BATTLESHIPS PUZZLE

300 PUZZLES WITH SOLVING TIPS

Danny Demeersseman

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More information about logic puzzles

www.sugurupuzzles.com

My website with poems: www.wishes-greetings.com

TABLE OF CONTENTS

INTRODUCTION

THE AUTHOR

Danny Demeersseman, born in 1964, is a Belgian psychologist and certified massage therapist who seamlessly integrates coaching with therapeutic massage in his practice.

He views writing as an adventure, a journey into unknown worlds where he can lead his readers with enthusiasm and insight. Whether through the written word or therapeutic touch, Danny is dedicated to guiding others toward greater understanding and fulfillment.

Beyond his therapeutic work, Danny is a prolific author, having published numerous books across various genres. His literary journey began with poetry, leading to the release of **More than 300 Wishes for Birthdays**, a heartfelt collection designed to inspire and uplift.

Drawing from his background in psychology and massage therapy, Danny authored **Burn-out: Time to Make a U-turn!**, a guide aimed at individuals experiencing burnout. The book offers practical advice and therapeutic techniques to help readers regain balance.

Expanding his repertoire, Danny delved into the realm of logical puzzles, producing titles such as

- *Chess SUDOKU variants*
- *Killer Sudoku solving tips: Overview techniques and 200 puzzles*
- *Tents and Trees Puzzles*
- *Thank you teacher for helping me grow: Puzzle book gift for female teacher*
- *Thank you teacher for helping me grow: puzzle book gift for male teacher*
- *Sugurulines (suguru variant): try to find the lines*
- *Valentine's Logic Puzzles*

BATTLESHIP – THE GAME

Battleship is a well-known board game originally played on paper. MB later released a game with the same title.

The game is played on a 10x10 square board. One side of the board is numbered and the other side is lettered. Similar to a chessboard, each square is designated by a letter-number combination, for example, A4 or C9.

	A	B	C	D	E	F	G	H	I	J
1										
2										
3										
4			X							
5						X	X			
6		X						X		X
7				X						X
8	X	X						X		
9										
10										

Each player may place ten battleships on their half of the board, ranging in size from 2 to 6 consecutive spaces. Ships may only be placed horizontally or vertically. The ships must never touch each other. The ships used are:

- *1 aircraft carrier (46squares).*
- *2 battleships (4 squares).*
- *3 submarines/destroyer ships (3 squares).*
- *4 patrol ships (2 squares).*

The players take turns looking for the spaces on which their opponent has placed part of a ship.

The attacking player names a square, and their opponent announces whether they hit or miss.

The attacker marks their square with a cross for a hit and a dash for a miss.

If all of a ship's positions have been found, it is sunk. The ship's owner announces this.

If all of a player's ships are sunk, the game ends, and the opponent wins.

The puzzle version, Battleship Solitaire (Solitaire Battleships), was invented in Argentina by Jaime Poniachik and first appeared in 1982 in the Argentine magazine Humor & Juegos under the name *Batalla Naval*.

Battleship puzzles made their international debut in 1992 at the 1st World Puzzle Championship in New York.

This puzzle book also covers five variations of Battleship puzzles:

- *Digital Battleships.*
- *Lighthouse Battleships.*
- *Minesweeper Battleships.*
- *Retrograde Battleships.*
- *Solitaire Battleships.*

BATTLESHIPS VARIANTS

Digital Battleships

In **Digital Battleships**, all grid cells contain numbers. The values at the right and bottom of the grid reveal the sum of the numbers in the ship parts present in that row or column.

In difficult puzzles, the sum of the ship parts in certain rows and/or columns is missing.

The main rule here also applies that ships may not touch each other and that ship parts must be connected to each other horizontally or vertically.

PUZZLE

6	4	6	8	2	1	6	4	4	5	20
4	4	2	2	6	7	8	6	1	3	0
1	6	2	6	2	3	8	4	2	6	6
7	4	3	1	2	7	8	5	2	7	7
7	4	4	6	6	6	3	7	2	7	16
5	5	5	7	3	3	4	3	8	6	12
1	1	2	7	1	3	4	7	4	7	21
2	8	2	5	5	8	7	2	5	6	5
2	8	2	4	1	1	3	2	1	7	11
1	8	5	4	6	8	1	2	5	7	0
27	12	2	33	2	4	7	11	0	0	

SOLUTION

6	4	6	8	2	1	6	4	4	5	20
4	4	2	2	6	7	8	6	1	3	0
1	6	2	6	2	3	8	4	2	6	6
7	4	3	1	2	7	8	5	2	7	7
7	4	4	6	6	6	3	7	2	7	16
5	5	5	7	3	3	4	3	8	6	12
1	1	2	7	1	3	4	7	4	7	21
2	8	2	5	5	8	7	2	5	6	5
2	8	2	4	1	1	3	2	1	7	11
1	8	5	4	6	8	1	2	5	7	0
27	12	2	33	2	4	7	11	0	0	

Lighthouse Battleships

Lighthouse Battleships combines two puzzles: Battleships and Lighthouses. A cell with a number represents a lighthouse. This number indicates the number of ship parts in the same row and column as the lighthouse.

