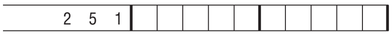
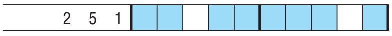
HANJIE

Hanjie is a very old Japanese word meaning 'judge picture'. Using logic, you can turn a blank grid into a pixelated picture. All you have to do is decide whether to fill a square or leave it blank. The only clues are the numbers at the end of each row and column. These tell you how many consecutive squares are to be filled in, in order.

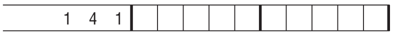
The Secret of Solving Hanjie Puzzles



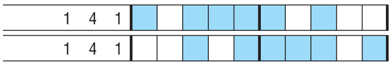
This line tells you that there is a block of two squares, then a block of five and finally, a single block on its own. To distinguish the blocks there must be ***at least one*** *empty square between adjacent blocks.*



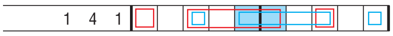
There's only one way to fill this line, because 2+5+1, together with the empty cells, adds up to 10, and there are only ten cells in the line.



Here, the numbers add up to six and with the two spaces, eight. So the line could be filled in several ways. For example:

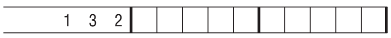


In the first of these examples, the blocks have been placed as far to the left as they can go. In the second, they are as far to the right as possible. In both cases, two of the four squares in the 4-block occupy the same squares. So, we know where two of the 4-block squares must go. This is illustrated by the red and blue lines.

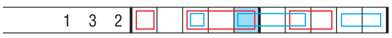


This is the secret of solving Hanjie puzzles. By filling in blocks, or parts of blocks, in one direction, we are gaining information about blocks in the other direction.

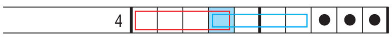
The simplest way to find out where squares must be filled is to count up the numbers in a line and add one (the minimum gap) for every space between the blocks. If any block in the line is larger than the difference between the total and the number of squares in the line, then some squares can be filled.

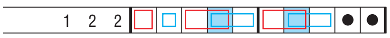


In the above example, the total is 1+3+2 (ie, 6) +2 (for the spaces)=8. There are ten spaces in the line and 10-8=2. Now, look again at the number-blocks. If any block is larger than 2 squares, some of its squares can be filled in. For the 3-block, we know that one cell can be placed.



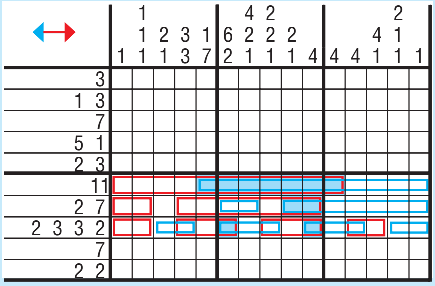
If we have worked out that some squares are not filled in a line, then this may help with the placement of a block. In the example below, we know already that the final three squares are blank. This helps us to establish the position of one of the squares in the 4-block.



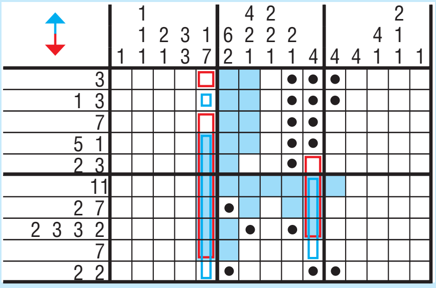


Now, look at this example. We know that the ninth square is empty. There is no room for the 2-block to the right of it. So square ten is empty. We can now fill in one square of each of the 2-blocks.

Before you work through this example, I recommend that you check out *The Secret of Solving Hanjie Puzzles*, to the left.



In the sixth row, there's an 11-block. Counting from either end, we know that the squares shaded in blue must be filled. In the seventh row, we can adopt the same technique to fill two squares, as shown. Remember, to find out if squares in a block can be filled, add together the numbers and add one to represent the minimum possible space between each block. In row seven, 2+7+1 gap =10. The line has fifteen cells, and 15-10=5. Any block larger than 5 can have some of its cells filled. In row eight, we can fill two cells using the same method.



When we look at the columns, the fills made already are a great help. In column five, our adding method gives 9 (1+7+1 gap=9); 10-9=1. Any block larger than one can have all-but-one of its cells filled, so six of the 7-block can be placed. In column six, the lowest square that's been filled must be part of the 2-block. So the tenth square must be empty and the seventh square must be empty. We can complete the line. In column ten, the three fills mean the 4-block cannot extend beyond square five or square nine. We can mark the other cells as empty. Similarly, in column eleven, the 4-block cannot reach above square three or beyond square nine, so we can mark the other squares as empty.

Now, when we return to the first row, much of it can be marked as empty, because we know where most of the 3-block lies.

But, by now, you have the idea, so finish off the rest of the puzzle yourself. I'm sure you'll be able to 'quack' it!