

Stretch: Factor calculation in odd whole numbers

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Abstract

Stretch: factor calculation in odd whole numbers, using grid pattern recognition.

Introduction

The author is an artist not a mathematician. Therefore the investigation uses artistic skills which may have two possible outcomes; an interesting and unusual interpretation of pattern recognition in numbers or complete concept incoherence from a mathematical viewpoint.

However the study may have some intrinsic value which may be of interest to professional researchers working in the field of geometry or pure mathematics.

Materials and Methods

Odds	1	3	5	7	9
Factors	1	1	1	1	2

The method of calculating odd whole number factors is based on finding only the first non prime odd whole number '9'. Nine has two factors 1 and 3. Once this is calculated all other odd whole number factors can be determined by using the sequence '11112'.

					1					2				
Odds	1	3	5	7	9	1	3	5	7	9	1	3	5	7
Factors	1	1	1	1	2	1	1	3	1	1	3	1	2	2
	3	1		1			1			1				2

The sequence is then stretched by a ratio of 1:3 and importantly moved one place on so the sequence commences at 3 rather than 1. The stretch is subsequently started at 5 using a ratio of 1:5, 7 using a ratio of 1:7. 9 using a ratio 1:9 and so on into infinity

					1						2			
Odds	1	3	5	7	9	1	3	5	7	9	1	3	5	7
Factors	1	1	1	1	2	1	1	3	1	1	3	1	2	2
	3	1		1			1			1				2
	5		1				1						1	
	7			1						1				
	9				1									1
	11					1								
	13						1							
	15							1						
	17								1					
	19									1				
	21										1			
	23											1		
	25												1	
	27													1

The first part of the sequence 11112 stretched by ratios of 1:3, 1:5, 1:7 and 1:9 determines all factors in odd whole numbers up to 27. By adding only the number of 1s in a column the factors can be calculated. The calculated sequence is now 11112 – 113113122 starting at 1. It should be noted that 1 within the sequence represent prime numbers, 2 denotes numbers squared or cubed or have another power or exponent and 3 represents numbers that have 3 factors.

	1				2				3				4				5				6				7				8											
Odds	1	3	5	7	9	1	3	5	7	9	1	3	5	7	9	1	3	5	7	9	1	3	5	7	9	1	3	5	7	9	1	3	5	7	9	1				
Factors	1	1	1	1	2	1	1	3	1	1	3	1	2	2	1	1	3	3	1	2	1	1	3	1	2	3	1	3	3	1	3	3	1	3	1	1	3	3	1	2
3		1			1					1			2			1				1			3		1		1			3			1		2		2			
5			1				1					1						2					1				1				1				3					
7				1						1							1							1					2							1				
9					1							1						1							1					1								2		
11						1										1										1										1				
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This 'stretch' method of calculating odd whole number factors, may currently only be an interesting visual development, but given the rapid increase in the sequence of 3 and its powers, calculating large numbers of primes may be simpler.

Results and Discussion

As the 'Stretch' pattern grows it appears to become ever more complex, yet in reality this is not the case since the method for determining each sequence remains the same.

Looking at the pattern visually, it appears similar to a stone falling into a still pool. The energy from the collision undulates the water causing surface ripples. At first the undulation is tight to the point of impact, but the first circle is followed by another. The time between each ripple is not random, but highly organised and therefore calculable. Similar the 'stretch' factor calculation in odd whole numbers has a pattern, and as previously stated it too appears to have a beat or rhythm, based on 3 and its powers.

Conclusion

Therefore the pattern within the sequence of primes may seem at first glance chaotic, yet the reverse is true. The pattern is structured, ordered and self replicating. Its growth is predetermined.

Acknowledgements

None

References

None