

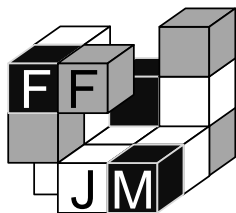
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Qualifier 2008

## Part I

Name

- |                   |                |
|-------------------|----------------|
| 1. Battleships    | 20 points      |
| 2. Coral finder   | 25 + 30 points |
| 3. Crack it on    | 20 points      |
| 4. Parthenon      | 25 points      |
| 5. Loopfinder     | 15 + 35 points |
| 6. End view       | 25 + 30 points |
| 7. Magnets        | 35 points      |
| 8. Word jungle    | 40 points      |
| 9. Four winds     | 20 + 50 points |
| 10. Arrows        | 15 + 60 points |
| 11. Kropki        | 20 + 55 points |
| 12. Japanese sums | 80 points      |

**Total: 600 points + time bonus (5 pts/minute)**

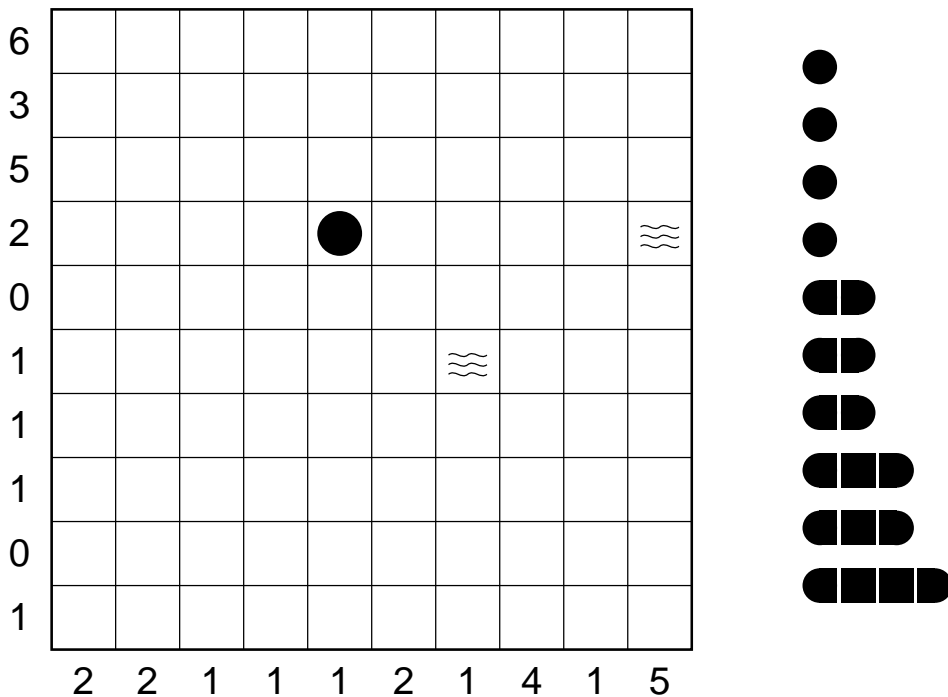


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# Part I

## 1. Battleships (20 points)

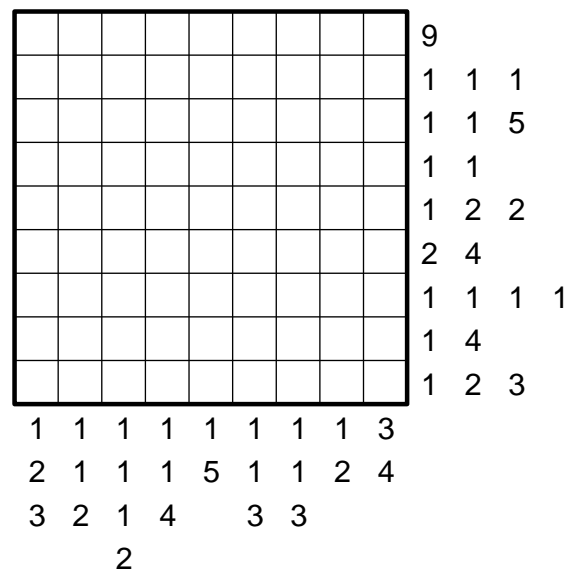
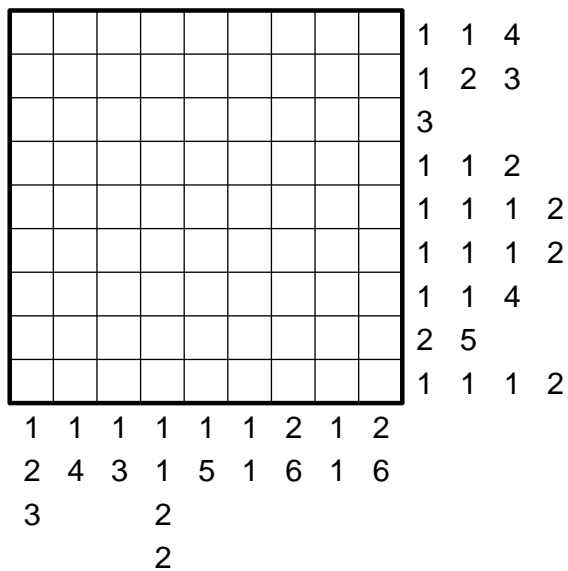
Locate the position of the 10-ship fleet in the grid. The fleet is shown below: one 4-unit battleship, two 3-unit cruisers, three 2-unit destroyers, and four 1-unit submarines. Each segment of a ship occupies a single cell. Ships are oriented either horizontally or vertically, and they do not touch each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