Ships cannot touch the lighthouses, not even diagonally.

Ships cannot touch each other, and ship parts must be connected horizontally or vertically.

PUZZLE

5					■				6
2						5			●
									7
1									
			0						
	●			5			●		5

SOLUTION

Minesweeper Battleships

Minesweeper Battleships, also known as Battlemines, combines the Puzzles Battleships with the Minesweeper computer game.

The goal is to locate the fleet's position on the grid. The ships do not touch each other, not even diagonally. A numbered cell indicates how many ship parts are adjacent to that cell.

Ship parts are not allowed in numbered cells.

PUZZLE

	0				2					1	1
0		0					2	2			
1			2			3			3	3	
	1	0						2			
			3		4		2				1
	0		0	1	1		0		0		0
	0				0			0			
		0				0	0			1	
	1		3			1		3	2	2	
										2	1
0		2		2	1	1	2	3			0

SOLUTION

	0			●	2		●	●		1	1
0		0		●			2	2		●	
1			2			3			3	3	
●	1	0	●	●	●	●		2	●	●	
			3		4		2				1
				●							
	0		0	1	1		0		0		0
	0				0			0			
		0				0	0			1	
	1		3			1		3	2	2	●
	●	●	●			●	●	●		2	1
0		2		2	1	1	2	3			0

Retrograde Battleships

Retrograde Battleships (=Reverse Battleships) contains all the ship segments on the grid. The goal is to find the correct ship locations.

No ship may touch another, even diagonally.
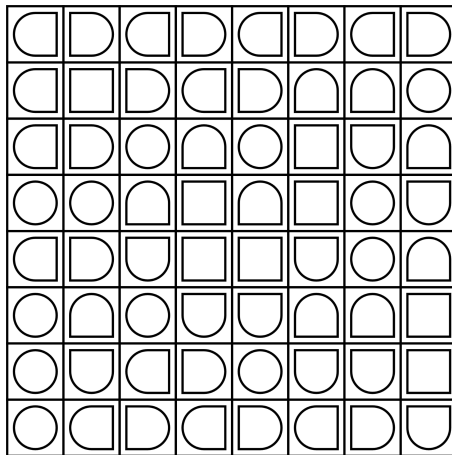
PUZZLE   **SOLUTION**
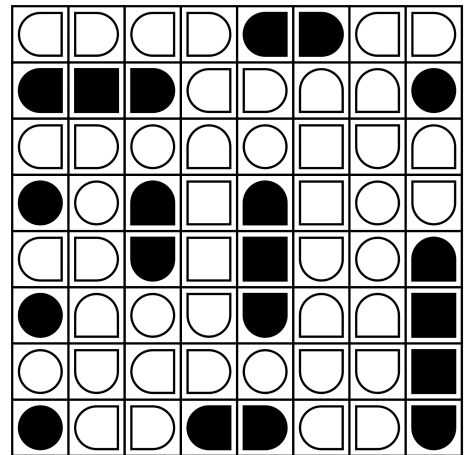
Solitaire Battleships

Solitaire Battleships is the most well-known puzzle variant of the board game Battleships. In a standard Solitaire Battleship, a fleet of 10 battleships is hidden in a 10x10 square grid. Each ship consists of one or more adjacent horizontal or vertical spaces. The ships cannot touch each other.

The goal is to discover where the ships are located.

A grid initially contains clues in the form of spaces that have already been solved with a submarine, a ship's end piece, a ship's middle piece, or water.

