PROBLEM OF THE WEEK #1
(Spring 2020)

Prove that the grid of numbers shown below is not a proper sudoku puzzle, because it does not have a unique solution.

		4			7		3	
6		5						
	7	1		4	9			
			9	1		4	7	5
4	5	7		3	6			
			1	6		5	9	
						1		3
	9		4			7		

Solution:

Proof. No 2s and no 8s appear in the grid, so, if any solution exists, then you can also find a different solution by switching the locations of the 2s and the 8s. □

Remark. In fact, there are exactly four solutions to this ill-posed sudoku, which are suggested by the grids below.

9	28	4	6	5	7	28	3	1
6	3	5	28	28	1	9	4	7
28	7	1	3	4	9	6	5	28
3	6	28	9	1	28	4	7	5
28	1	9	5	7	4	3	6	28
4	5	7	28	3	6	28	1	9
7	28	28	1	6	3	5	9	4
5	4	6	7	9	28	1	28	3
1	9	3	4	28	5	7	28	6

9	28	4	6	5	7	28	3	1
6	3	5	28	28	1	9	4	7
28	7	1	3	4	9	6	5	28
3	6	28	9	1	28	4	7	5
28	1	9	5	7	4	3	28	6
4	5	7	28	3	6	28	1	9
7	28	28	1	6	3	5	9	4
5	4	6	7	9	28	1	28	3
1	9	3	4	28	5	7	6	28

Source: Suggested by: "Sudoku." *Wisconsin State Journal*, 2 November 2019, B5 (which was a proper sudoku).