# Part I

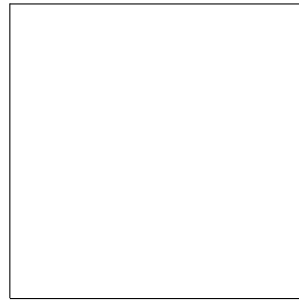
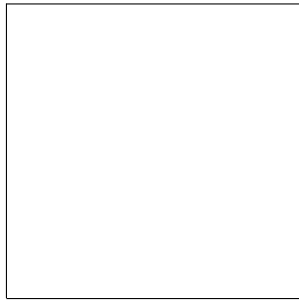
## 2. Coral finder (25 + 30 points)

Blacken a connected set of squares (the coral) that does not touch itself, not even diagonally. The numbers outside the grid indicate the lengths of the consecutive parts of the coral in the given row or column. However, the numbers are given in increasing order, not in the order in which they actually appear in the grid. No 2x2 area may be covered by the coral.



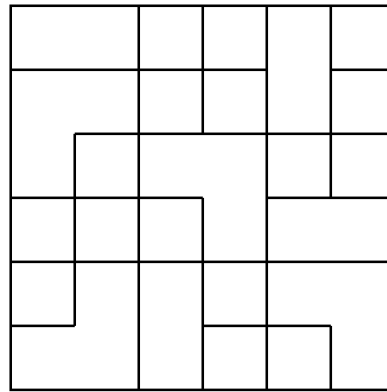
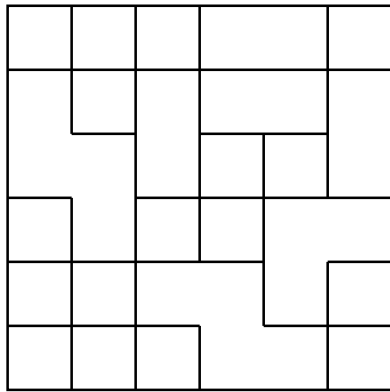
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## Part I



### 3. Crack it on (20 points)

Enter all the given words into the two grids in such a way that each area contains exactly one letter. The words should read across and down in every row and column of each grid.



AORTA  
ARNOT  
AXONA  
CRADO  
EXACT  
ICARE

INRIA  
INTRA  
IVRAT  
LASSO  
LEVIN  
MICOR

MIXOR  
MOCAS  
NAROM  
OREDO  
OTRAM  
OVALE

REOTO  
SALIR  
SCARO  
STENO  
VOLAR  
XOLAN

**Part I**

**4. Parthenon (25 points)**

Fill the blank squares in each column with numbers from 1 to 30, so that each number is obtained from the number immediately above it by performing the given mathematical operation. Each number from 1 to 30 appears exactly once.

