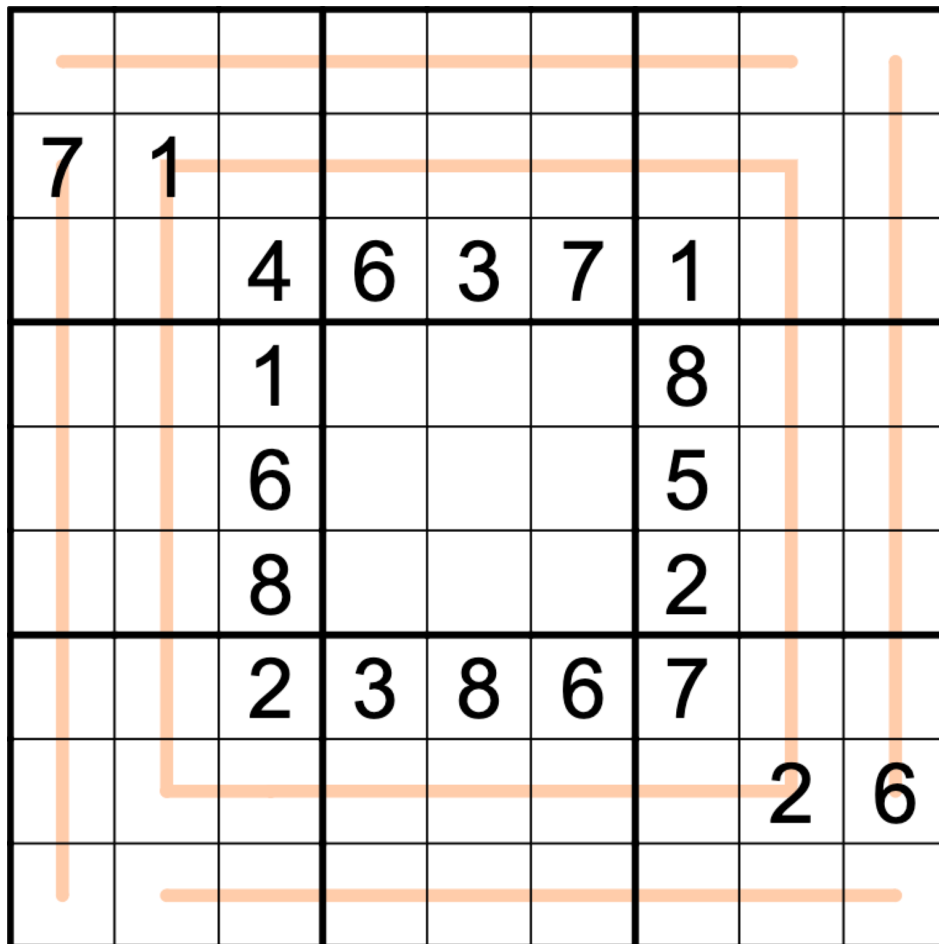
**April 23, 2023: Antiquing**
Bill Murphy

With thanks to @jovi and apologies to Mark

Today's GAS is a Sounds like you're coming back with an old Sudoku variant? (4-4)
Sudoku

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



f-puzzles: https://f-puzzles.com/?id=257js896
CTC: https://tinyurl.com/msn5atyb

**April 24, 2023: The Phisto King**
Philip Newman

Look, I'm all for taking back Sudoku for the People, but Bill Murphy's revolutionary fervor in testing has gone too far. Hasn't the (chess) king's move done some good in this world?

Today's **Choose Your Own GAS** is a **Pro-King Sudoku**!

What's a "Choose Your Own GAS"? Well, there are two versions of this puzzle. The first is what I originally posted in testing. The second is the same puzzle but with some extra givens. This is, as Clover put it, "the clover and bill endorsed version for big wimpy babies" and "if they want the real philip newman gas experience theyd better do the first one". Her words, not mine. This is a judgment free zone.

Hat times are the same regardless! Just pretend your hats today come embroidered with the version of the puzzle you solved.

