

Exploring Number Patterns You Make

Become Maths Detectives

This sheet gives you some more ideas about what children might explore from the 'Number Plumber' starting point. We are not suggesting that you present these tables to children, but it may help you see the possibilities. Of course learners will come up with their own ideas which will be just as interesting, if not more so!

Here is a table listing the numbers obtained if the operations are continued as in the video clip:

i	"3x4-5"
	7
	23
	87
	343
	1367
	5463
	21847
	87383
	349527
	1398103
	5592407
	22369623
	89478487
	357913943
	1431655767
	5726623063
	22906492247
	91625968983

Children might notice the number of digits increasing: 1,2,2,3,4,4,5,5,6,7,7,8,8,9,10,10,11,11

Here's what happens when you change the starting number (DG stands for digital root):



Exploring Number Patterns You Make

IANGING S	IAK	TING	1401-16	EK.										
"3x4-5"		pair			"4x4-5"		pair		-	"5x4-5"		pair	units	
	10's	tens	units	D.R.		10's	tens	units	D.R.		10's	tens		D.R
7	0		7	7	11	1		1	2	15	1		5	. 6
23	2		3	5	39	3	4	9	3	55	5	6	5	
87	8	10	etc	6	151	5		etc	7	215	etc	etc	etc	
343	4			1	599	9	14		5	855				
1367	6	10		8	2391	9			6	3415				
5463	6			9	9559	5	14		1	13655				
21847	4	10		4	38231	3			8	54615				0.
87383	8			2	152919	1	4		9	218455				
349527	2	10		3	611671	7			4	873815				
1398103	0			etc	2446679	7	14		etc	3495255				et
	etc				9786711	etc				13981015				
										55924055				
"6x4-5"		pair			"7x4-5"		pair		-	"8x4-5"		pair		
	10°s	tens	units	D.R.		10's	tens	units	D.R.		10's	tens	units	D.R
19	1		9	1	23	2		3	5	27			7	925
71	7	8	1	8	87	- 8	10	7	6	103			3	23
279	7		etc	9	343	4		etc	1	407	0		etc	
1111	1	8		4	1367	6	10		8	1623	2			0.
4439	3			2	5463	6			9	6487	8	10		
17751	5	8		3	21847	4	10		4	25943	4			
70999	9			7:	87383	8			2	103767	6	0		10
283991	9	18		5	349527	2	10		3	415063	6			
1135959	5			6	1398103	0			7	1660247	4	10		11
4543831	- 3	8		1	5592407	0	0		etc	6640983	8			99
18175319	etc			etc	22369623	etc				26563927	2	10		et
										106255703	0	etc		
											etc			



Exploring Number Patterns You Make

(The column 'pair tens' is the total obtained by adding the tens digits of pairs of adjacent numbers.)

And here's what happens if you change other parts of the calculation in turn:

CH	ANGII	NG AL	L 5 PAF	RTS OF IT												
"3x4+5"		pair			"4x4-5"		pair						"3x3-5"			
	10's	tens	units	D.R.		10's	tens	units	D.R.					10's	units	D.R
17	1		7	8	11	1		1	2				4	0	4	
73	7	8	3	1	39	3	14	9	3				7	0	7	
297	9		etc	9	151	5		etc	7				16	1	6	et
1193	9	18		5	599	9	14		5				43	4	3	
4777	7			7	2391	9			6				124	2	etc	
19113	1	8		6	9559	5	14		1				367	6		
76457	5			1	38231	3			8				1096	9		
305833	3	8		4	152919	1	4		9				3283	8		
1223337	3			3	611671	7			4				9844	4		
4893353	5	8		etc	2446679	7	14		etc				29527	2		
	etc					etc							88576	7		
													265723	2		
"3x4-6"		pair				Hun	Tens						797164	6		
	10's	tens	units			Thou	Thou	Thou	Hun	Tens	Units	D.R.	2391487	8		
6			6		"3-4×5"								7174456	5		
18	1		8		-5						5	5	21523363	6		
66	6	7	etc		-45					4	etc	9	64570084	8		
258	5				-245				2	etc		2	193710247	4		
1026	2	7			-1245			1	etc			3	581130736	3		
4098	9				-6245			6				8	1743392203	0		
16386	8	17			-31245		3	etc				6	5230176604	etc		
65538	3				-156245	1	5					etc.				
262146	4	7			-781245	7	8									
1048578	7				-3906245	9	0									
4194306	0	7			-19531245	5	etc									
	etc				-97656245	- 6										
					-488281245	2										
					-2441406245	4										
					-12207031245	0										
					-61035156245	etc										