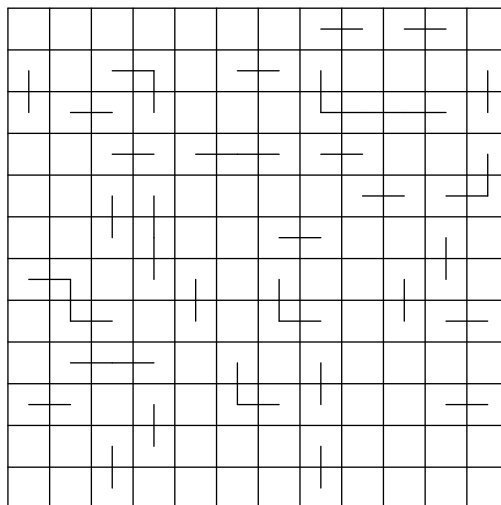
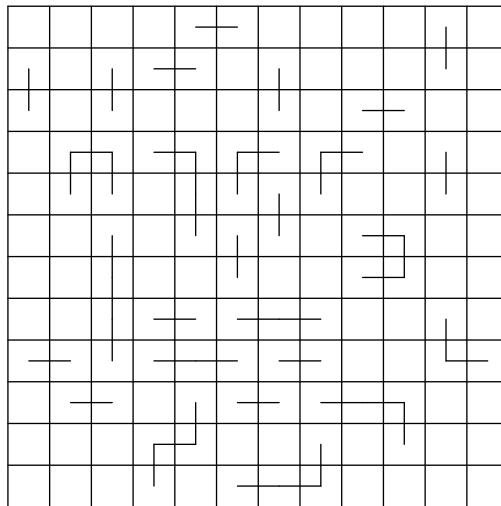
+ 1		÷ 2		+ 5		÷ 4		- 2		1	11	21
										2	12	22
÷ 3		+ 12		÷ 6		+ 11		÷ 5		3	13	23
										4	14	24
+ 16		- 2		× 5		- 15		+ 2		5	15	25
										6	16	26
+ 2		- 3		+ 4		× 10		× 3		7	17	27
										8	18	28
- 6		÷ 11		- 10		+ 3		- 9		9	19	29
										10	20	30

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## Part I

### 5. Loopfinder (15 + 35 points)

Draw a continuous loop formed by straight line segments connecting the centers of adjacent squares. The loop must not cross or overlap itself, and must visit all squares. Some parts of the loop are already given.

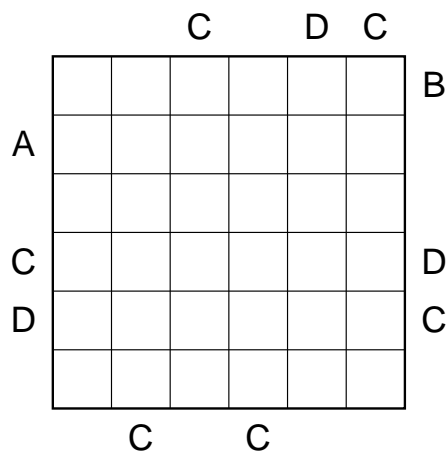
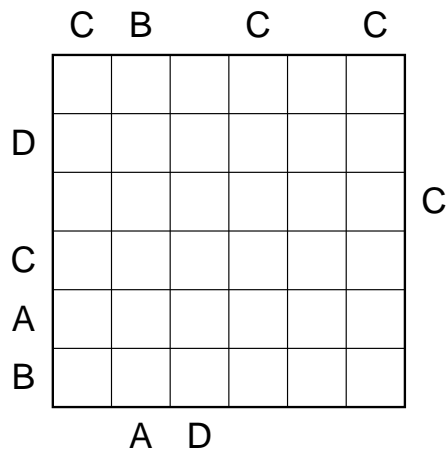


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## 6. End view (25 + 30 points)

Place the letters A, B, C, and D into the diagram, so that each letter occurs once in each row and column. The letters outside the diagram indicate the first letter seen from that direction.

