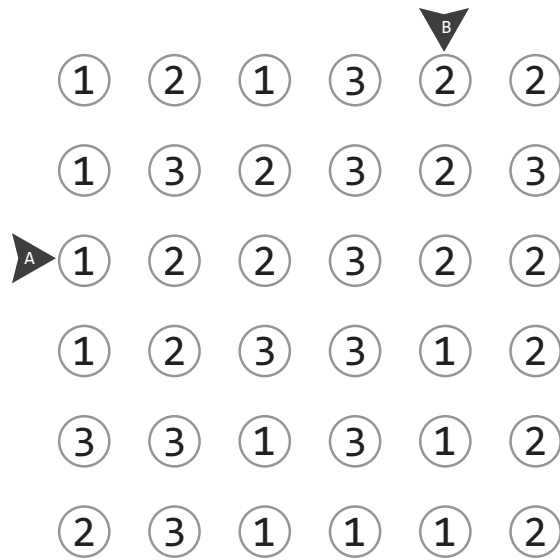# Hashi   3 + 4 + 5 + 7 points
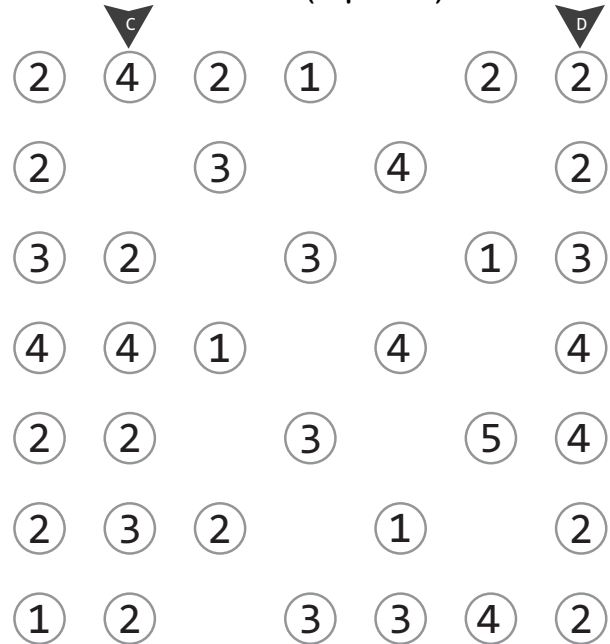
- Connect each of the numbered islands in the grid via horizontal and vertical bridges.
- Bridges are not allowed to cross each other.
- Each numbered island has that many bridges leading away from it, and at most two bridges are allowed to connect a pair of islands.
- There must be a sequence of bridges that links one given island to any other.

Answer key: Enter contents of marked row/column (use 0 for no bridge, 1 for 1 bridge and 2 for 2 bridges)
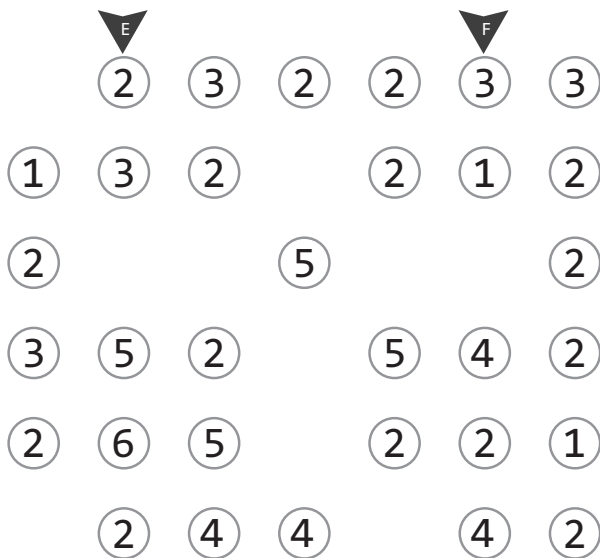
Hashi – 1 (3 points)

Hashi – 2 (4 points)

Hashi – 3 (5 points)

Hashi – 4 (7 points)

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Magnets   2 + 3 points

- ➢ The grid is made up of magnetic and non-magnetic plates.
- ➢ Each magnetic plate has 2 halves: one positive (+) and one negative (-).
- ➢ Halves with the same polarity cannot touch each other vertically or horizontally.
- ➢ The digits outside the grid indicate the number of magnetic halves with a particular polarity in each row/column.

