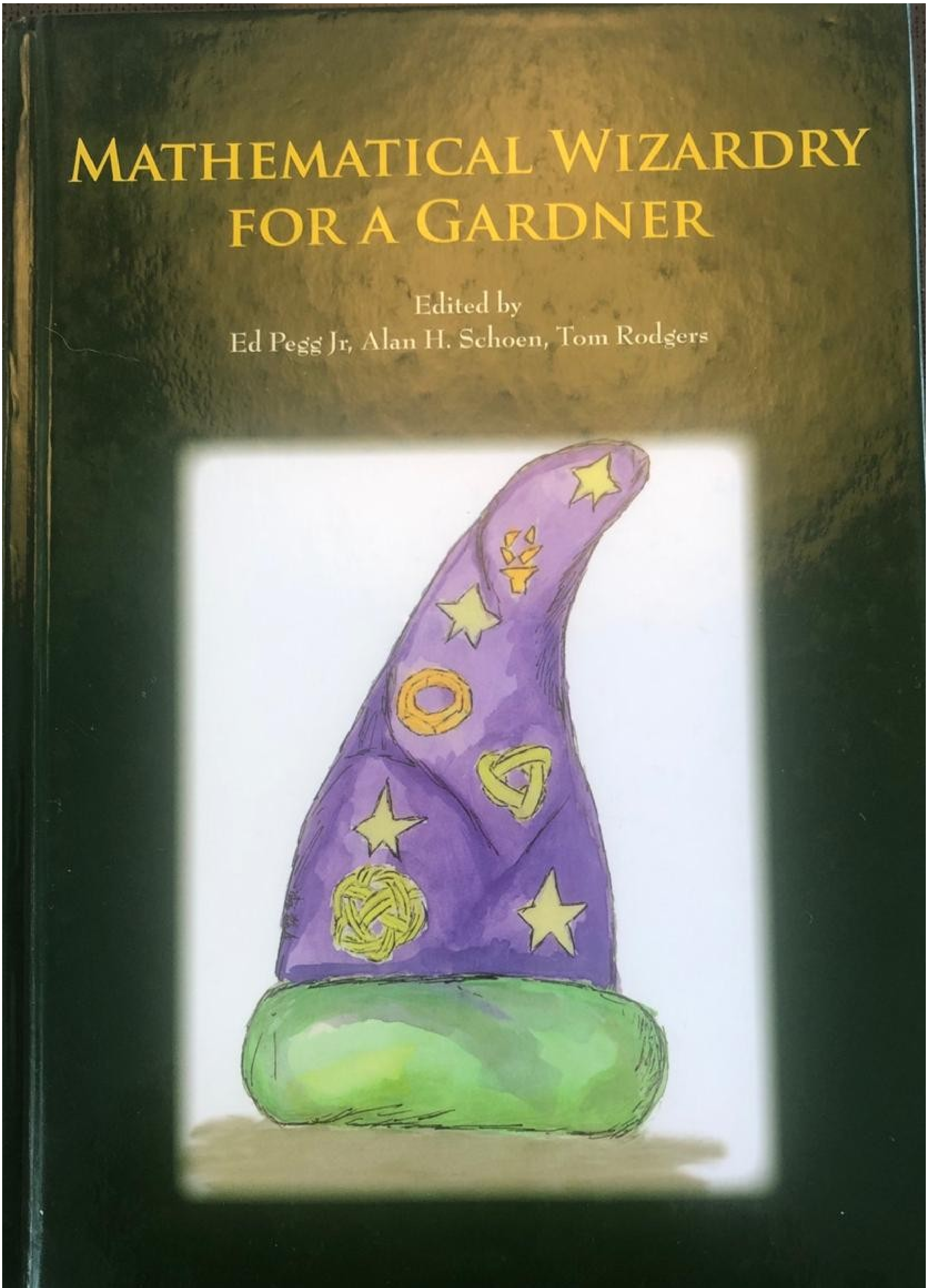

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Beamer Variant

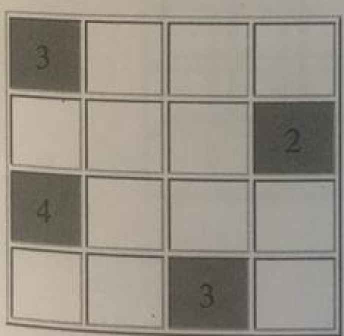
Rodolfo Kurchan

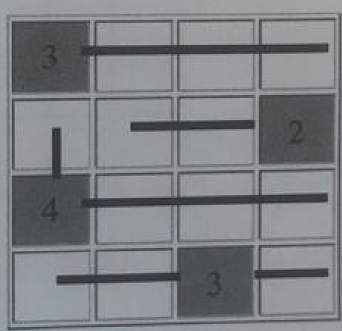
In this article, we explore various types of *Beamer* puzzles, which involve drawing beams in grids in which some of the cells are the origins of the beams (called *capsules*).

