Puzzle: June 2024

Dr Tony Gardiner wrote one of my favourite questions whilst we were problem setting in 2012. This question was chosen for JMO B6.

'The integer 23173 is such that

(a) every pair of neighbouring digits, taken in order, forms a prime number;

and (b) all of these prime numbers are different.

What is the largest integer which meets these conditions?'

Apologies for those who have seen this before.

Not as good as Tony's question but still interesting.

'The integer 11317 is such that

(c) every pair of neighbouring *odd* digits, taken in order, forms a prime number;

and (d) all of these prime numbers are different.

What is the largest integer which meets these conditions?'

The names of those sending answers to volunteering@ukmt.org.uk by 31st July will appear in the next Volunteers Newsletter.

Puzzle: March 2024 Answer

The first row is consecutive positive integers.

The second row is consecutive Lucas numbers.

In each column the term in the third row is the remainder when the term in the second row is divided by the term in the first row.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	3	4	7	11	18	29	47	76	123	199	322	521	843	1364	2207	3571	5778	9349
0	1	1	3	1	0	1	7	4	3	1	10	1	3	14	15	1	0	1

Peter told the audience: 'In each column a 1 in the third row doesn't always give a prime in the first row, but only after the first 400 terms do!!
In each column a prime in the first row always gives a 1 in the third row.'

Answers from:

Tony C