Answer key: Enter the contents of marked rows/columns (use + for positive plate - for negative plate and X for non-magnetic plate)

Magnets – 1

(2 points)

Magnets – 2

(3 points)

Magnets   8 + 9 points

Refer to previous page for instructions

Answer key: Enter the contents of marked rows/columns (use + for positive plate - for negative plate and X for non-magnetic plate)

Magnets – 3

(8 points)

										3	2
										3	3
										4	4
										4	4
										3	3
										4	4
										4	3
										2	4
										2	3
										3	2
3	2	4	2	4	2	4	3	4	4	+	
3	2	4	2	3	2	4	4	4	4		−

Magnets – 4

(9 points)

										3	4
										3	2
										2	3
										3	4
										2	2
										4	3
										3	3
										3	2
										2	3
										4	3
2	3	3	3	2	2	4	3	3	4	+	
3	2	3	4	2	3	3	3	3	3		−

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Arrows   3 + 3 + 5 + 6 points

➢ Draw arrows in the cells around the large grid, one arrow per cell.
➢ Each arrow points to at least one number.
➢ The numbers show the total number of arrows pointing towards them.

Answer key: Enter the number of horizontal arrows, followed by the number of vertical arrows

Arrows – 1 (3 points)

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

Arrows – 2 (3 points)

2	0	4	0	3
5				5
4				7
3				3
4	3	5	3	5

Arrows – 3 (5 points)

3	2	4	2	4
3		2		3
2	4	3	2	3
3				3
3	4	4	4	4

Arrows – 4 (6 points)

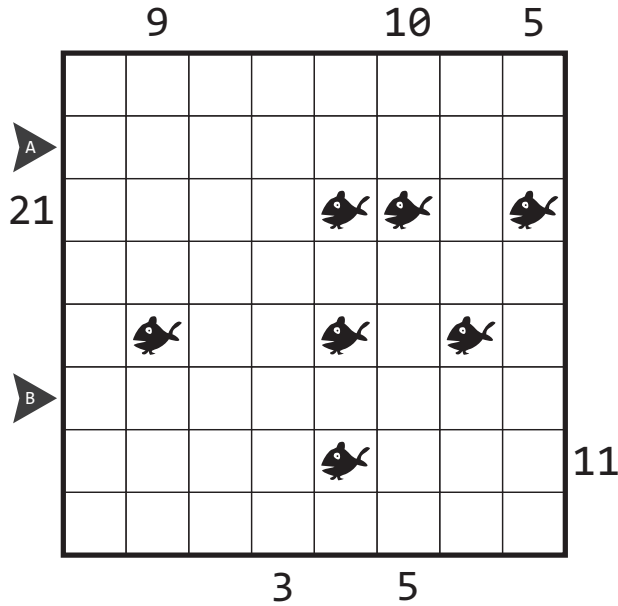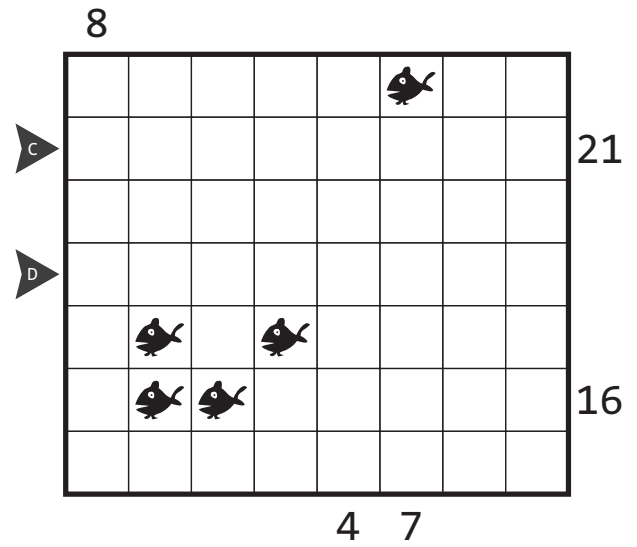| 3	2	4
3	0	3
5	3	2