Beamer

Each numbered capsule sends forth one or more beams in horizontal and vertical directions. Numbers indicate how many squares are touched by the corresponding capsule's beams. Squares containing capsules are not counted. Beams do not cross capsules and do not overlap or intersect each other. Each empty square is touched by exactly one beam.

Example:





See Figures 1 and 2 for Beamer problems to try yourself. (Solutions provided at end of article.)

	7								6
				6					
						3			
		5						7	
7									7
	3							5	
			7						
							7		
					7				
				9					

Figure 1. Problem 1.

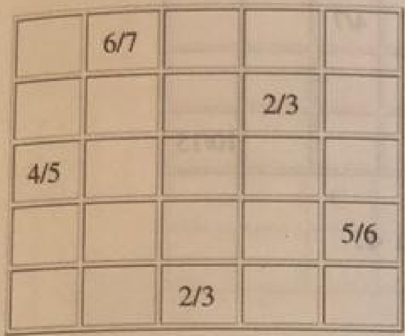
				9					
9									4
					9				
								7	
	4					2			
			8						
							6		
									10
		7				3			
				9					

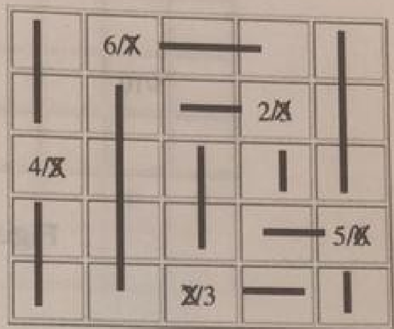
Figure 2. Problem 2.

Distraction Beamer

All rules of beams are the same, except that in this variant you find two numbers on each capsule. Only one of each pair of numbers indicates how many squares are touched by the capsule's beams—the other number is distraction.

Example:





Figures 3 and 4 provide two Distraction Beamer problems.

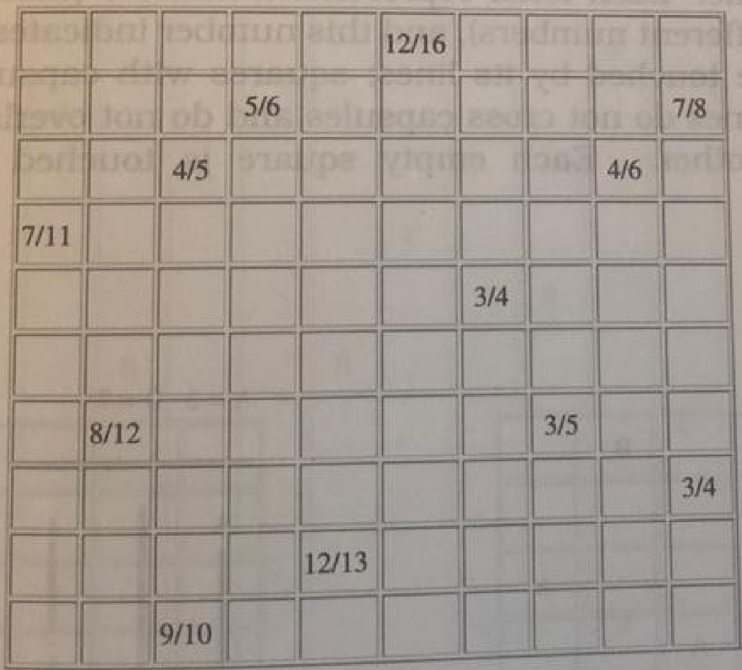


Figure 3. Problem 3.

