STAR BATTLE

Fill some cells with stars so that each row, column, and bold region contains the indicated number of stars. Stars may not touch each other, not even diagonally.

Answer key: Starting from top to bottom, for each row, enter the column containing the left-most star in that row.

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Draw a single, non-intersecting loop that passes through all circled cells. The loop must go straight through the cells with white circles, with a turn in at least one of the cells immediately before/after each white circle. The loop must make a turn in all the black circles, but must go straight in both cells immediately before/after each black circle.

Answer key 1: For each marked row, enter the lengths of the longest horizontal loop segment.
Answer key 2: For each marked column, enter the lengths of the longest vertical loop segment.


MULTI SKYSCRAPERS
Standard skyscraper rules apply: Insert a digit from 1 to 5 into each cell in each $5 \times 5$ grid so that no digit repeats in any row or column inside a grid. Also, each number in the grid represents the height of a building and the clues on the outside of the grid indicate how many buildings can be "seen" when looking from that direction. Taller buildings block the view of smaller buildings.
Additionally, fill in digits in the shaded cells outside the grids and they must be valid skyscraper clues for both the adjoining grids. Some of them are already given.
(Ignore the circles while solving)
Answer key: For each circle from left to right, enter the corresponding digit.


GAPPED KAKURO
Place a digit from 1 to 9 in some cells so that the sum of each horizontal/vertical group of cells equals the number given on its left/top. Digits must not repeat within any sum. Blank cells cannot be orthogonally adjacent to each other.
(Ignore the circles while solving)
Answer key: Enter the digits in circled cells from left to right. Enter X for blank cells.


Draw a single, non-intersecting loop that passes through all cells. The numbers in the boldly marked area indicate the highest amount of cells that the loop goes through consecutively in that area.

Answer key 1: For each marked row, enter the lengths of the longest horizontal loop segment.
Answer key 2: For each marked column, enter the lengths of the longest vertical loop segment.

| 5 |  | 2 |  |  |  |  | 2 |  | 3 | 3 |  | 3 | 3 |  |  | 4 |  |  | 2 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  | 3 | 3 |  |  |  |  |  |  |  |  |  |  | 3 |  |  |  |  |  |
|  | 4 |  | 2 |  | 3 |  |  |  |  |  |  | 2 |  |  |  | 3 |  |  | 3 |
|  |  |  |  |  | 4 |  |  | 3 |  |  |  | 1 |  |  |  |  |  |  |  |
|  | 4 |  |  |  |  |  | 2 |  |  | 4 |  |  | 3 |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  | 2 |  |  |  |  |  | 3 |  | 2 |  |  |
|  | 3 |  |  | 3 |  | 4 |  |  |  |  |  |  |  |  |  |  |  | 3 |  |
|  |  |  |  |  |  |  | 3 |  |  |  | 3 |  |  |  |  | 5 |  |  |  |
|  | 4 |  |  |  |  |  |  |  | 4 |  |  |  |  | 2 |  |  |  |  | 2 |
| 3 |  |  | 2 |  |  | 1 |  | 2 |  |  | 4 |  |  |  |  | 3 |  |  |  |
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|  |  | 2 | 3 |  |  |  |  |  |  |  |  | 3 |  |  |  |  | 3 |  | 3 |
|  |  |  |  |  |  |  |  |  | 2 |  |  |  | 1 |  |  |  |  |  |  |
| 2 |  |  |  | 2 | 3 |  |  |  |  | 4 |  |  |  | 3 |  |  |  |  |  |
|  | 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 3 |  |  | 4 |
|  |  |  |  | 3 | 3 | 2 |  |  |  |  | 5 | 2 |  |  |  |  | 3 |  |  |
| 2 |  |  |  |  |  |  | 3 |  | 3 |  |  |  |  | 3 | 4 |  |  |  |  |
|  | 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |

## GRAFFITI SNAKE

Paint some cells black to create walls. The numbers outside the grid indicate the lengths of blackened cell blocks in the corresponding directions, in order; as in a Paint By Number puzzle. If there is more than one blackened block in a row or column, there must be at least one white cell between the blocks. After all black cells are determined, a snake should travel through all the unoccupied cells, moving horizontally or vertically without touching itself, even diagonally. The head and the tail of the snake are given in circles.

Answer key: For each marked row, enter the number of cells in the longest continuous horizontal group belonging to the snake in that row, starting from the top and continuing to the bottom.


## LIAR DIAGONAL SLITHERLINK

Draw a continuous loop in the grid. Numbers in the grid indicate how many of four edges of square are used by the loop. However, exactly one number in each row and each column is wrong (value of that number doesn't correspond with number of square edges used by loop).
Moreover, each square with wrong number should be crossed by loop diagonally.



Answer key: Enter the number of edges used by loop, for each cell with wrong clue, from left to right. For the example, the answer key is 111102


MINTONETTE

The circles are connected in pairs by lines traveling through the center of cells. All cells are used by the lines connecting the circles. In some circles a number is given; the number represents the number of turns that the path must take connecting that circle to its pair.