Anglers   2 + 2 + 2 + 5 points

➢ The grid represents a lake and the numbers on the periphery represent anglers (fishermen).
➢ The fishes shown in the lake are such that every angler gets exactly one fish.
➢ The numbers indicate the length of the fishlines which are composed of horizontal and vertical line segments.
➢ Draw the fishlines starting from grid border such that no two of them cross or overlap each other.

Answer key: Enter the number of turns in marked rows/columns.

Anglers – 1 (2 points)
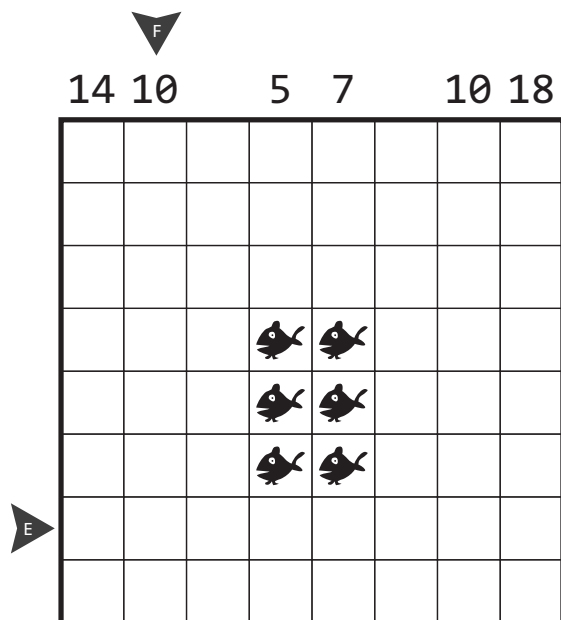
Anglers – 2 (2 points)
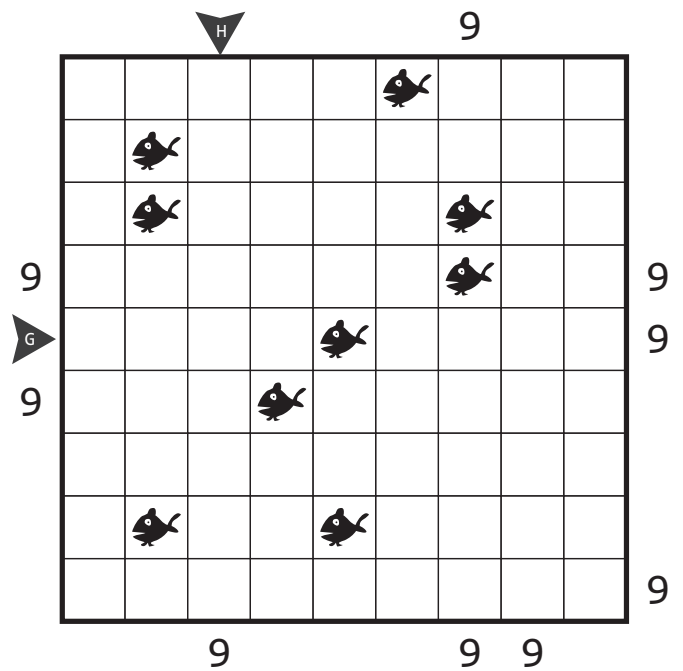
Anglers – 3 (2 points)

Anglers – 4 (5 points)

Multi-Anglers   **6 points**

- ➢ Apply rules of Anglers.
- ➢ However, multiple anglers can get the same fish.
- ➢ Each fish is captured by at least one angler

Answer key: Enter the number of turns in marked rows/columns.