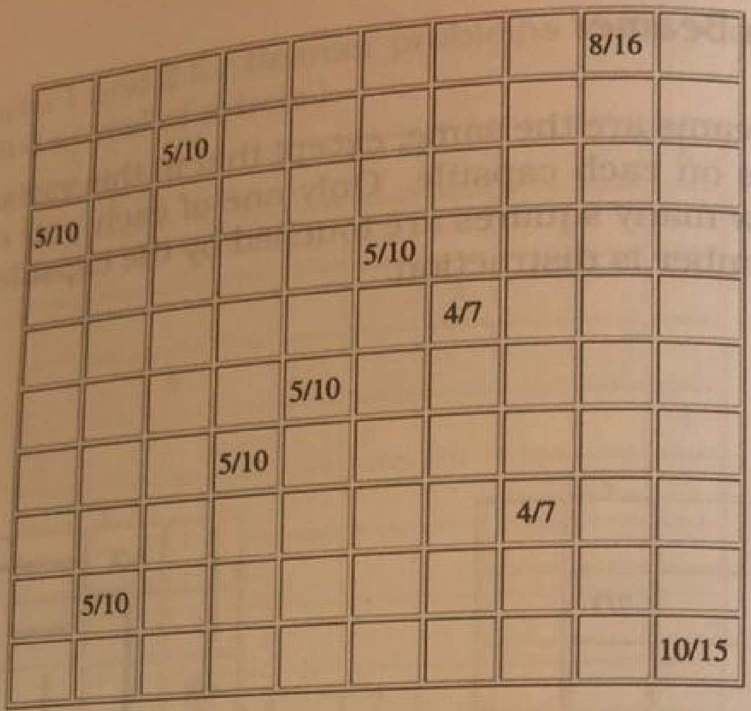
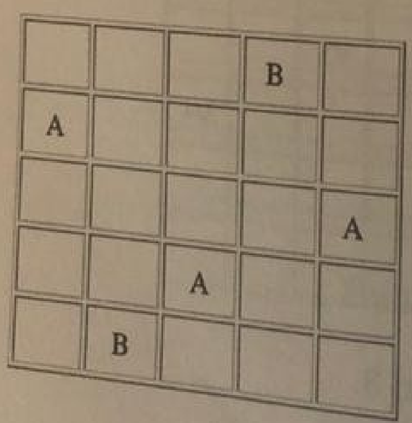


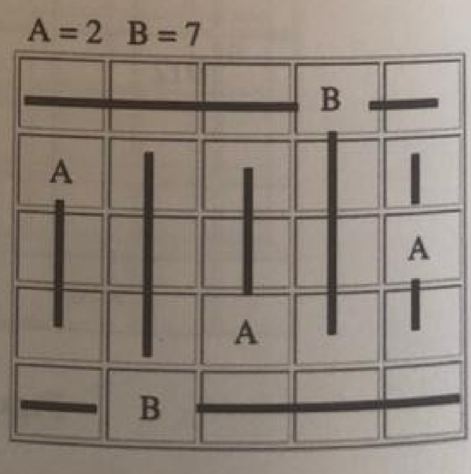
Figure 4. Problem 4.

Beamer Under Cover

One or more horizontal or vertical lines are drawn from each lettered capsule. Each letter represents a number (different letters stand for different numbers), and this number indicates how many squares are touched by its lines; squares with capsules are not counted. Lines do not cross capsules and do not overlap or intersect each other. Each empty square is touched by exactly one line.

Example:





Figures 5 and 6 provide two Beamer Under Cover problems.

						A			
A									B
	B			C			C		
			C						
					C				
		C						B	
				B					

Figure 5. Problem 5.

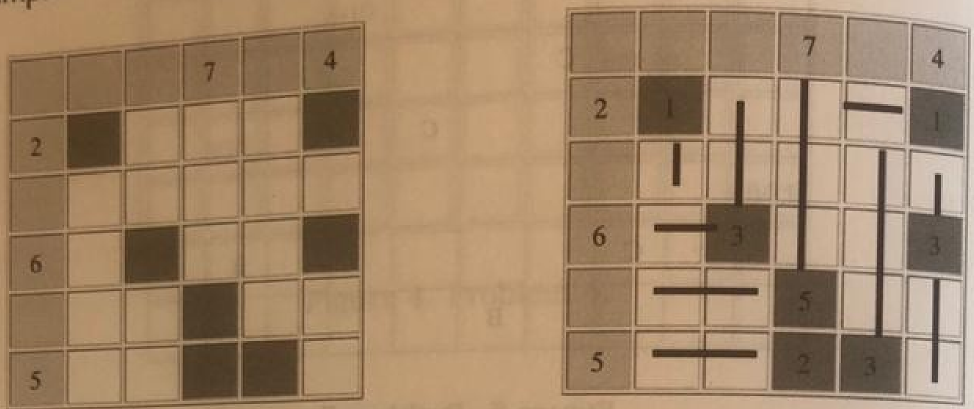
								A	
A									
		A							
					C				
							B		
	B			B					
									C
			C						
C						C		B	

Figure 6. Problem 6.

