Tertiary Tree of Primitive Pythaorean Triples

The *p*-values are in BLACK.
The Δ between the MIDDLE "*p*" and the sum, ∑, of the UPPER + LOWER "*p*" = the "*p*" PREVIOUS_PREVIOUS.
The ∑ of the (UPPER + LOWER "*p*") -"*p*" MIDDLE value=the "*p*"$_{previous\ twice}$ value of the Branch before, shown in WHITE.

$\sum(p_u+p_l)-p_m=p_{previous_previous}$

Trunk

PPT	r	s	t	A	4A	8A	P	f	U+c−p
3-4-5	2	1	2	6	24	48	12	1	1

1st Tertiary Branch

PPT	r	s	t	A	4A	8A	P	f	U+c−p
5-12-13	4	1	8	30	120	240	30	7	5
20-21-29	12	8	9	210	840	1680	70	1	5
8-15-17	6	2	9	60	240	480	40	7	5

2nd Tertiary Branches

PPT	r	s	t	A	4A	8A	P	f	U+c−p
7-24-25	6	1	18	84	336	672	56	17	13
48-55-73	30	18	25	1320	5280	10560	176	7	13
28-45-53	20	8	25	630	2520	[illegible]	126	17	13
36-77-85	28	8	49	1386	5544	11088	198	41	29
119-120-169	70	49	50	7140	28560	57120	408	1	29
39-80-89	30	9	50	1560	6240	12480	208	41	29
33-56-65	24	9	32	924	3696	7392	154	23	17
65-72-97	40	25	32	2340	9360	18720	234	7	17
12-35-37	10	2	25	210	840	1680	84	23	17

3rd Tertiary Branches

PPT	r	s	t	A	4A	8A	P	f	U+c−p
9-40-41	8	1	32	180	720	1440	90	31	25
88-105-137	56	32	49	4620	18480	36960	330	17	25
60-91-109	42	18	49	2730	10920	21840	260	31	25
84-187-205	66	18	121	7854	31416	62832	476	103	73
297-304-425	176	121	128	45144	180576	361152	1026	7	73
105-208-233	80	25	128	10920	43680	87360	546	103	73
95-168-193	70	25	98	7980	31920	63840	456	73	53
207-224-305	126	81	98	23184	92736	185472	736	17	53
44-117-125	36	8	81	2574	10296	20592	286	73	53
52-165-173	44	8	121	4290	17160	34320	390	113	85
319-360-481	198	121	162	57420	229680	459360	1160	41	85
175-288-337	126	49	162	25200	100800	201600	800	113	85
217-456-505	168	49	288	49476	197904	395808	1178	239	169
696-697-985	408	288	289	242556	970224	1940448	2378	1	169
220-459-509	170	50	289	50490	201960	403920	1188	239	169
180-299-349	130	50	169	26910	107640	215280	828	119	89
336-377-505	208	128	169	63336	253344	506688	1218	41	89
57-176-185	48	9	128	5016	20064	40128	418	119	89
51-140-149	42	9	98	3570	14280	28560	340	89	65
252-275-373	154	98	121	34650	138600	277200	900	23	65
120-209-241	88	32	121	12540	50160	100320	570	89	65
136-273-305	104	32	169	18564	74256	148512	714	137	97
396-403-565	234	162	169	79794	319176	638352	1364	7	97
115-252-277	90	25	162	14490	57960	115920	644	137	97
85-132-157	60	25	72	5610	22440	44880	374	47	37
133-156-205	84	49	72	10374	41496	82992	494	23	37
16-63-65	14	2	49	504	2016	4032	144	47	37

