

Name

Country

Part V

Battleship Variations

9th World Puzzle Championship
October, 2000

1	Standard Battleships	10 points
2	Non-rounded Battleships	10 points
3	Squared Battleships	10 points
4	Tangram Battleships	15 points
5	Minesweeper Battleships	15 points
6	Ship Battleships	15 points
7	Easy as Battleships	20 points
8	Crowded Battleships	20 points
9	Weighted Battleships	20 points
10	Retrograde Battleships	20 points
11	Either/Or Battleships	30 points
12	Diagonal Battleships	30 points
13	Hexagonal Battleships	40 points

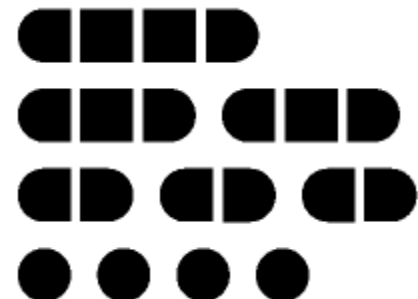
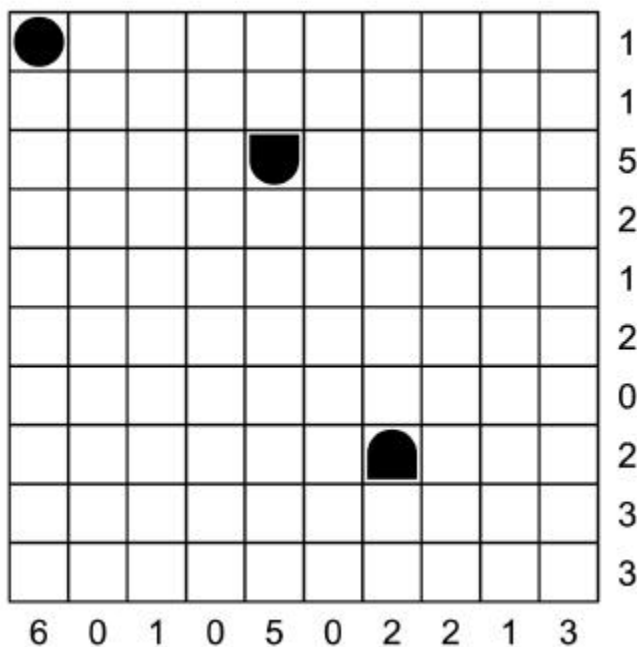


1 - Standard Battleships

10 points

Locate the position of the 10-ship fleet in the grid. The fleet is shown to the right of the grid: one 4-unit battleship, two 3-unit cruisers, three 2-unit destroyers, and four 1-unit submarines. Each segment of a ship occupies a single cell. Ships are oriented either horizontally or vertically, and they do not touch each other, even diagonally.

The numbers on the right and bottom edges of the grid reveal the **total number of the ship segments** that appear in each respective row or column.



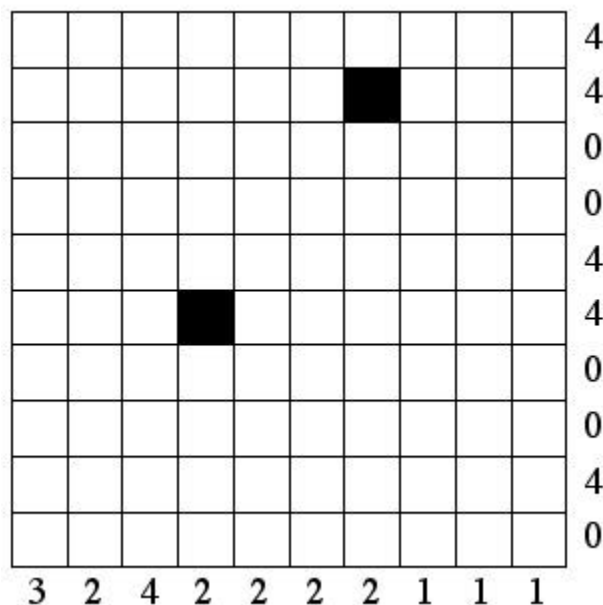
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2 - Non-rounded Battleships

10 points

Locate the position of the 10-ship fleet in the grid. The fleet is shown to the right of the grid: one 4-unit battleship, two 3-unit cruisers, three 2-unit destroyers, and four 1-unit submarines. Each segment of a ship occupies a single cell. Ships are oriented either horizontally or vertically, and do not touch each other, not even diagonally. The numbers on the bottom and right edges of the grid reveal the total number of ship segments that appear in the respective column or row.