Battleship Beamer

The beam rules are as in the previous problems; in this variation the numbers outside the grid indicate the sum of the numbers that are in the capsules in each row or column.

Example:



Figures 7 and 8 provide two Battleship Beamer problems.

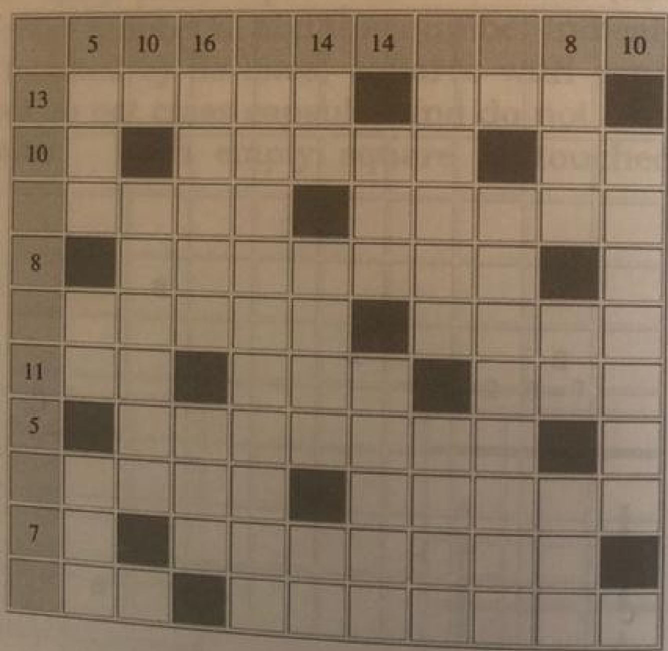


Figure 7. Problem 7.

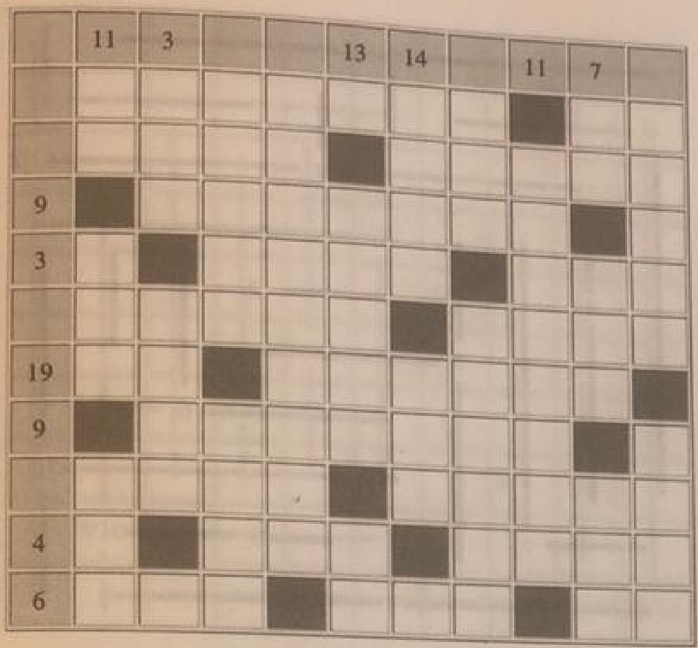


Figure 8. Problem 8.

Solutions

The solutions to Problems 1–8 are shown in Figures 9–16, respectively.