4th Tertiary Branches

PPT	r	s	t	A	4A	8A	P	f	U+c−p
11-60-61	10	1	50		1320		132	49	41
140-171-221	90	50	81		47880		532	31	41
104-153-185	72	32	81		31824		442	49	41
152-345-377	120	32	225		104880		874	193	137
555-572-797	330	225	242		634920		1924	17	137
203-396-445	154	49	242		160776		1044	193	137
189-340-389	140	49	200		128520		918	151	109
429-460-629	260	169	200		394680		1518	31	109
96-247-265	78	18	169		47424		608	151	109
120-391-409	102	18	289		93840		920	271	205
765-868-1157	476	289	392		1328040		2790	103	205
429-700-821	308	121	392		600600		1950	271	205
539-1140-1261	418	121	722		1228920		2940	601	425
1748-1755-2477	1026	722	729		6135480		5980	7	425
560-1161-1289	432	128	729		1300320		3010	601	425
464-777-905	336	128	441		721056		2146	313	233
884-987-1325	546	338	441		1745016		3196	103	233
155-468-493	130	25	338		145080		1116	313	233
145-408-433	120	25	288		118320		986	263	193
744-817-1105	456	288	361		1215696		2666	73	193
364-627-725	266	98	361		456456		1716	263	193
420-851-949	322	98	529		714840		2220	431	305
1248-1265-1777	736	512	529		3157440		4290	17	305
369-800-881	288	81	512		590400		2050	431	305
279-440-521	198	81	242		245520		1240	161	125
455-528-697	286	169	242		480480		1680	73	125
60-221-229	52	8	169		26520		510	161	125
68-285-293	60	8	225		38760		646	217	173
615-728-953	390	225	338		895440		2296	113	173
407-624-745	286	121	338		507936		1776	217	173
561-1240-1361	440	121	800		1391280		3162	679	481
1960-2001-2801	1160	800	841		7843920		6762	41	481
684-1363-1525	522	162	841		1864584		3572	679	481
612-1075-1237	450	162	625		1315800		2924	463	337
1312-1425-1937	800	512	625		3739200		4674	113	337
273-736-785	224	49	512		401856		1794	463	337
315-988-1037	266	49	722		622440		2340	673	505
1900-2139-2861	1178	722	961		8128200		6900	239	505
1032-1705-1993	744	288	961		3519120		4730	673	505
1272-2665-2953	984	288	1681		6779760		6890	1393	985
4059-4080-5741	2378	1681	1682		33121440		13860	1	985
1275-2668-2957	986	289	1682		6803400		6900	1393	985
1037-1716-2005	748	289	968		3558984		4758	679	509
1917-2156-2885	1188	729	968		8266104		6958	239	509
320-999-1049	270	50	729		639360		2368	679	509
280-759-809	230	50	529		425040		1848	479	349
1357-1476-2005	828	529	648		4005864		4838	119	349
637-1116-1285	468	169	648		1421784		3038	479	349
715-1428-1597	546	169	882		2042040		3740	713	505
2059-2100-2941	1218	841	882		8647800		7100	41	505
592-1305-1433	464	128	841		1545120		3330	713	505
432-665-793	304	128	361		574560		1890	233	185
660-779-1021	418	242	361		1028280		2460	119	185
75-308-317	66	9	242		46200		700	233	185
69-260-269	60	9	200		35880		598	191	149
540-629-829	340	200	289		679320		1998	89	149
336-527-625	238	98	289		354144		1488	191	149
448-975-1073	350	98	625		873600		2496	527	373
1525-1548-2173	900	625	648		4721400		5246	23	373
517-1044-1165	396	121	648		1079496		2726	527	373
451-780-901	330	121	450		703560		2132	329	241
931-1020-1381	570	361	450		1899240		3332	89	241
184-513-545	152	32	361		188784		1242	329	241
200-609-641	168	32	441		243600		1450	409	305
1155-1292-1733	714	441	578		2984520		4180	137	305
611-1020-1189	442	169	578		1246440		2820	409	305
741-1540-1709	572	169	968		2282280		3990	799	565
2325-2332-3293	1364	961	968		10843800		7950	7	565
720-1519-1681	558	162	961		2187360		3920	799	565
576-943-1105	414	162	529		1086336		2624	367	277
1036-1173-1565	644	392	529		2430456		3774	137	277
165-532-557	140	25	392		175560		1254	367	277
135-352-377	110	25	242		95040		864	217	157
616-663-905	374	242	289		816816		2184	47	157
276-493-565	204	72	289		272136		1334	217	157
300-589-661	228	72	361		353400		1550	289	205
832-855-1193	494	338	361		1422720		2880	23	205
231-520-569	182	49	338		240240		1320	289	205
161-240-289	112	49	128		77280		690	79	65
225-272-353	144	81	128		122400		850	47	65
20-99-101	18	2	81		39600		220	79	65