Normal sudoku rules apply.
**Pro-King: Grey cells must diagonally touch at least one other cell containing the same digit.** (No negative constraint.)

**The Real Philip Newman Experience**

Play on f-puzzles: https://f-puzzles.com/?id=2awvlows
Play on CTC App: https://tinyurl.com/3t27zjw7

**Extra Givens**

Play on f-puzzles: https://f-puzzles.com/?id=26c9x9kq
Play on CTC App: https://tinyurl.com/tbc9ay7u

**April 25, 2023: New Math Sudoku**
clover!

With apologies to the great Tom Lehrer, let's do some New Math!

> You can't take three from two
> Two is less than three
> So you look at the four in the tens place
> Now that's really four tens
> So you make it three tens
> Regroup, and you change a ten to ten ones
> And you add 'em to the two and get twelve
> And you take away three, that's nine
> **Is that clear?**

https://www.youtube.com/watch?v=9mc7eb1i9o4

Crystal clear. We won't even be needing any given digits!

In today's **(new) math sudoku**, normal sudoku rules apply. Also, clues to the left or right of a row tell you the sum of the two digits in that row nearest the clue.

Clues above or below a column tell you the product of the two digits in that column nearest the clue.

For a bonus hat, finish within the run time of the attached song (4:10)!

f-puzzles: https://f-puzzles.com/?id=27okhta7
CtC: https://tinyurl.com/2sbb59yh

**April 26, 2023: Qu'est-ce, que c'est?**
Bill Murphy

**Little Killer**
Qu'est-ce que c'est?
Fa-fa-fa-fa, fa-fa-fa-fa-fa-fa, better
Solve, Solve, Solve, Solve, Solve, Solve, Solve away, oh, oh, oh, oh
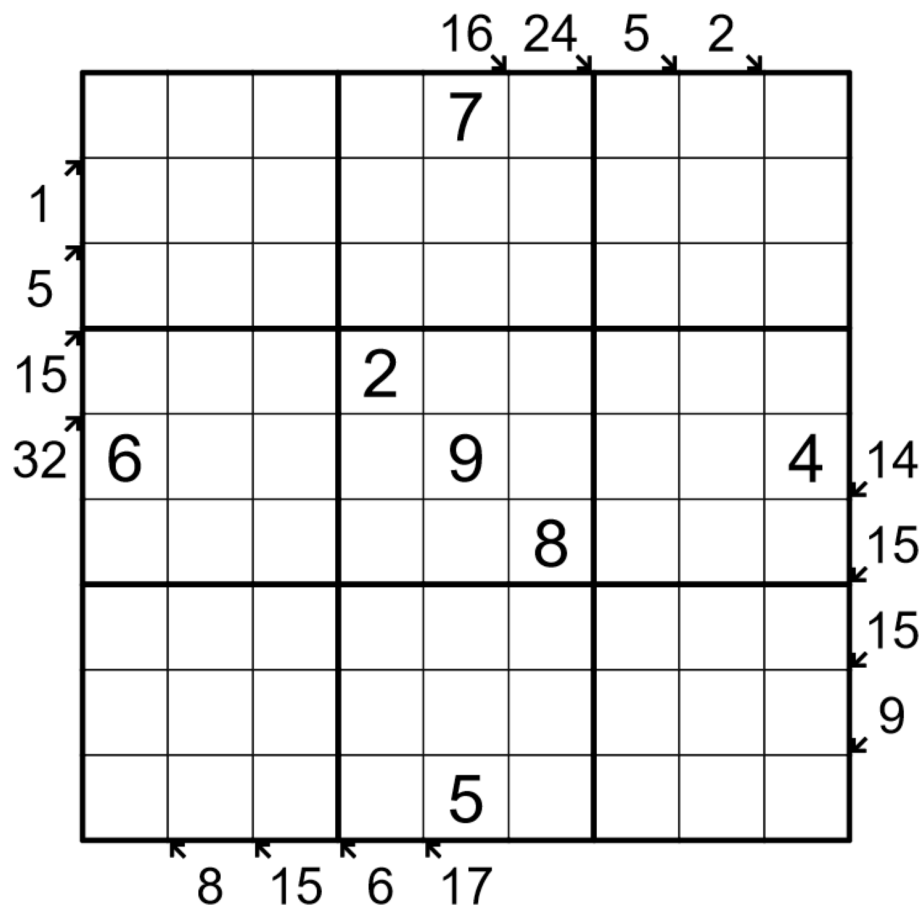**Little Killer**
Qu'est-ce que c'est?
Fa-fa-fa-fa, fa-fa-fa-fa-fa-fa, better
Solve, Solve, Solve, Solve, Solve, Solve, Solve away, oh, oh, oh, oh
Ay-ya-ya-ya-ya-ya, ooh