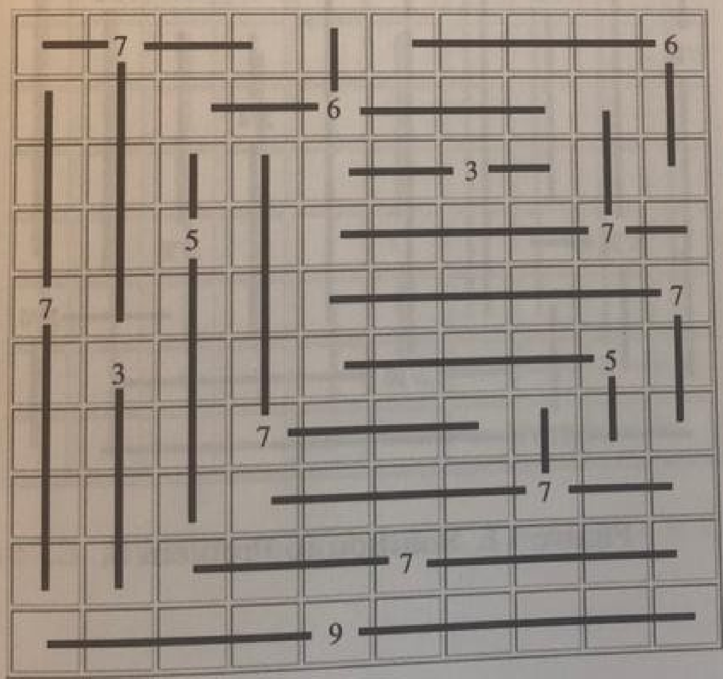


Figure 9. Solution to Problem 1.

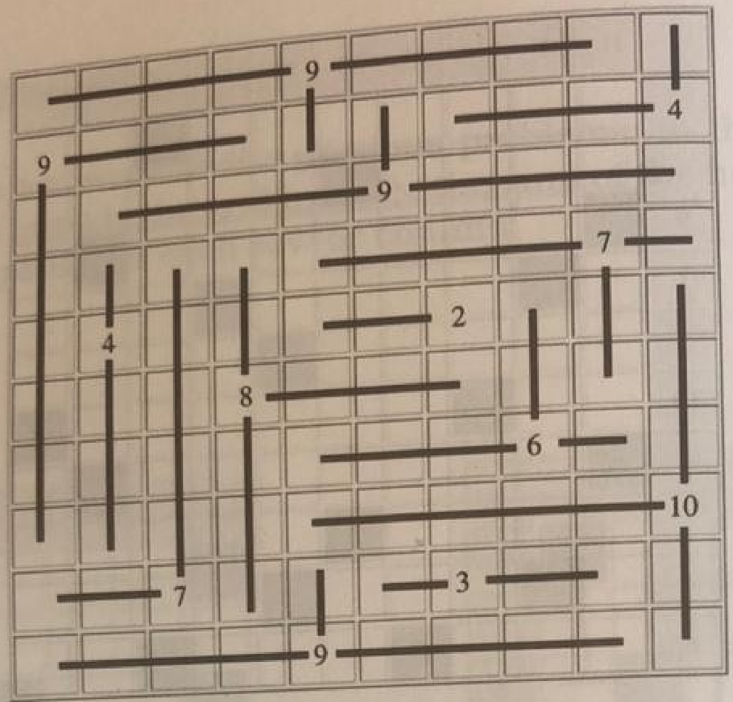


Figure 10. Solution to Problem 2.

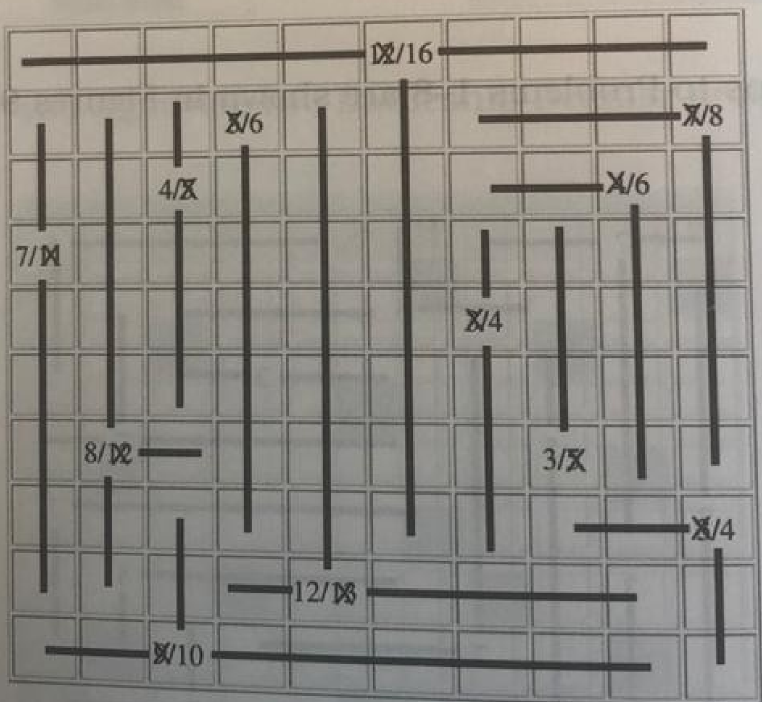


Figure 11. Solution to Problem 3.