In this variation, **the ship segments are not rounded**. Thus a square segment could be any part of a ship.

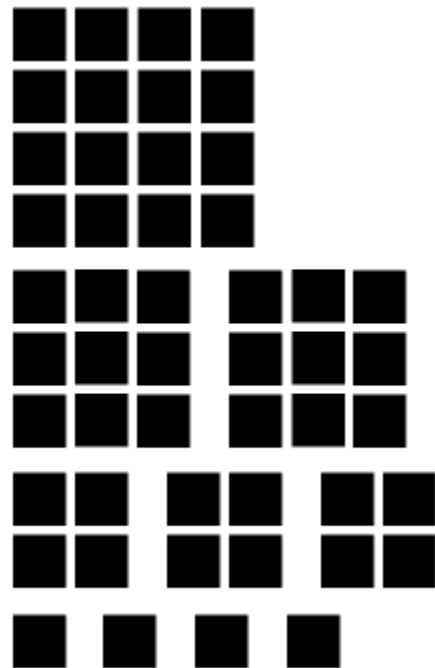
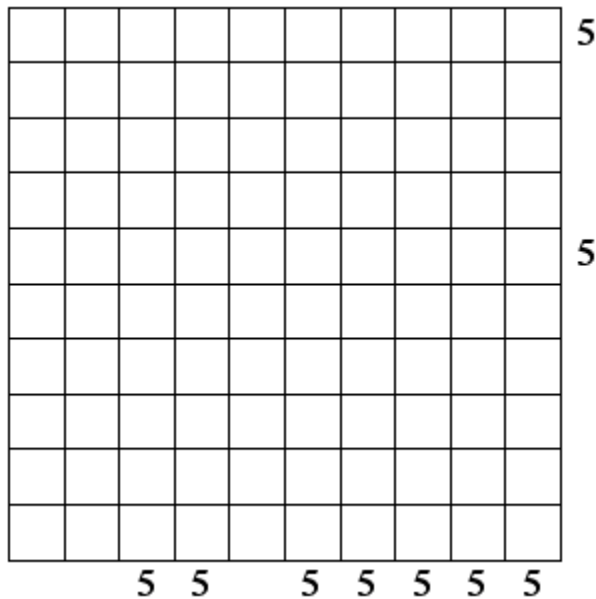


3 - Squared Battleships

10 points

Locate the position of the 10-ship fleet in the grid. The fleet is shown to the right of the grid: one 4x4 battleship, two 3x3 cruisers, three 2x2 destroyers, and four 1x1 submarines. Each segment of a ship occupies a single cell. Ships do not touch each other, not even diagonally. The numbers on the bottom and right edges of the grid reveal the total number of ship segments that appear in the respective column or row.

In this variation, **the ships are square regions**, rather than rows or columns of segments.

