

Doppelblock is, in my opinion, a nice puzzle for sudoku fans. GM Puzzles calls the same type Smashed Sums and gives the rules as follows:

- 1) Fill each row and column of the grid with the digits 1 to N and two blackened cells.
- 2) Numbers outside the grid indicate the sum of the digits between the two blackened cells in that row or column.
- 3) Blackened cells are allowed to touch.

N depends on the size of the grid. A 5x5 grid is the smallest you'd see, where N would be 3. More typical would be a 6x6 grid with N=4 or 7x7 grid with N=5.

There are a few common techniques which I'll outline with this example.

3				
5				
6				

For me, the most obvious starting points are large numbers. It's always worth checking what all the numbers in a row must add up to. Here, $1+2+3=6$, so the bottom row must have all numbers between blackened cells and nothing outside them, like this.

3				
5				
6	X	o	o	X

I tend to position the black cells (with crosses) and number cells (with big circles I can fill in later) rather than putting numbers in directly, but sometimes you can place a number directly. There are two more cells we can also guarantee as not being shaded.

3				
5	o		o	
6	X	o	o	X

The red circle must be there because if it were shaded, that column would have 0 between the two Xs. The blue circle must be there because if it were shaded, you could only have one number between two Xs, which would give a maximum of 3 between Xs.

Indeed, the 5 clue tells us a bit more than that. 5 is close to our maximum of 6. Here, 1 must be outside the Xs for 5 to be between them. The red circle must be 1, as this is the only number not between the Xs, and this means that the Xs must surround the other two cells in the row.

3					
5	1	X	o	o	X
6	X	o	o	o	X

We can't use the same logic on the 3 row. This 3 could be one cell or two cells between the Xs, so nothing is fixed yet. However, the columns have more information. The 3 column can only add up to 3 if there is a 2 with the 1, and the right hand column already has its quota of Xs.

	3				o
	X				o
3	2				o
5	1	X	o	o	X
6	X	o	o	o	X

This gives us enough information to place the Xs in the 3 row as they can't touch each other.

	3				
	3				o
	X				o
3	2	X	3	X	o
5	1	X	o	o	X
6	X	o	o	o	X

The 2nd and 3rd columns are now fixed regarding o and X as the 2nd has both Xs and the 3rd has all three os.

	3				
	3	o	X		o
	X	o	X		o
3	2	X	3	X	o
5	1	X	o	o	X
6	X	o	o	o	X

We can now place the final X and o and work out what numbers must replace the os.

	3				
	3	o	X	X	o
	X	o	X	o	o
3	2	X	3	X	o
5	1	X	o	o	X
6	X	o	o	o	X

At this point, some Doppelblock puzzles will require more advanced number logic to do with the totals, but we can use simple sudoku logic to place the digits here. The 1 is the last number in the third row that is missing and Row 4, Column 3 must be 2 as it cannot be 1 or 3 due to those appearing in the same row and column respectively.

	3				
	3	o	X	X	o
	X	o	X	o	o
3	2	X	3	X	1
5	1	X	2	o	X
6	X	o	o	o	X

Similar logic solves the puzzle completely as follows.

	3				
	3	1	X	X	2
	X	2	X	1	3
3	2	X	3	X	1
5	1	X	2	3	X
6	X	3	1	2	X