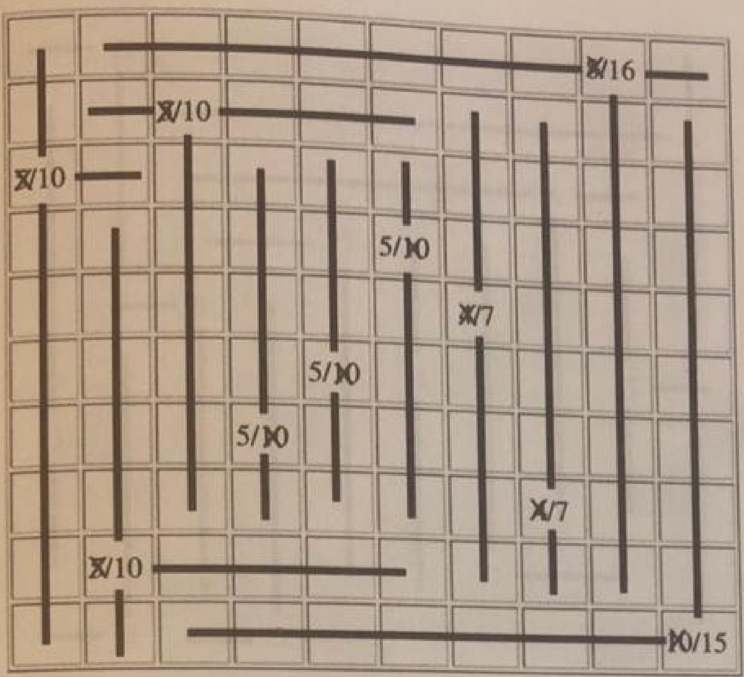


Figure 12. Solution to Problem 4.

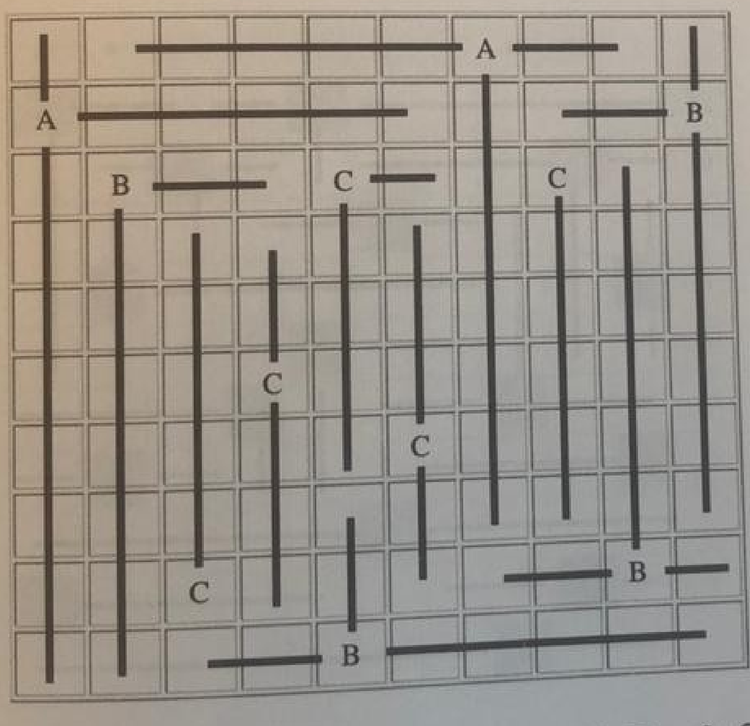


Figure 13. Solution to Problem 5: A = 14, B = 9, C = 5.