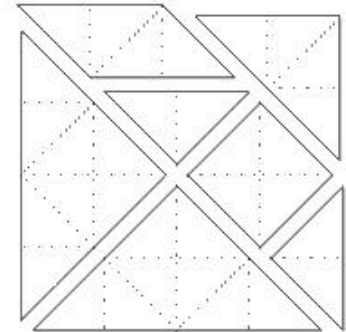
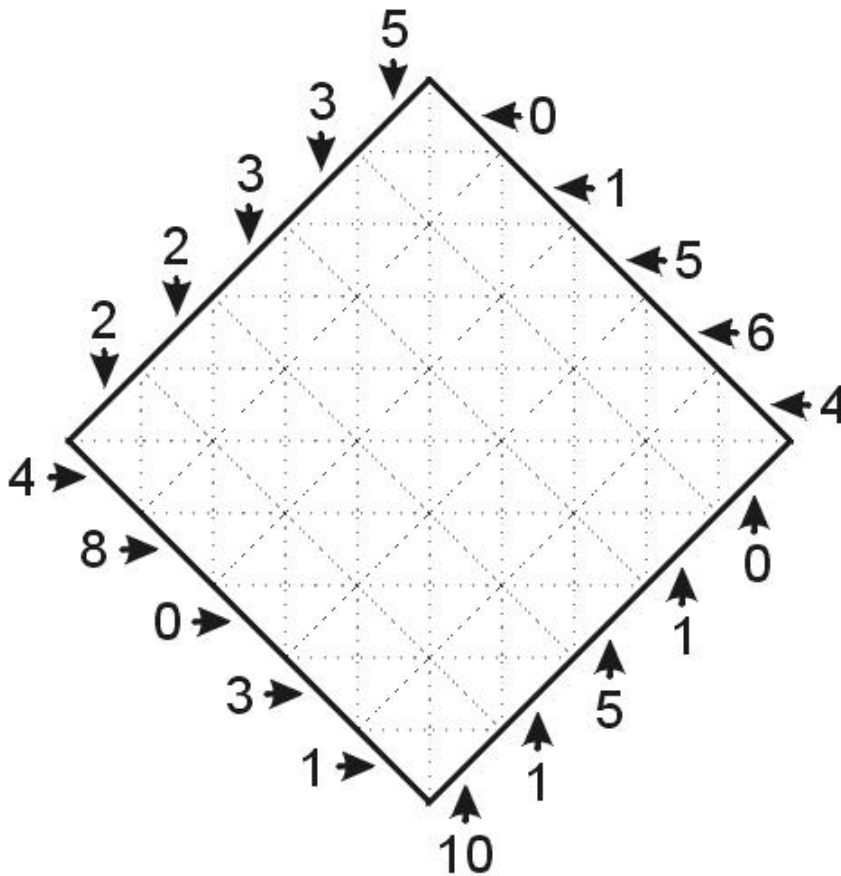


4 - Tangram Battleships

15 points

Locate the position of the 7-ship fleet in the grid. The fleet is shown to the right of the grid: one ship for each of the seven classic Tangram shapes. **The ships are divided into identical equilateral right triangular segments.** Ships can be rotated and reflected, and do not touch each other, not even at a single point.

The numbers around the edges of the grid reveal the total number of **triangular ship segments** that appear in the respective column or row.



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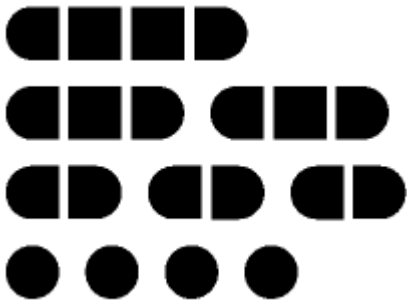
5 - Minesweeper Battleships

15 points

Locate the position of the 10-ship fleet in the grid. The fleet is shown to the right of the grid: one 4-unit battleship, two 3-unit cruisers, three 2-unit destroyers, and four 1-unit submarines. Each segment of a ship occupies a single cell. Ships are oriented either horizontally or vertically, and do not touch each other, not even diagonally.

This variation works like *Minesweeper*. **Each number in the grid is the total number of ship segments in the neighboring squares:** horizontally, vertically, and diagonally. Cells with numbers cannot contain ships.

									0
		1		1					
							4		
		5							
					3				
2			4				3		



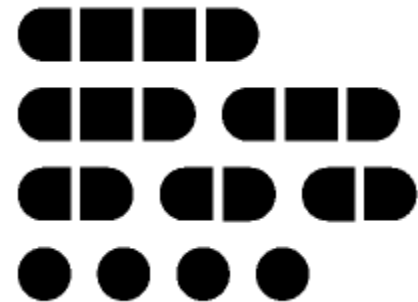
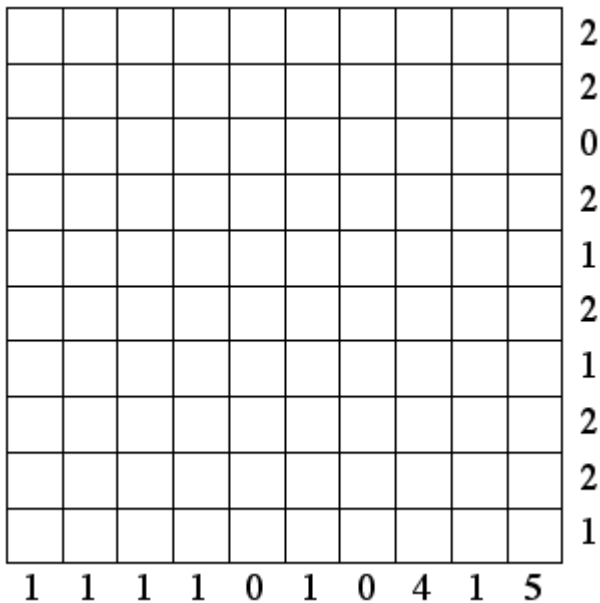
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6 - Ship Battleships