*Normal sudoku rules apply. Digits along an indicated diagonal must sum to the given total.*



f-puzzles:  https://f-puzzles.com/?id=22upafxx
CTC: https://tinyurl.com/2zys385y
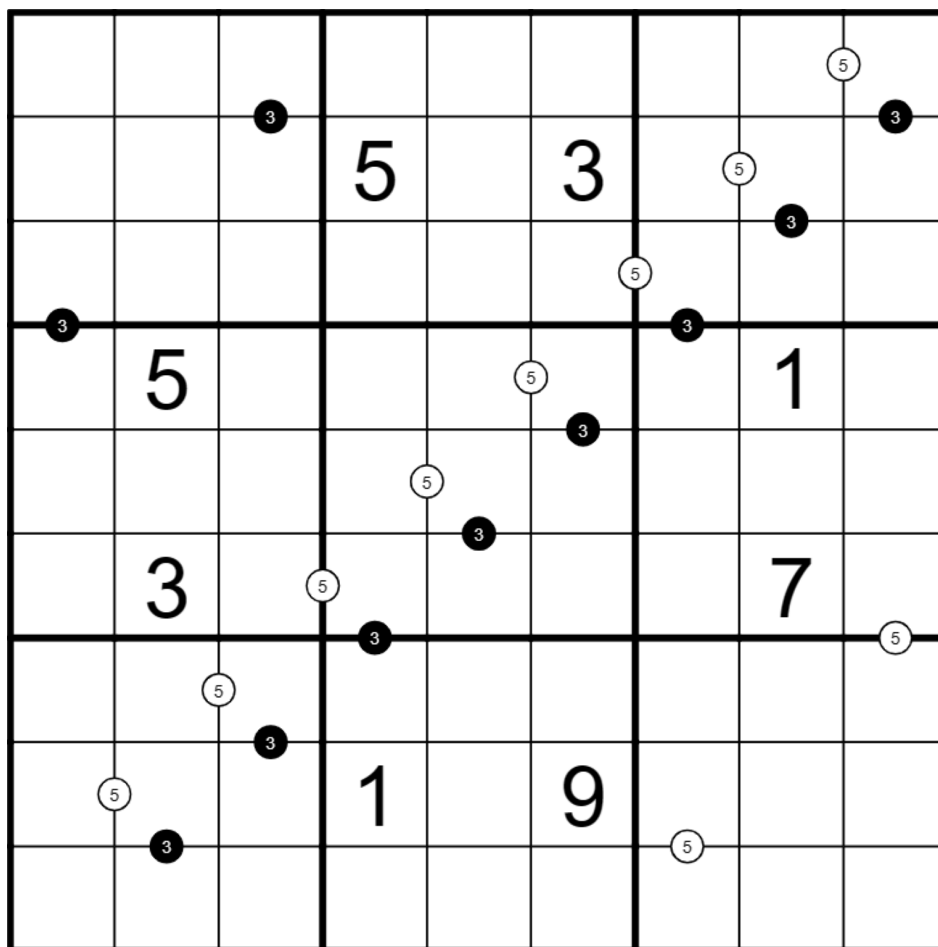
**April 27, 2023: The Odd Couple**
Philip Newman

In today's edition of "Philip found something pretty, unique, and way too hard, so GIVENS" **GAS** we bring back **Gamma and Epsilon Sudoku**!