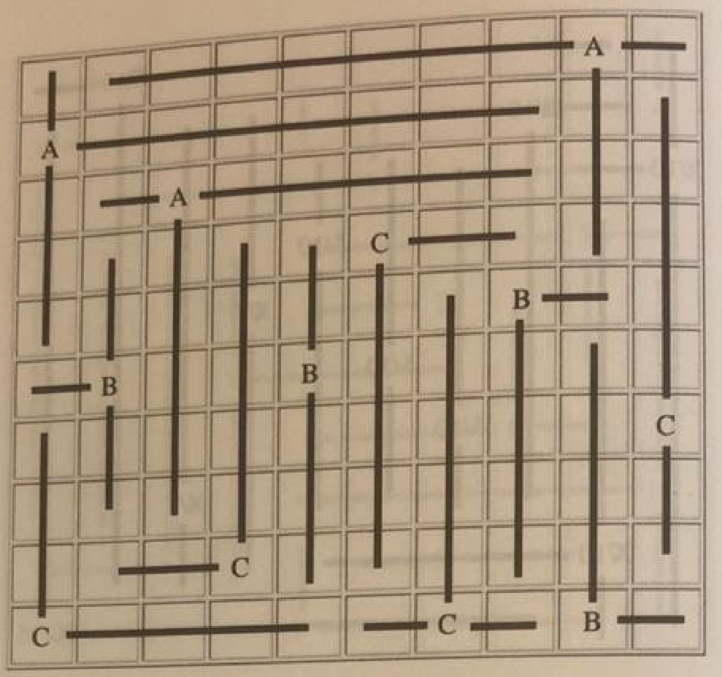


Figure 14. Solution to Problem 6: A = 11, B = 5, C = 7.

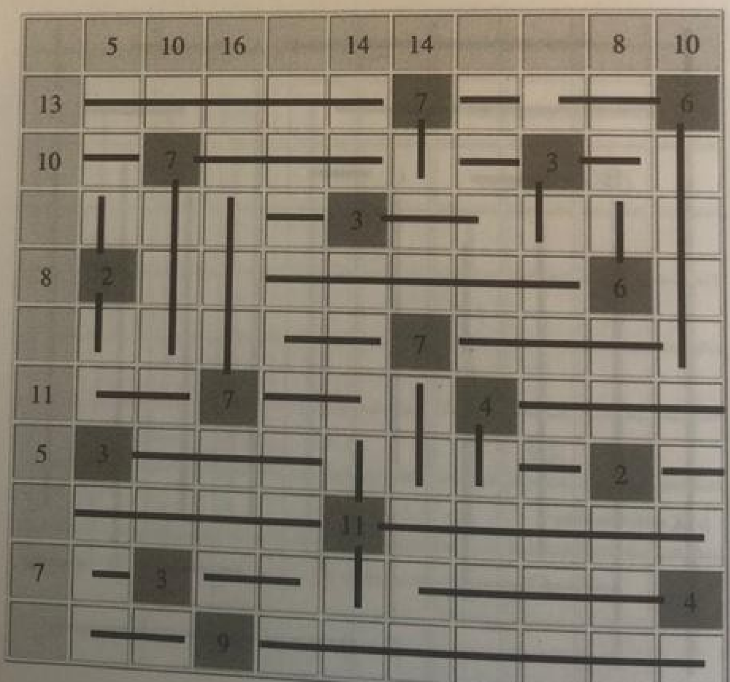


Figure 15. Solution to Problem 7.

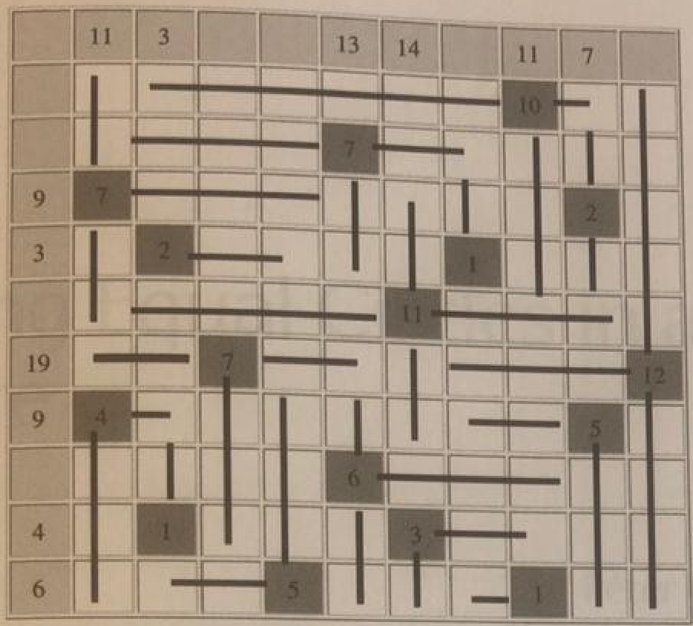


Figure 16. Solution to Problem 8.