15 points

Locate the position of the 10-ship fleet in the grid. The fleet is shown to the right of the grid: one 4-unit battleship, two 3-unit cruisers, three 2-unit destroyers, and four 1-unit submarines. Each segment of a ship occupies a single cell. Ships are oriented either horizontally or vertically, and do not touch each other, not even diagonally.

The numbers on the bottom and right edges of the grid reveal the **total number of distinct ships** (not the usual ship segments) that appear in the respective column or row.

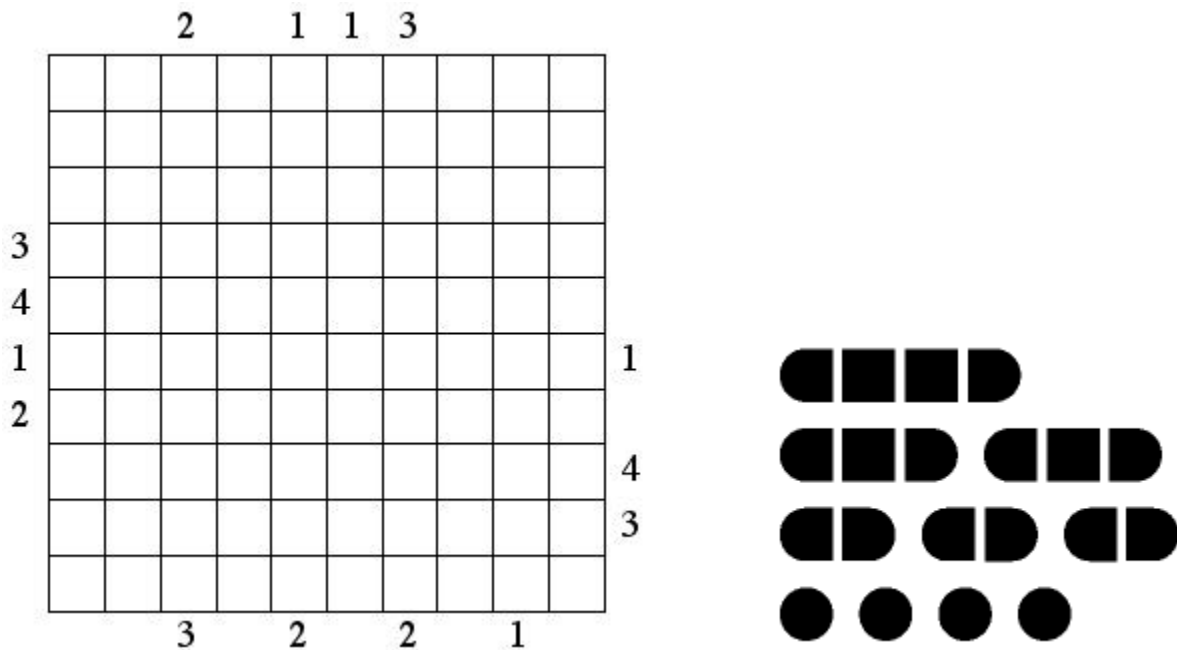


7 - Easy as Battleships

20 points

Locate the position of the 10-ship fleet in the grid. The fleet is shown to the right of the grid: one 4-unit battleship, two 3-unit cruisers, three 2-unit destroyers, and four 1-unit submarines. Each segment of a ship occupies a single cell. Ships are oriented either horizontally or vertically, and do not touch each other, not even diagonally.

This variation works like *Easy as ABCD* (or *End View*). **Each number outside the grid indicates the size of the first ship encountered** from that direction.