Dominos   3 + 3 + 8 points

- The grid contains a set of dominos, using all combinations of zero through N.
- The layout is shown with domino edges removed.
- Reconstruct the missing edges.

Answer key: Enter the contents of marked rows/columns (use H for horizontal domino and V for vertical domino)

Dominos – 1 (3 points)

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

(A marks row 3, B marks row 4)

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

Dominos – 1 (3 points)

1	4	3	6	6	1	0	2	2
2	0	0	0	1	1	3	1	3
2	2						0	3
3	5						6	6
3	4						6	3
5	2						2	3
5	1						6	6
1	2	0	1	0	4	4	4	5
6	4	4	4	0	5	5	5	5

(C marks row 2, D marks row 8)

0 0	1 1	2 3	3 6
0 1	1 2	2 4	4 4
0 2	1 3	2 5	4 5
0 3	1 4	2 6	4 6
0 4	1 5	3 3	5 5
0 5	1 6	3 4	5 6
0 6	2 2	3 5	6 6

Dominos – 3 (8 points)

2	0	4	0	1		
5	6	3	6	6	2	1
6	5	3	4	6	5	0	1
6	5	1	0	0	5	2	1
5	4	3	2	0	1	2	4
2	3	3	4	4	1	4	4
2	6	6	2	0	0	1
	5	5	3	3	3

(E marks row 3, F marks row 6)

0 0	1 1	2 3	3 6
0 1	1 2	2 4	4 4
0 2	1 3	2 5	4 5
0 3	1 4	2 6	4 6
0 4	1 5	3 3	5 5
0 5	1 6	3 4	5 6
0 6	2 2	3 5	6 6

Dominos   6 points

➢ The grid contains a set of dominos, using all combinations of zero through N.
➢ The layout is shown with domino edges removed.
➢ Reconstruct the missing edges.

Answer key: Enter the contents of marked rows/columns (use H for horizontal domino and V for vertical domino)

Dominos – 4 (6 points)

```
G                                  H

0  1  4  3  2  0  6  5  7  1  2  4  7  1  3
0  0  6  4  2              4  4  8  7  4
1  1  6  1  8              0  6  7  6  6
5  7  0  8  3              3  1  2  2  7
4  3  6  0  3              3  1  1  5  7
4  6  6  2  3              5  8  8  3  7
4  5  5  2  7              5  0  8  6  8
0  0  8  2  5  4  2  1  2  3  7  5  5  8  8
```

0 0	1 2	2 5	4 4	6 7
0 1	1 3	2 6	4 5	6 8
0 2	1 4	2 7	4 6	7 7
0 3	1 5	2 8	4 7	7 8
0 4	1 6	3 3	4 8	8 8
0 5	1 7	3 4	5 5	
0 6	1 8	3 5	5 6	
0 7	2 2	3 6	5 7	
0 8	2 3	3 7	5 8	
1 1	2 4	3 8	6 6	

Missing Dominos   5 points

➢ Apply rules of Dominos.
➢ A few dominos from the set will be missing in the grid. It is part of the solving process to identify the missing dominos and recreate the rest within the grid.

Answer key: Enter the contents of marked rows/columns (use H for horizontal domino and V for vertical domino)

```
         0  0  4
   4  3  3  5  4  4  4
   2  2  0  1  3  3  1
I  2  2  6  5  6  1  1
   0  0  6  6  5  2  1
   3  4  0  5  3  5  6
J  6  6  1  6  5  5  0
   1  3  4  4  2  1  0
```

0 0	1 1	2 3	3 6
0 1	1 2	2 4	4 4
0 2	1 3	2 5	4 5
0 3	1 4	2 6	4 6
0 4	1 5	3 3	5 5
0 5	1 6	3 4	5 6
0 6	2 2	3 5	6 6

End of Test

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