Normal sudoku rules apply.
**Gamma and Epsilon: Digits in cells separated by a white dot must have a difference of 5. Digits in cells separated by a black dot must have a ratio of 3:1.**
(No negative constraint - adjacent cells separated by no dot may have a difference of 5 or ratio of 3:1.)

[„Teensy GAS 101 Nudge" on separate page in this PDF]



Play on f-puzzles: https://f-puzzles.com/?id=23uy8do3
Play on CTC App: https://tinyurl.com/yvk9dwak

**April 28, 2023: Fortress**
clover!

The fortresses in this GAS are totally impenetrable! Luckily, the puzzle itself is quite the opposite. 🙂

Normal sudoku rules apply. Also, digits in gray cells must be greater than all of the digits in orthogonally adjacent white cells. For instance, the digits in r3c6 and r4c7 must be less than 4.



f-puzzles: https://f-puzzles.com/?id=26dszopw
CtC: https://tinyurl.com/5duywcy3

**April 29, 2023: Determinant Sudoku**
Bill Murphy

Thanks to @Engy who made this month's GAS leak when GAS HQ were going through some tough times. If anyone else had've said "Hey, I wonder if **Determinant Sudoku** could be made GAS? 🥔" I would've politely responded with "No 🙂", but for @Engy, I was happy to give it a go. This is genuinely a really lovely community and it makes doing it very much worthwhile, even on the tougher days.

*Normal Sudoku Rules Apply. The determinants of 2x2 matrices are given in center of four cells. The determinant of a 2x2 matrix is axd-bxc, where a is the top left, b is the top right, c is the bottom left and d is the bottom right element.*

So for those of you who don't have a math degree, I've attached a coloured image. (Colouring the puzzles themselves is up to you.)
**The number in the centre of the four cells is the product (multiplication) of the green cells subtracting the product of the purple cells.**
or even simpler: For every square in the middle of four cells: (Green x Green) - (Purple x Purple) = Number in the Square



f-puzzles: https://f-puzzles.com/?id=247h2xz2
CTC: https://tinyurl.com/5xxxctxm

**April 30, 2023: Silent Green Is, People**
Philip Newman

Late today's GAS is, mmmhmm?

Patience, you must learn. Impatience is the path to the dark side. Impatience leads to anger. Anger leads to shouting. Shouting leads to breaking this German Whipsers Sudoku.

Normal sudoku rules apply.
German Whispers: Digits in cells directly connected by a green line must differ by at least 5.