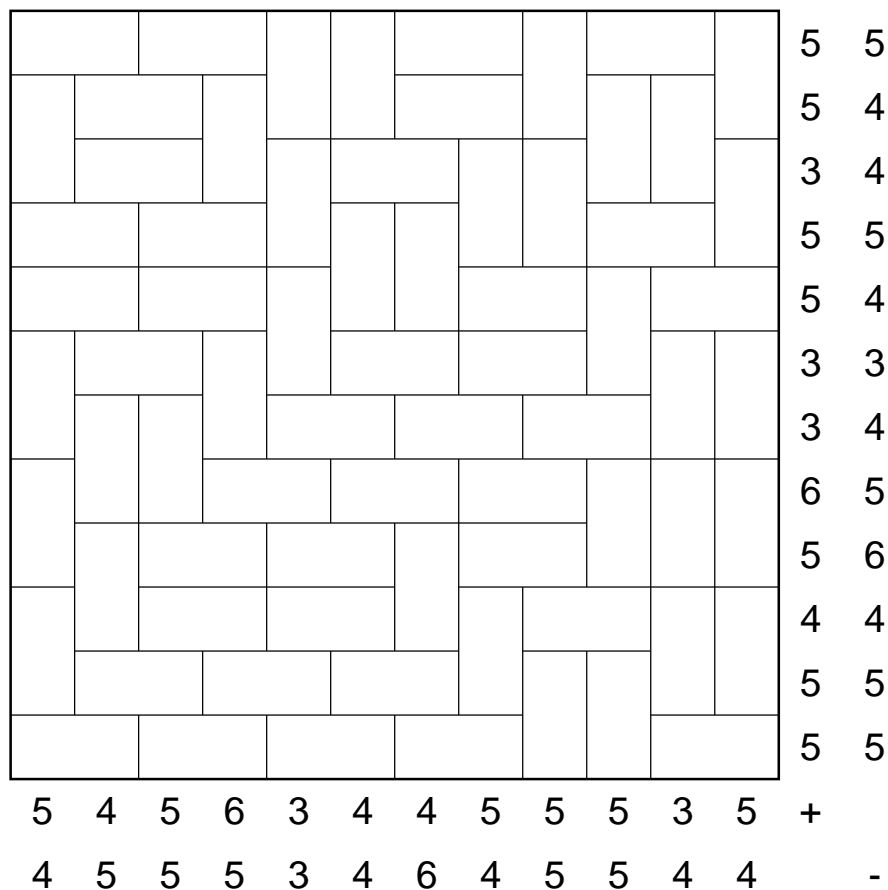


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# Part I

## 7. Magnets (35 points)

The grid is made up of magnetic and non-magnetic plates. Each magnetic plate has two halves: one positive and one negative. Halves with the same symbol cannot touch each other horizontally or vertically. The numbers to the right of the grid and below it indicate the number of magnetic halves in that particular row or column.





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## Part I

### 8. Word jungle (40 points)

The grid contains all the given words except one. The words may be rotated, but not reflected. Find the missing word. (The English translations are given only for your information; they are not part of the puzzle)

Note: to solve the puzzle it is sufficient to identify the missing word. You do not need to locate all the other words in the grid.

호	후	허	후	후	군	윤	요	별	혜
별	허	허	이	군	말	놓	표	범	새
식	안	베	것	혜	패	고	알	리	제
마	무	조	것	허	암	소	요	무	요
조	곰	룩	것	핀	마	작	마	이	사
곰	바	성	제	무	패	구	리	끼	핀
사	성	끼	터	무	은	민	렵	하	것
베	팬	더	렵	꿍	패	코	페	더	아
군	를	근	조	용	기	바	코	리	약
리	그	뚜	별	또	야	표	군	호	으

검정성성이 (chimpanzee)  
암소 (cow)  
잠자리 (dragonfly)  
독수리 (eagle)  
코끼리 (elephant)  
지라프 (giraffe)  
염소 (goat)