Each row and column contains a number indicating the number of spaces occupied by ship parts in that row or column.
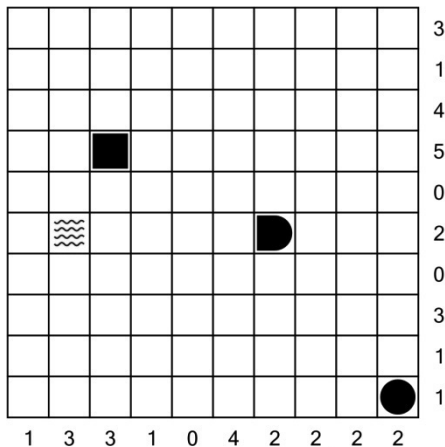
PUZZLE   SOLUTION
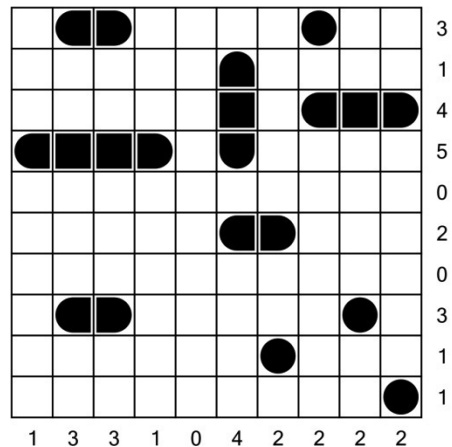
Overview of the fleet in a standard Solitaire Battleship:

1 battleship (4 squares)

2 cruisers (3 squares)

3 destroyers (2 squares)

4 submarines (1 square)

The grids can vary in size and difficulty. The composition of the fleet can also vary.

SOLVING TECHNIQUES

DIGITAL BATTLESHIPS

We've filled a field with numbers. On the right side and at the bottom are numbers that represent the sum of the ship's parts.

ROWS AND COLUMNS WITH 0 AS TOTAL OF SHIP PARTS

If a row or column totals 0 (zero), that row or column contains no ship parts. We can cross out the numbers to indicate that there is water. We've colored the boxes below instead of crossing them out.

1	1	5	3	4	4	8	8	5	5	4
4	1	5	7	5	1	2	2	5	8	5
8	2	5	7	6	1	4	8	2	5	16
8	7	2	2	5	1	4	7	8	8	0
2	6	8	8	6	1	8	5	6	5	36
7	4	2	7	2	3	3	2	3	6	0
2	4	5	8	5	6	4	7	8	6	
4	3	7	7	1	1	2	1	8	2	3
6	3	8	1	5	8	3	7	5	8	3
5	7	5	5	1	3	4	1	2	2	7
2	13		0	20	7		13		0	

In rows 4 and 6, we can change all the cells to water, because the sum of the ship's parts equals 0. The same applies to columns 4 and 10.

ROW OR COLUMN NUMBER IS 1 OR LESS THAN 9

In the row or column, you can cross out all numbers that are greater than the row or column number.

We first applied the previous technique, and row 3 and column 10 changed to water.

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	0
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3		12	0	

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	0
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3		12	0	

Let's go over this technique:

- *In column 2, we have the number 3. We can change 6 cells to water because they have a value higher than 3.*
- *In column 5, we have the number 5. We can change 2 cells to water because they have a value higher than 5.*
- *In column 7, we have the number 3. We can change 2 cells to water because they have a value higher than 3.*
- *In row 5, we have the number 4. We can cross out 3 cells, but 2 of those 3 cells are already crossed out because of their column number.*

FIND NUMBERS THAT CANNOT BE COMBINED

In rows or columns where many cells have already been converted to water, you'll often find cells with numbers that can't be combined to obtain the row or column number.

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	0
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3		12	0	

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	0
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3		12	0	

What did we find?

- *In column 1, no combinations of numbers 4 and 5 are possible to obtain 7, because numbers 3 and 2, or combinations of 3 and 2, are missing.*
- *In column 5, we can cross out the cell containing number 2 at the top, because no combinations of number 2 can obtain the column number 5.*

FINDING ESSENTIAL SHIP PARTS

We focus on rows and/or columns with a large sum and see if we can eliminate cells with a high number.

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	0
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3		12	0	

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	0
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3		12	0	

An example makes everything clear!

- *If we don't use cell r1c4 with the value 8 in row 1 with the sum of 24, only 22 remain. This is too few. We can therefore conclude that r1c4 is a ship part.*
- *The shape is still unclear. We indicate this with a different color. We can, however, change r2c3 to water, because ships must not touch each other anywhere.*
- *If we further investigate row 1 with this technique, it turns out that r1c6 is also needed to contain a ship part.*

CAUSING A CONFLICT WITH A SHIP PART

If we place a ship part with the number 3 in r8c3, we automatically get water in r7c2 and r9c2. We still can't possibly satisfy the sum of column 2's number 3.

Conclusion: r8c3 is not a ship part, but it is water.

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3		12		

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3		12		

We are investigating whether we can apply this technique in other places in the puzzle.

If we place a ship's part in r5c4 with the number 1, we automatically get water in r4c5 and r6c5. We still can't possibly satisfy the sum of column 5.

Conclusion: r5c4 is not a ship's part, but it is water.