f-puzzles: https://f-puzzles.com/?id=2m82tdy7
CTC App: https://tinyurl.com/227e6ckj
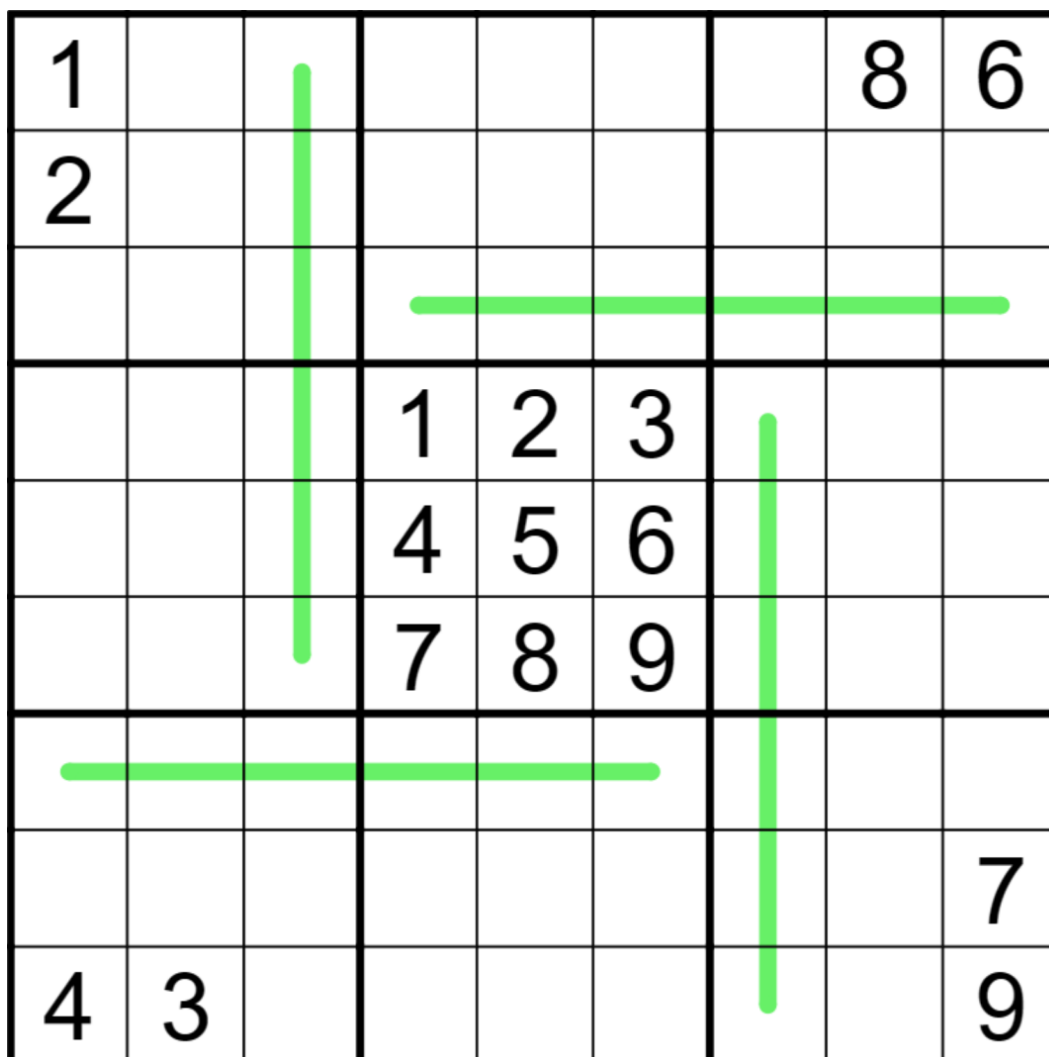
**Bonus 1: Hit the Target Sudoku**
Clover

Normal sudoku rules apply. Starting at the 1 marked with an arrow, find a path that travels through the digits 1-9 in order, as follows:

The 1 arrow points to a 2 (which may be any distance away in that direction). When you reach the 2, turn 90 degrees clockwise; there will be a 3 somewhere in that direction (any distance away). When you reach the 3, turn 90 degrees clockwise; there will be a 4 somewhere in that direction (any distance away). Continue in this fashion until you've found a path that travels through all 9 digits in order.