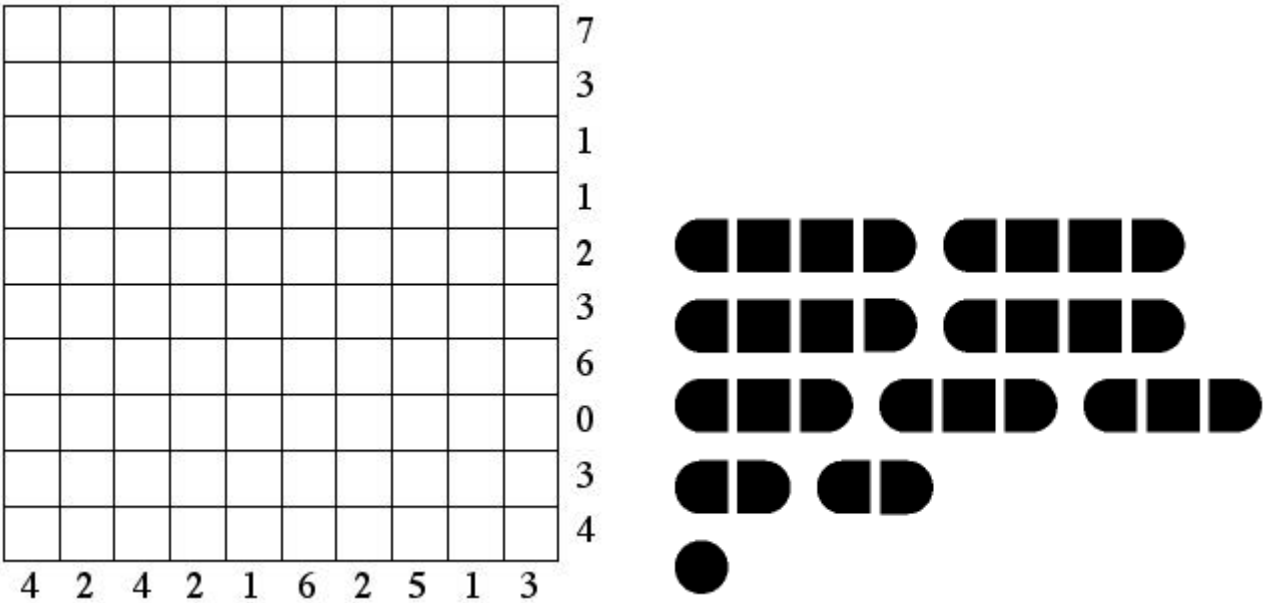
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8 - Crowded Battleships

20 points

Locate the position of the 10-ship fleet in the grid. The fleet is shown to the right of the grid: four 4-unit battleships, three 3-unit cruisers, two 2-unit destroyers, and one 1-unit submarine. Each segment of a ship occupies a single cell. Ships are oriented either horizontally or vertically, and do not touch each other, not even diagonally. The numbers on the bottom and right edges of the grid reveal the total number of ship segments that appear in the respective column or row.

In this variation, **the frequency of each type of ship is reversed from the normal distribution.**

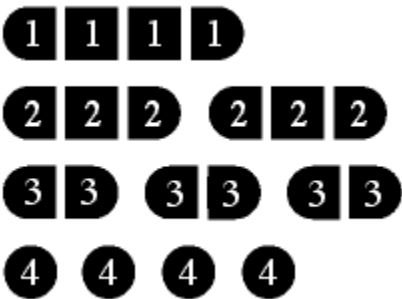
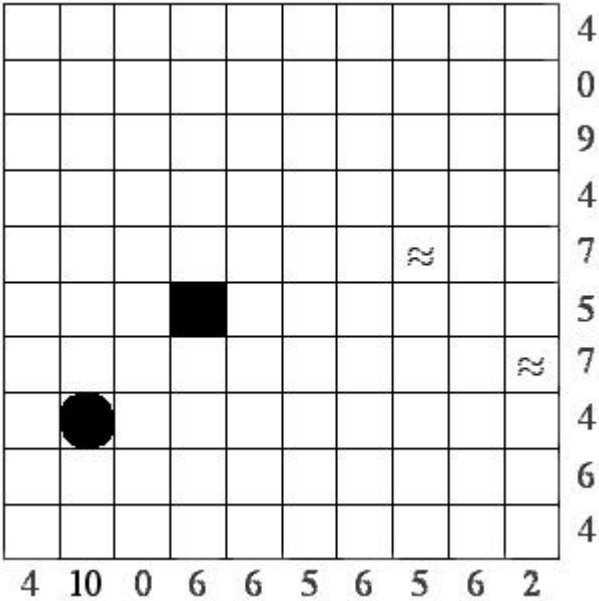


9 - Weighted Battleships

20 points

Locate the position of the 10-ship fleet in the grid. The fleet is shown to the right of the grid: one 4-unit battleship, two 3-unit cruisers, three 2-unit destroyers, and four 1-unit submarines. Each segment of a ship occupies a single cell. Ships are oriented either horizontally or vertically, and do not touch each other, not even diagonally.