고릴라 (gorilla)  
하마 (hippopotamus)  
코알라 (koala)  
표범 (leopard)  
팬더 (panda)  
공작 (peacock)  
펭귄새 (penguin)

호저 (porcupine)  
무소 (rhinoceros)  
뱀 (snake)  
호랑이 (tiger)  
칠면조 (turkey)  
거북이 (turtle)  
얼룩말 (zebra)

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# Part I

## 9. Four winds (20 + 50 points)

One or more horizontal or vertical lines are drawn from each numbered square. Lines cannot cross other numbered squares. Each number indicates how many squares are connected by its lines; the numbered squares themselves are not counted. No lines overlap or intersect each other, and each empty square is covered by exactly one line.

					5			4	
9									
		1				3			
				4					3
	4						11		
			7					2	
		3				2			
					8			1	
2			2						
		3							7

	3			1					7
3					6				
		6				3			
			4				8		
2					1				
						5			6
							9		
		1		4					5
	8				4				
			4						3
5		2					7		
				12					

**Part I**

**10. Arrows (15 + 60 points)**

Insert arrows in the empty squares of each grid. All arrows point towards the grid, and the numbers inside the grid indicate the number of arrows facing them.

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

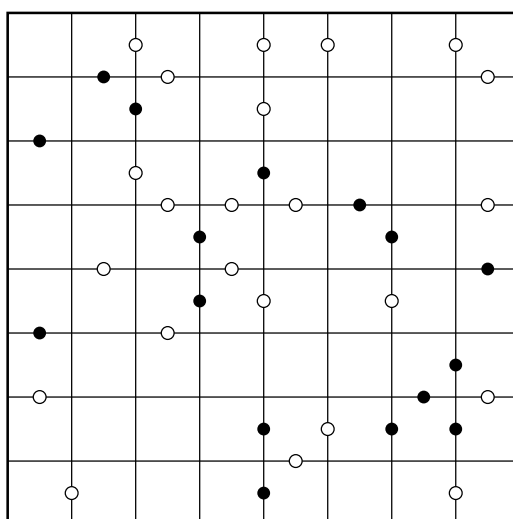
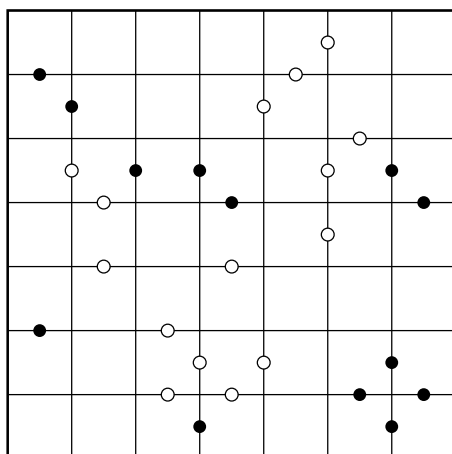
	3	3	1	3	2	4	4
	3	1	1	1	2	2	3
	5	4	2	4	3	5	5
	5	4	3	3	4	5	4
	5	4	3	4	4	4	4
	5	3	2	4	2	3	3
	4	4	3	2	3	3	3

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# Part I

## 11. Kropki (20 + 55 points)

Fill the table with digits from 1 to 7 (in the second puzzle from 1 to 8), so that each digit appears in every row and column exactly once. If the absolute difference between the digits in two adjacent cells equals 1 then they are separated by a white dot. If the digits in two adjacent cells are exactly half of each other then they are separated by a black dot. The dot between adjacent cells containing “1” and “2” can be either white or black.



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## Part I

### 12. Japanese sums (80 points)

Place digits 1-9 in the grid, only different digits in each row and column. The numbers outside the grid indicate the sum of the digits filled in consecutively, in the order in which they occur. Two different sums must be separated by at least one empty square.

									9	13	6	3
									5	7	16	2
									20	22		
									11	6	9	
									24	7		
									4	39		
									6	11	9	
									3	24	8	
									9	2	19	
21	8	25	4	19	23	18	15	9				
16	10	3	37	4	11	21	9	9				
	7			7			3	15				