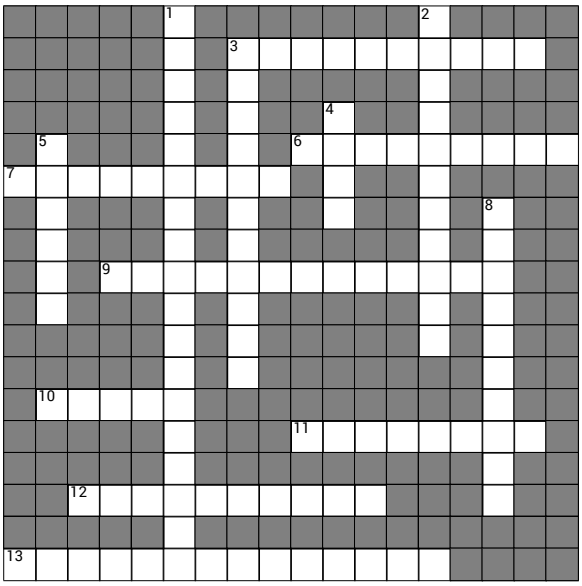
Puzzles

Crossword



Across. **3** P and NP classes (no comment on equality) **6** $1, 1, 2, 3, 5, 8, \ldots$ **7** Faster, less memory, more efficient **9** Non-ecclesiastical hypothetical computer **10** Above and below **11** An island with all cities seen once; roads travelled insignificant **12** Seven bridges, a topological nightmare **13** e.g. Knuth-Morris-Pratt

Down. **1** Made from recursively overlapping subproblems **2** Rabbit breeding **3** Only total if termination occurs. Partial is still pretty useful though] **4** Complexity notation, not little **5** Lacking infrastructure, not dense **7** Like code, but more fake

Brain Teasers

A. You have a biased coin which lands heads with some probability p, and tails with some probability $1 - p$. It's approaching midsem, and you need to find a fair way to decide who has to write the unit tests for your pair project. How can you do this using only that coin?

B. You have attained a highly coveted job wherein you spend your days being given little pieces of paper with numbers on them by a hovering, mysterious benefactor. The pieces of paper are being handed to you quickly, thus you must not spend more than $\log_2 n$ operations putting them in front of you. Furthermore, your mysterious benefactor asks you at random points for the median of all the numbers on all the pieces of paper you've been given thus far. This benefactor is impatient, so you want to deliver the answer as fast as possible (i.e., in constant time) to avoid reprimand. How do you go about this?

Takuzu

The goal of this problem is to fill the grid with 1 and 0. The rules of the game are:

1. each line has the same number of 1s and 0s;
2. no more than two consecutive cells may contain the same digit; and
3. each row and each column have to be unique.

	1			0		0			
			1				1		0
0			1				1		
	0							0	
	1	1		1	1			0	0
						1			0
	1			1					
		0			0		1	1	
	1					0			1
	0	0		0	0			1	1

Issue 103 Solutions

Brain Teasers

B. Many solutions exist; a divide and conquer approach works best.

C. 2 units^2

Takuzu

0	1	1	0	0	1	1	0	0	1
0	1	1	0	1	0	0	1	1	0
1	0	0	1	0	1	1	0	1	0
1	0	0	1	1	0	0	1	0	1
0	1	1	0	0	1	0	1	1	0
1	0	0	1	1	0	1	0	0	1
0	1	0	0	1	0	1	0	1	1
1	0	1	1	0	1	0	1	0	0
1	1	0	0	1	0	1	0	0	1
0	0	1	1	0	1	0	1	1	0

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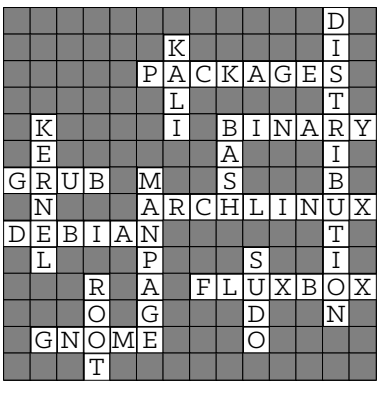

■ *Emily Saunders Walmsley*