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3		12		

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3		12		

We can follow the same reasoning for r5c6 and also water that cell to avoid a conflict with column 5. This has far-reaching consequences for row 5, which has a sum of 4! Only r5c8, with the number 4, remains.

We can also automatically water the four corner cells of r5c8.

What are the consequences if we add a ship's part to r8c5? Then there is only one option for row 7 to form the sum number 21.

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	⟍
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3		12	⟍	

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	⟍
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3		12	⟍	

Number 2 in r7c2 forces us to also designate r1c2 and r1c3 as ship parts. This creates a conflict in column 3, where the sum of 9 is no longer possible. Conclusion: r8c5 can only be water.

We can't place a ship part in r10c3, because that would result in a combination of numbers 1 and 2 in column 2.

This leaves only one combination for row 1, requiring us to use r1c3. This leaves us with the sum number of column 3.

Another lengthy explanation to conclude that r10c3 must be water.

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3			12	

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3			12	

Columns 3 and 4 both contain a sum number. We now investigate whether a conflict arises in column 3 if we assign r8c4 a ship's part.

We must therefore also designate r9c2 as water, because digit 3 of r9c2 is the only odd digit in row 9, and with one odd digit, you cannot create an even digit, such as sum number 16 in row 9.

This again gives us digits 1 and 2 in column 2, meaning we must also designate r1c3 as a ship's part. Consequently, the sum number in column 3 is not feasible. We may therefore consider r8c4 as water.

Left grid

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	⊘
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3		12	⊘	

Right grid

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	⊘
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3		12	⊘	

CAUSING A CONFLICT WITH WATER

Can we supply a cell with water and thereby create a situation where a sum number is no longer achievable?

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3		12		

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3		12		

If we change r9c3 to water, it's no longer possible to create a sum of 9 in column 3 with the remaining digits. Therefore, we can place a ship's part in r9c3.

This changes r10c4 to water. Now we also need to add a ship's part to r7c4 and r9c4 to achieve a sum of 19 in column 4.

We cannot indicate r9c2 in row 9.

ESSENTIAL SHIP PARTS

Find cells in a row or column that you definitely need.

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3		12		

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3		12		

If we look at column 3 with the sum of 9, we still need 4. There are three cells left with values 1, 3, 3. We definitely need the cell with the number 1. Which cell with the number 3 is still unclear.

ROWS OR COLUMNS WITH ODD OR EVEN SUM NUMBER

With this technique, you should note the following:

A row or column with an even sum number always has an even number of cells with ship parts containing odd numbers. For example, if you have three cells with odd numbers, then one of those cells will definitely be water.

A row or column with an odd sum number always has an odd number of cells with ship parts containing odd numbers. For example, if you have two cells with odd numbers, then one of those cells will definitely be water.

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	⦸
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3		12	⦸	

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	⦸
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	19	5		3		12	⦸	

Row 9 has an even sum of 16. There are two cells in row 9 with an odd number: r9c2 and r9c3. We can use both odd numbers or neither.

We should designate r9c2 as the ship's part, because we have already found r9c3 with an odd number as a ship's part.

NUMBER OF AVAILABLE SHIPS PER TYPE

Our task is to place 10 ships divided into 4 types:

- *1 battleship (=4 cells).*
- *2 cruisers (=3 cells).*
- *3 destroyers (=2 cells).*
- *4 submarines (=1 cell).*

This information can help us determine the correct type.

If we color r4c6 as a ship part, we don't create a conflict with the sum numbers of row 4 or column 6, since those are unknown.

However, another conflict arises. We already have a battleship in row 9, and there's only room for one.

So r4c6 must be water.

DETERMINING THE SHIP'S DIRECTION

Once we have located a ship section, we determine its size and—for ships longer than one cell—examine its length.

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	0
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	10	5		3		12	0	

5	1	3	8	2	7	2	5	4	6	24
6	5	7	1	8	6	6	8	1	5	
4	7	8	7	6	7	4	8	3	3	0
1	5	1	3	1	6	3	4	1	6	
4	5	2	1	5	1	5	4	3	4	4
7	5	4	2	1	5	1	7	3	6	
7	2	3	4	6	6	1	2	7	6	21
5	6	3	1	4	2	3	2	3	5	
6	3	5	4	4	2	2	8	2	2	16
7	4	8	6	4	6	3	2	8	4	
7	3	9	10	5		3		12	0	

Looking at r5c8, the question arises: could this be a ship part of a destroyer or a cruiser that also uses r6c8?

If we place a ship part in r6c8, we must color r7c7 and r7c9 as water. This means the sum of row 7 can no longer be realized.

So r6k8 is water!