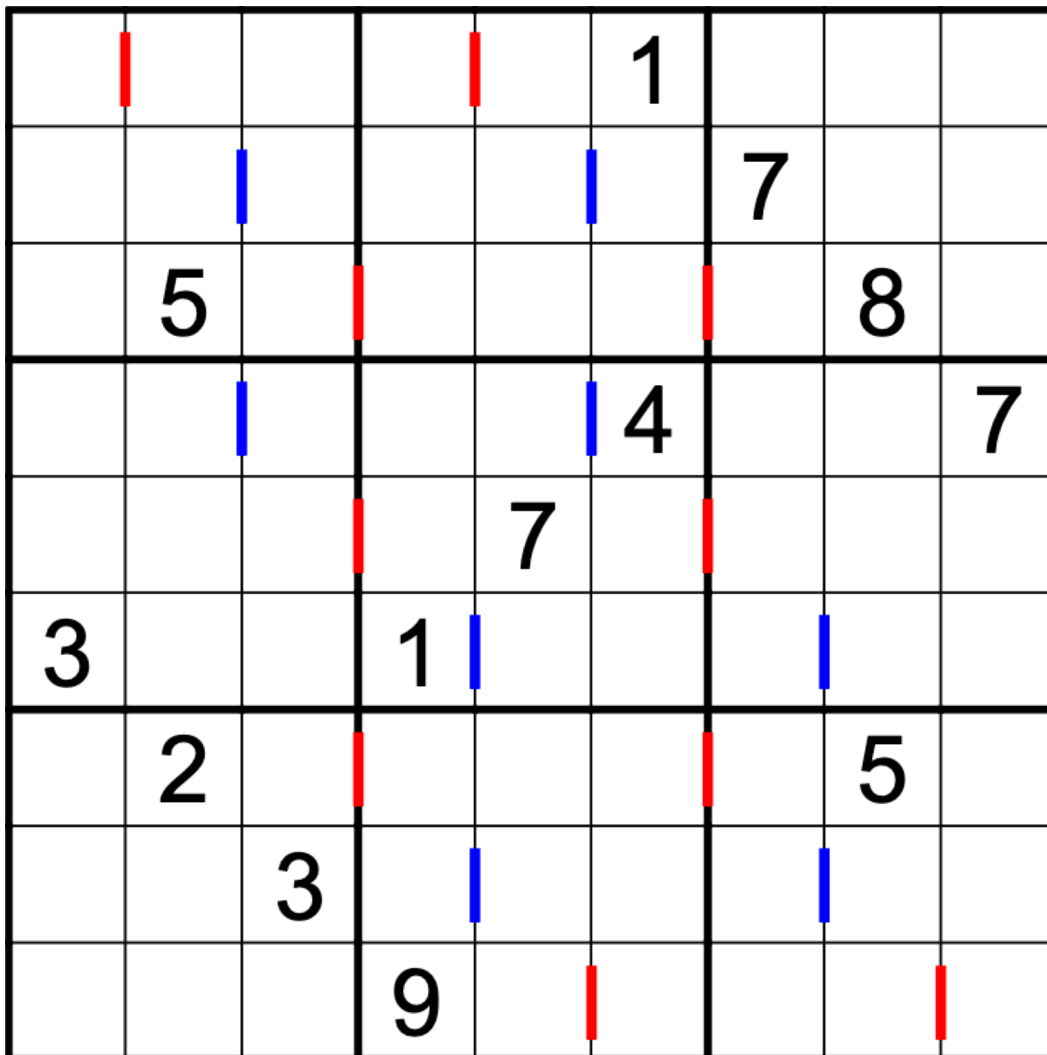| | 2 | | | | | | | 3 |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| 4 | | 5 | | ↑1 | | 6 | | 7 |
| | 1 | | 4 | | 8 | | 5 | |
| | | 2 | | | | 8 | | |
| | 4 | | 6 | | | | 3 | |
| 1 | | 4 | | 3 | | 5 | | 8 |
| | | | | | | | | |
| 6 | | | | | | | 4 | |

https://tinyurl.com/wc3ykcpu

# Bonus 2: Slalom Sudoku
Bill Murphy

Normal sudoku rules apply. Digits between flags must be a set of consecutive digits, but may be in any order.