5th Tertiary Branches

PPT	r	s	t	A	4A	8A	P	f	U+c−p
13-84-85	12	1	72		2184		182	71	61
204-253-325	132	72	121					[illegible]	61
160-231-281	110	50	121					71	61
240-551-601	190	50	361					311	221
893-924-1285	532	361	392					[illegible]	221
333-644-725	252	81	392					311	221
315-572-653	234	81	338					257	185
731-780-1069	442	289	338					[illegible]	185
168-425-457	136	32	289					257	185
216-713-745	[illegible]	32	[illegible]					497	377
1403-1596-2125	874	529	722					[illegible]	377
795-1292-1517	570	225	722					497	377
1005-2132-2357	780	225	1352					1127	797
3276-3293-4645	1924	1352	1369					[illegible]	797
1056-2183-2425	814	242	1369					1127	797
880-1479-1721	638	242	841					599	445
1692-1885-2533	1044	648	841					[illegible]	445
301-900-949	252	49	648					599	445
287-816-865	238	49	578					529	389
1496-1647-2225	918	578	729					[illegible]	389
740-1269-1469	540	200	729					529	389
860-1749-1949-	660	200	1089					889	629
2576-2607-3665	1518	1058	1089					[illegible]	629
767-1656-1825	598	169	1058					[illegible]	629
585-928-1097	416	169	512					343	265
969-1120-1481	608	361	512					[illegible]	265
132-475-493	114	18	361					343	265
156-667-685	138	18	529					511	409
1449-1720-2249	920	529	800					271	409
969-1480-1769	680	289	800					511	409
1343-2976-3265	1054	289	1922					1633	1157
4712-4815-6737	2790	1922	2025					[illegible]	1157
1652-3285-3677	1260	392	2025					[illegible]	1157
1484-2613-3005	1092	392	1521					1129	821
3200-3471-4771	1950	1250	1521					[illegible]	821
671-1800-1921	550	121	1250					1129	821
781-2460-2581	660	121	1800					1679	1261
4740-5341-7141	2940	1800	2401					601	1261
2584-4263-4985	1862	722	2401					1679	1261
3192-6695-7417	2470	722	4225					3503	2477
10205-10212-14437	5980	4225	4232					[illegible]	2477
3213-6716-7445	2484	729	4232					[illegible]	2477
2619-4340-5069	1890	729	2450					1721	1289
4859-5460-7309	3010	1849	2450					[illegible]	1289
816-2537-2665	688	128	1849					1721	1289
720-1961-2089	592	128	1369					1511	905
3515-3828-5197	2146	1369	1682					[illegible]	905
1659-2900-3341	1218	441	1682					[illegible]	905
1869-3740-4181	1428	441	2312					1871	1325
5405-5508-7717	3196	2209	2312					[illegible]	1325
1560-3431-3769	1222	338	2209					[illegible]	1325
1144-1767-2105	806	338	961					623	493
1764-2077-2725	1116	648	961					[illegible]	493
205-828-853	180	25	648					623	493
195-748-773	170	25	578					553	433
1564-1827-2405	986	578	841					[illegible]	433
984-1537-1825	696	288	841					[illegible]	433
1320-2881-3169	1032	288	1849					1561	1105
4515-4588-6437	2666	1849	1922					[illegible]	1105
1539-3100-3461	1178	361	1922					[illegible]	1105
1347-2338-2699	986	361	1352					991	725
2805-3068-4157	1716	1089	1352					[illegible]	725
560-1551-1649	462	98	1089					991	725
[illegible]	[illegible]	[illegible]	[illegible]					1271	949
3589-4020-5389	2220	1369	1800					[illegible]	949
1909-3180-3709	1380	529	1800					[illegible]	949
2323-4836-5365	1794	529	3042					[illegible]	1777
7315-7332-10357	4290	3025	3042					[illegible]	1777
2272-4785-5297	1760	512	3025					[illegible]	1777
1824-2993-3505	1312	512	1681					1169	881
3300-3731-4981	2050	1250	1681					[illegible]	881
531-1700-1781	450	81	1250					1169	881
441-1160-1241	360	81	800					719	521
2040-2201-3001	1240	800	961					[illegible]	521
924-1643-1885	682	242	961					[illegible]	521
1012-1995-2237	770	242	1225					983	697
2832-2905-4057	1680	1152	1225					[illegible]	697
793-1776-1945	624	169	1152					[illegible]	697
559-840-1009	390	169	450					281	229
799-960-1249	510	289	450					[illegible]	229
76-357-365	68	8	289					281	229
84-437-445	76	8	361					353	293
1007-1224-1585	646	361	578					217	293
735-1088-1313	510	225	578					353	293
1065-2408-2633	840	225	1568					1343	953
3864-3977-5545	2296	1568	1681					[illegible]	953