In this variation, **the ship segments are weighted differently**, as shown in the diagram to the right of the grid. The numbers on the bottom and right edges of the grid reveal the **total weight** of all ship segments that appear in the respective column or row.

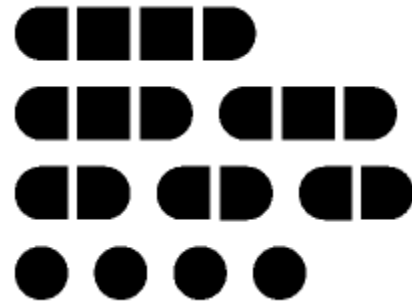
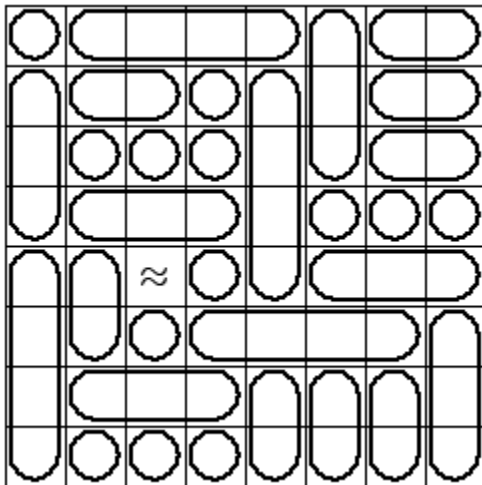


10 - Retrograde Battleships

20 points

Locate the position of the 10-ship fleet in the grid. The fleet is shown to the right of the grid: one 4-unit battleship, two 3-unit cruisers, three 2-unit destroyers, and four 1-unit submarines. Each segment of a ship occupies a single cell. Ships are oriented either horizontally or vertically, and do not touch each other, not even diagonally.

In this variation, **the possible placements of the ships are given**; the puzzle is to find the correct subset.



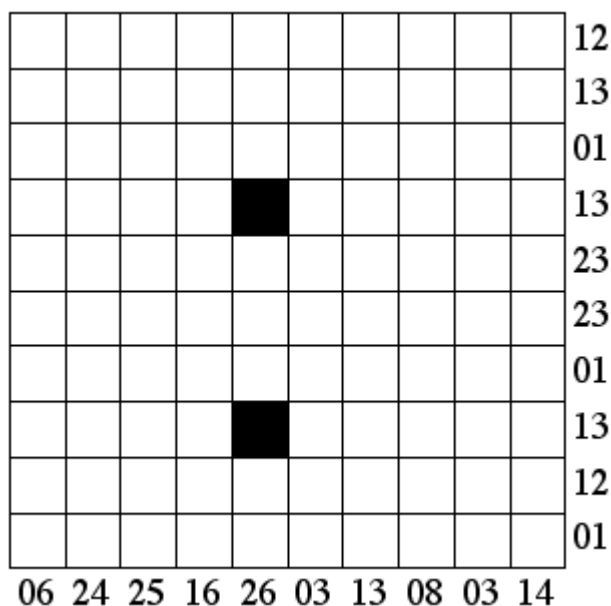
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11 - Either/Or Battleships

30 points

Locate the position of the 10-ship fleet in the grid. The fleet is shown to the right of the grid: one 4-unit battleship, two 3-unit cruisers, three 2-unit destroyers, and four 1-unit submarines. Each segment of a ship occupies a single cell. Ships are oriented either horizontally or vertically, and do not touch each other, not even diagonally.

In this variation, **one or the other of each pair of numbers** on the bottom and right edges of the grid reveals the total number of ship segments that appear in the respective column or row.