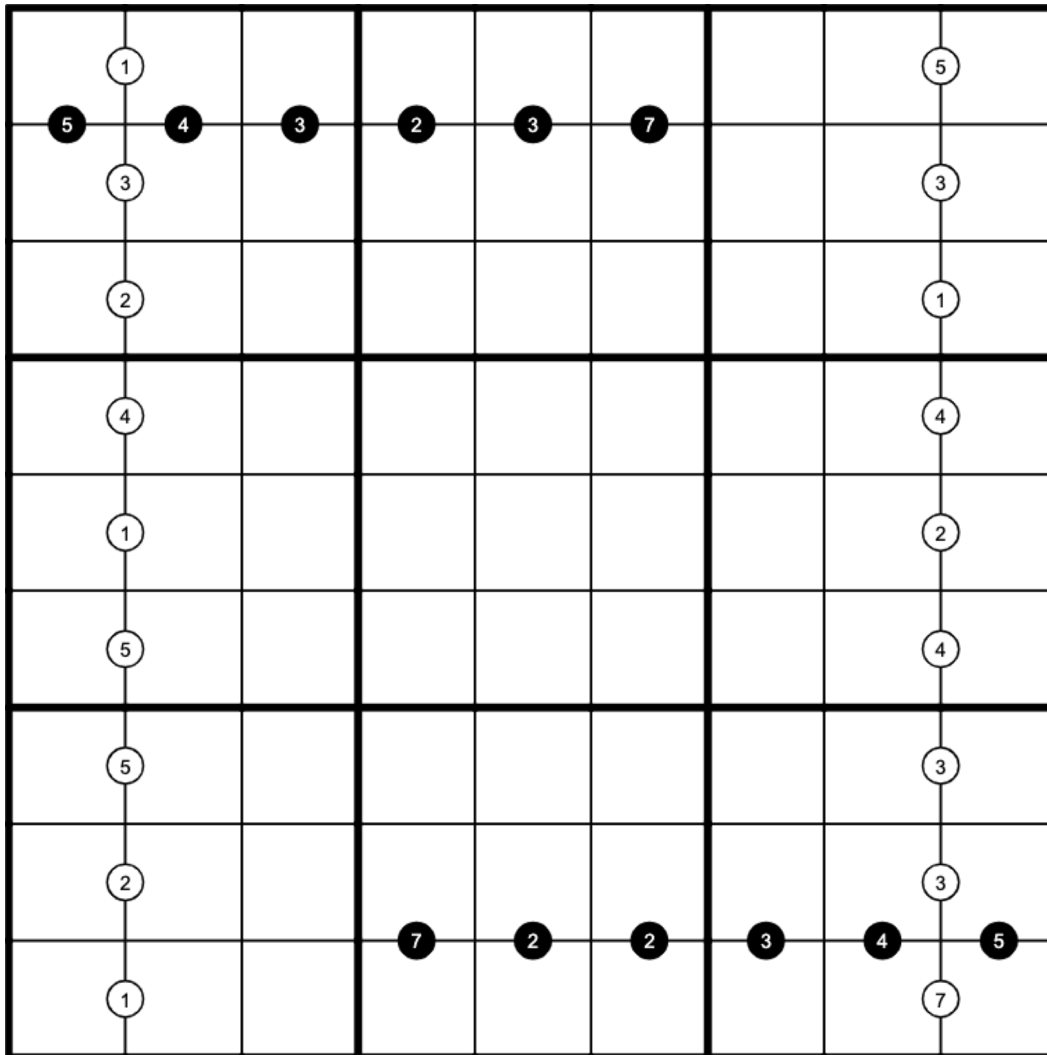Editor's note: Yes, it's just renban.

# Bonus 3: Difference/Ratio Sudoku
Philip Newman

Normal sudoku rules apply. Digits separated by a black dot have the ratio shown (for instance, if a '3' appears in a black dot, the digits are in a 1:3 ratio). Digits separated by a white dot have the difference shown.



https://f-puzzles.com/?id=2q4yfcdb
https://tinyurl.com/yaymbn2v

## Bonus 4: Double Sudoku
Clover

Fill the grid with the digits 1-4 so that each row, column, and irregular region contains each digit exactly twice.

| | | | 1 | | 4 | | |
|---|---|---|---|---|---|---|---|
| | 2 | | 2 | | | | |
| | | | 1 | | | | |
| | | | 3 | | 2 | 3 | |
| | 2 | 2 | | 4 | | | |
| | | | | 2 | | | |
| | | | | 3 | | 3 | |
| | | 1 | | 4 | | | |

https://tinyurl.com/4v986bbs

**Bonus 5: No Three in a Row Sudoku**
Bill Murphy

Normal Sudoku Rules Apply. There must not be three consecutive numbers in a row in any row or column, regardless of the order they are in. (eg. 123 must not appear, but neither can 132, 213, 312 etc.)



