

Mathematics

Sequences

The n^{th} term rule: position-to-term for arithmetic sequences

Downloadable Resource

Ms Jones



Try This

Some columns and rows have been torn off this number grid.

Imagine this grid had 6 columns.

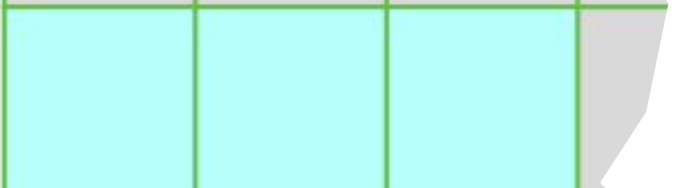
What numbers would go in the blue squares?

How would this change if the grid had 8 columns? What about 100 columns?

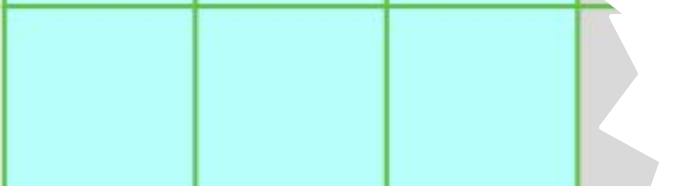
Row 1



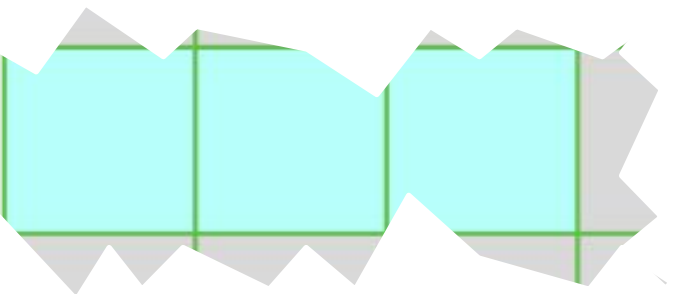
Row 2



Row 3



Row 100



Independent task

1. Which column in the grid to the right has the following position-to-term rules:

- a) $5n$ b) $5n - 3$ c) $5n + 1$

A	B	C	D	E	
2	3	4	5	6	Row 1
7	8	9	10	11	Row 2
12	13	14	15	16	Row 3
17	18	19	20	21	Row 4

2. Work out the position-to term-rules for columns a, b, c, and d from the 2 grids below.

a		b	
3	4	5	6
7	8	9	10

c			d			
-12	-11	-10	-9	-8	-7	-6
-5	-4	-3	-2	-1	0	1

2. Work out position-to-term rules for the following sequences:

- a) 1, 3, 5, 7, 9, ... b) 2, 8, 14, 20, 26, ... c) -5, -1, 3, 7, 11, ...

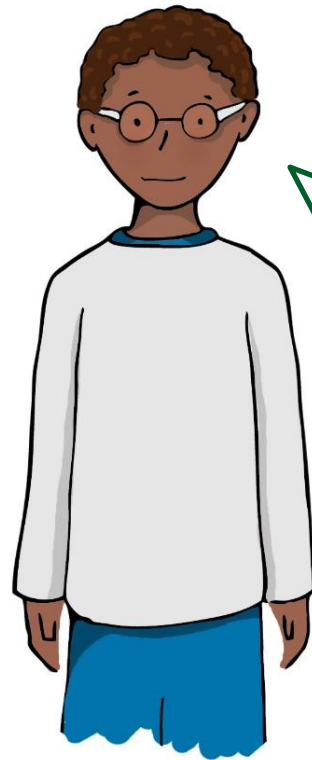


Explore

Look at the descriptions of three arithmetic sequences.



- Some of the terms in my sequence are prime numbers.



- The first term of the sequence lies between 0 and -5.



- There are four terms between 0 and 30.

How many **n^{th} term** rules can you think of to match each description?

Can you find any **n^{th} term** rules that would work for all three descriptions?

