

IDEA: WHAT IF I STARTED WITH 3,4,5 AND WENT THE OTHER DIRECTION USING THE INVERSE MATRICES OF HALL'S FORMULAS

Hall's UP formulas are	$a - 2b + 2h$	and the inverse is	$a + 2b - 2h$
	$2a - b + 2h$		$-2a - b + 2h$
	$2a - 2b + 3h$		$-2a - 2b + 3h$

Hall's ACROSS formula is	$a + 2b + 2h$	and the inverse is	$a + 2b - 2h$
	$2a + b + 2h$		$2a + b - 2h$
	$2a + 2b + 3h$		$-2a - 2b + 3h$

Hall's DOWN formula is	$-a - 2b + 2h$	and the inverse is	$-a - 2b + 2h$
	$-2a + b + 2h$		$2a + b - 2h$
	$-2a + 2b + 3h$		$-2a - 2b + 3h$

Using the inverses on the three formulas on 3,4,5 note how the three 2<sup>nd</sup> generation Primitive Pythagorean Triplets do become the 3,4,5 each to prove the inverse matrices are working then continues using the same inverse matrix to go through generations in reverse so the 2<sup>nd</sup> row are all Adam & Eve again and the 3<sup>rd</sup> row is the 2<sup>nd</sup> generation going in reverse.

5	12	13	21	20	29	15	8	17
3	4	5	3	4	5	3	4	5
1	0	1	1	0	1	-1	0	1
-1	0	1	-1	0	1	3	-4	5
-3	4	5	-3	-4	5	15	-8	17
-5	12	13	-21	-20	29	35	-12	37
-7	24	25	-119	-120	169	63	-16	65
-9	40	41	-697	-696	985	99	-20	101
-11	60	61	-4059	-4060	5741	143	-24	145
-13	84	85	-23661	-23660	33461	195	-28	197
-15	112	113	-137903	-137904	195025	255	-32	257
-17	144	145	-803761	-803760	1136689	323	-36	325

**Observe that the only new triplet is 1,0,1 with either 1 being negative at times and the rest are the same as the generations going forward except for a negative sign here and there. One cannot have a side of 0 length on earth and since the Pythagorean Theorem involves squaring each number in the triplet, it makes sense that a negative squared is a positive.**