Answer key 2: For each marked column, enter the lengths of the longest vertical path segment.


Divide the grid into some regions formed of adjacent squares. Each region should contain exactly two given numbers. The size of each region should be a value (in unit squares) between the two numbers inside that region.
(Ignore the circles while solving)
Answer key: For each circle from left to right, enter the size of region. Enter only the unit digit (i.e. the right digit) for each circle.

|  |  | 5 | 7 |  |  | 1 | 1 | 3 | 2 |  |  | 10 | 6 |  |  | 1 | 16 | 9 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 4 |  |  | 8 |  | 2 | 2 |  | 5 |  | 2 |  |  | 6 |  | 1 |  |  |  |
|  | 3 | 4 | 5 | 6 |  | 5 | 5 | 4 |  |  | 4 | 5 | 2 | 2 |  | 3 | 8 | 2 |  |
|  | 2 |  |  | 4 |  | 5 |  |  | 4 |  | 8 |  |  | 6 |  | 7 |  |  |  |
|  | 1 |  |  | 2 |  | 9 | 9 |  | 5 |  | 3 |  |  | 5 |  | 6 |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | 1 |  |  |  |  | 1 | 5 |  |  |  | 9 | 15 |  | 1 |  |  |  |
|  |  |  | 2 |  |  |  |  | 14 |  | 3 |  | 2 |  | 24 |  | 2 |  |  |  |
| 5 |  |  | 3 |  |  |  |  | 5 |  |  | 4 |  |  | 8 |  | 2 |  |  | 20 |
|  |  |  | 4 |  |  |  |  | 8 |  |  |  |  |  | 9 |  | 5 |  |  |  |
|  |  |  | 5 | 6 | 7 |  |  | 9 |  |  |  |  |  | 10 |  | 5 |  |  |  |
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|  | 5 | 5 | 3 |  |  |  |  | 11 | 5 |  |  |  | 8 |  | 5 | 31 | 7 |  |  |
|  |  |  |  | 1 |  | 5 | 5 |  |  | 7 |  | 9 | 3 |  |  |  |  | 20 |  |
|  |  | 7 | 7 |  |  | 6 |  |  |  | 4 |  |  | 8 |  |  | 3 | 4 |  |  |
|  | 7 |  |  |  |  | 9 |  |  |  | 4 |  |  | 2 |  |  |  |  | 2 |  |
|  | 7 | 6 | 5 | 2 |  |  |  | 5 | 4 |  |  |  | 6 |  | 5 | 7 | 18 |  |  |

Write numbers in some of the cells. All numbers in a region must be same. The given number in a region denotes how many cells in this region contain a number (at least one). Same numbers must not be orthogonally adjacent across region boundaries. Numbered cells must not cover an area of size $2 \times 2$ or larger. All numbered cells must form a single orthogonally continuous area.
(Ignore the circles while solving)
Answer key: Enter the digits in circled cells from left to right. Enter X for blank cells.

|  |  |  |  |  |  |  |  |  | 1 |  |  |  | 3 |  |  |  | 1 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 1 |  |  |  |  |  |  |  |  |  |  |  | 2 |  |  |  | 2 |  |
|  |  |  |  | 2 |  | 4 |  |  |  | 2 | 2 |  |  |  |  |  |  | 3 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | , |  |  |  |
|  |  | 2 |  |  |  |  | 3 |  |  | 3 | 3 |  | 4 |  |  |  |  | 2 |
|  |  |  |  |  |  |  |  | 2 |  |  |  |  | 2 |  |  |  |  |  |
| 3 |  |  |  | 4 |  |  | . |  | - |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | $\ldots$ |  |  | 1 |  |  | 3 |  |  |
|  |  |  |  | 3 |  |  |  | 8 | 8 |  |  |  |  |  |  |  |  |  |
| 0 |  | 5 |  |  | 2 |  |  |  |  |  |  |  |  | 2 |  |  |  |  |
|  |  |  |  | 3 |  |  | 2 |  |  |  |  |  |  |  |  | 4 |  |  |
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WATCHES
Each circle should have 1, 2,3 or 4 arrows of given lengths. The arrows could point vertically, horizontally or diagonally from the circles. The arrows could not touch to each other or to other circles. Each empty cell of the grid should contain exactly one arrow.

Answer key 1: For each cell in marked row $A$, enter the length of the arrow in the cell. Ignore the cells with clues.

Answer key 2: For each cell in marked row $B$, enter the length of the arrow in the cell. Ignore the cells with clues.


In the Memory of Riad's father

## FIFTY FIFTY

Paint some more triangles so that every equilateral hexagon that consists of six small triangles has three painted triangles and three white triangles． There is no such restriction on a hexagon consisting of only 5 triangles．

（Ignore the letters while solving）

Answer key：For the marked cells A－Z， starting from top to bottom，enter 1 if shaded， 0 if not shaded．

 W
X
Y
Z