https://f-puzzles.com/?id=2h4jyhqu
https://tinyurl.com/27vc9j78

**Time Benchmarks**

| | Two party hats | One party hat | Todays dinosaur: | |
|---|---|---|---|---|
| April 1, 2023 | 07:30 | 13:00 | simplified sigilmassasaurus compensatory | (Bill Murphy) |
| April 1, 2023 | 14:00 | 08:00 | compsognathus | (clover!) |
| April 1, 2023 | 27:00 | 364 days | foolhardy fabrosaurus | (Sam Cappleman Lymes) |
| April 1, 2023 | 10:00 | 19 hours | legitimate liguus | (Philip Newman) |
| April 2, 2023 | 06:00 | 11:00 | legitimate leaellynasaura | |
| April 3, 2023 | 08:00 | 20:00 | bowdlerized brasilotitan | |
| April 4, 2023 | 06:00 | 11:00 | miraculous miragaia | |
| April 5, 2023 | 07:30 | 12:30 | goofy gorgosaurus | |
| April 6, 2023 | 08:00 | 16:00 | clockwise clasmodosaurus | |
| April 7, 2023 | 07:30 | 13:30 | ravenous rahonavis | |
| April 8, 2023 | 08:30 | 16:00 | optimised oxalaia | |
| April 9, 2023 | 09:01 | 19:19 | crusty cathartesaura | |
| April 10, 2023 | 06:00 | 11:00 | #hadrosaurus | |
| April 11, 2023 | 08:00 | 15:00 | multi-headed mymoorapelta | |
| April 12, 2023 | 09:00 | 20:00 | spinning spinophorosaurus | |
| April 13, 2023 | 08:30 | 15:00 | high-rated hypselospinus | |
| April 14, 2023 | 05:30 | 11:00 | business brachytrachelopan | |
| April 15, 2023 | 08:00 | 16:00 | highlighted histriasaurus | |
| April 16, 2023 | 07:30 | 14:00 | cramped cruxicheiros | |
| April 17, 2023 | 12:00 | 22:00 | nearly identical pair of neuquenraptor | |
| April 18, 2023 | 08:00 | 20:00 | diagonalized daxiatitan | |
| April 19, 2023 | 08:00 | 15:00 | tap-dancing tapuiasaurus | |
| April 20, 2023 | 08:30 | 16:00 | screenwritten scansoriopteryx | |
| April 21, 2023 | 10:00 | 25:00 | purposeful padillasaurus | |
| April 22, 2023 | 06:00 | 11:00 | literary labocania | |

| | | | |
|---|---|---|---|
| April 23, 2023 | 06:30 | 11:30 | cryptic cryolophosaurus |
| April 24, 2023 | 08:00 | 16:00 | optional oplosaurus |
| April 25, 2023 | 07:00 | 13:00 | puzzled parvicursor murderous |
| April 26, 2023 | 07:00 | 14:30 | monolophosaurus epigrammatizing |
| April 27, 2023 | 08:00 | 15:00 | eomamenchisaurus |
| April 28, 2023 | 07:00 | 13:00 | protective propanoplosaurus compassionate |
| April 29, 2023 | 07:30 | 14:00 | colepiocephale |
| April 30, 2023 | 08:39 | 17:16 | yoda-ling yuzhoulong |

**Hints**

**Hint for April 18, 2023**

GAS 101 Hint: Ordinarily, a sequence of dots in a diagonal line can contain repeats. Something like 767 is fine, as long as the 7s don't see each other. Is that the case here? (Also, the given 6 is very important!)

**Hints for April 21, 2021:**

GAS 101 Hints:

1) Remember that the high/low polarity alternates along German Whispers lines; you can determine the parity of most lines from the X-Sums clues that affect them!

2) 5 can't go on a German Whispers line... @bakpao might've made it a bit harder by forgetting to use this

**Hint for April 27, 2023:**

Teensy GAS 101 Nudge: There are only three pairs of digits with a 3:1 ratio (13, 26, 39), and only five distinct digits among them. Pay close attention to the given 3s, as well as boxes 3, 5, and 7.