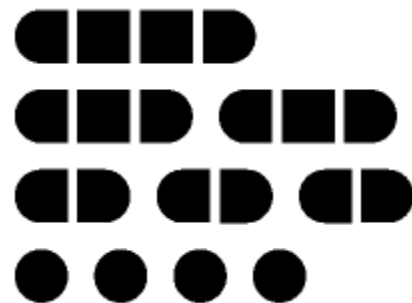
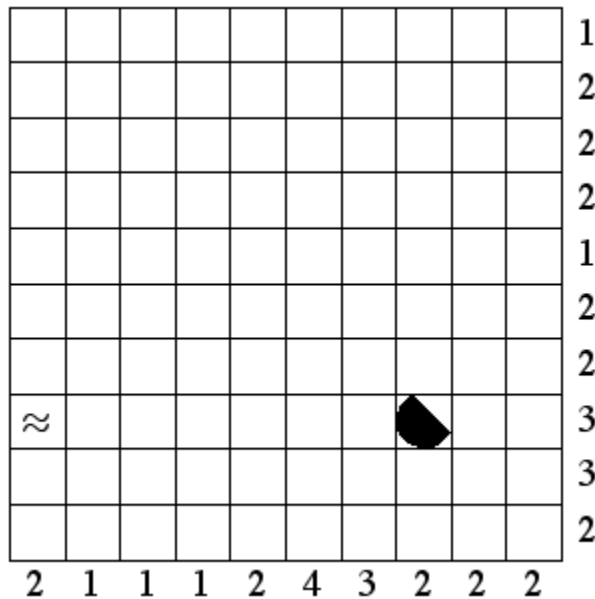
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12 - Diagonal Battleships

30 points

Locate the position of the 10-ship fleet in the grid. The fleet is shown to the right of the grid: one 4-unit battleship, two 3-unit cruisers, three 2-unit destroyers, and four 1-unit submarines. Each segment of a ship occupies a single cell. The numbers on the bottom and right edges of the grid reveal the total number of ship segments that appear in the respective column or row.

In this variation, **all ships are positioned diagonally** (never horizontally or vertically). Ships do not touch each other, not even diagonally.



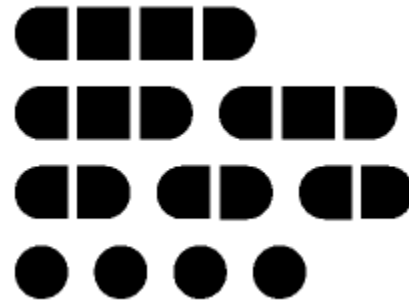
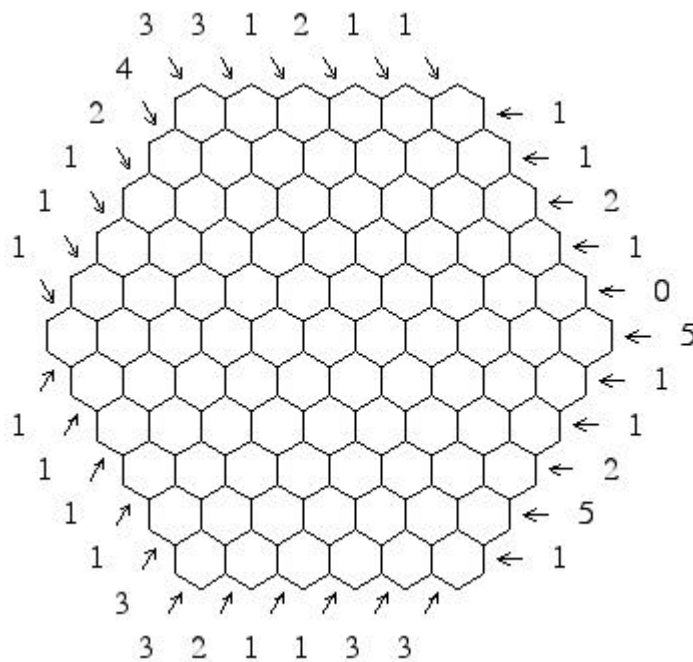
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13 - Hexagonal Battleships

40 points

Locate the position of the 10-ship fleet in the grid. The fleet is shown to the right of the grid: one 4-unit battleship, two 3-unit cruisers, three 2-unit destroyers, and four 1-unit submarines. Each segment of a ship occupies a single cell.

In this variation, the **grid is hexagonal**; the ships are **oriented in one of three directions**, as indicated by the arrows outside the grid. Cells containing different ships do not touch each other. The numbers outside the grid reveal the total number of ship segments that appear in the corresponding (diagonal) row.



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