1404-2747-3085	1066	338	1681					[illegible]	953
1300-2331-2669	962	338	1369					1031	745
2928-3145-4297	1776	1152	1369					[illegible]	745
649-1680-1801	528	121	1152					1031	745
803-2604-2725	682	121	1922					1801	1361
5084-5763-7685	3162	1922	2601					[illegible]	1361
2840-4641-5441	2040	800	2601					1801	1361
3560-7521-8321	2760	800	4761					3961	2801
11523-11564-16325	6762	4761	4802					[illegible]	2801
3683-7644-8485	2842	841	4802					[illegible]	2801
3045-5092-5933	2204	841	2888					2047	1525
5781-6460-8669	3572	2209	2888					[illegible]	1525
1008-3055-3217	846	162	2209					2047	1525
936-2623-2785	774	162	[illegible]					2461	1237
4773-5236-7085	2924	1849	2312					[illegible]	1237
2325-4012-4637	1700	625	2312					[illegible]	1237
2675-5412-6037	2050	625	3362					2737	1937
7923-8036-11285	4674	3249	3362					[illegible]	1937
2336-5073-5585	1824	512	3249					[illegible]	1937
1760-2769-3281	1248	512	1521					1009	785
2852-3315-4373	1794	1058	1521					[illegible]	785
371-1380-1429	322	49	1058					1009	785
413-1716-1765	364	49	1352					1303	1037
3692-4365-5717	2340	1352	2025					[illegible]	1037
2432-3735-4457	1710	722	2025					[illegible]	1037
3344-7383-8105	2622	722	4761					4039	2861
11661-11900-16661	6900	4761	5000					[illegible]	2861
4061-8100-9061	3100	961	5000					[illegible]	2861
3627-6364-7325	2666	961	3698					2737	1993
7755-8428-11453	4730	3025	3698					[illegible]	1993
1608-4345-4633	1320	288	3025					2737	1993
1848-5785-6073	1560	288	4225					3937	2953
11115-12508-16733	6890	4225	5618					1393	2953
6027-9964-11645	4346	1681	5618					[illegible]	2953
7421-15540-17221	5740	1681	9800					8119	5741
23660-23661-33461	13860	9800	9801					[illegible]	5741
7424-15543-17225	5742	1682	9801					[illegible]	5741
6032-9975-11657	4350	1682	5625					3943	2957
11132-12525-16757	6900	4232	5625					[illegible]	2957
1853-5796-6085	1564	289	4232					3943	2957
1615-4368-4657	1326	289	3042					2753	2005
7800-8479-11521	4758	3042	3721					679	2005
3652-6405-7373	2684	968	3721					[illegible]	2005
4092-8165-9133	3124	968	5041					[illegible]	2885
11760-11999-16801	6958	4802	5041					239	2885
3375-7748-8177	2646	729	4802					4073	2885
2457-3776-4505	1728	729	2048					1319	1049
3737-4416-5785	2368	1369	2048					[illegible]	1049
420-1739-1789	370	50	1369					1319	1049
380-1419-1469	330	50	1089					1039	809
2937-3416-4505	1848	1089	1568					479	809
1817-2856-3385	1288	529	1568					[illegible]	809
2415-5248-5777	1886	529	3362					2833	2005
8200-8319-11681	4838	3362	3481					119	2005
2772-5605-6253	2124	648	3481					2833	2005
2412-4165-4813	1764	648	2401					1753	1285
4960-5439-7361	3038	1922	2401					[illegible]	1285
975-2728-2897	806	169	1922					1753	1285
1053-3196-3365	884	169	2312					2143	1597
6052-6765-9077	3740	2312	3025					713	1597
3192-5335-6217	2310	882	3025					2143	1597
3864-8023-8905	2982	882	5041					4159	2941
12100-12141-17141	7100	5000	5041					[illegible]	2941
3741-7900-8741	2900	841	5000					4159	2941
2987-4884-5725	2146	841	2738					1897	1433
5355-6068-8093	3330	2025	2738					[illegible]	1433
848-2745-2873	720	128	2025					1897	1433
688-1785-1913	560	128	1225					1097	793
3115-3348-4573	1890	1225	1458					233	793
1387-2484-2845	1026	361	1458					1097	793
1501-2940-3301	1140	361	1800					1439	1021
4141-4260-5941	2460	1681	1800					[illegible]	1021
1144-2583-2825	902	242	1681					[illegible]	1021
792-1175-1417	550	242	625					383	317
1092-1325-1717	700	392	625					[illegible]	317
93-476-485	84	9	392					383	317
87-416-425	78	9	338					329	269
936-1127-1465	598	338	529					[illegible]	269
660-989-1189	460	200	529					329	269
940-2109-2309	740	200	1369					1169	829
3367-3456-4825	1998	1369	1458					[illegible]	829
1207-2376-2665	918	289	1458					[illegible]	829
1105-1968-2257	816	289	1152					863	625
2449-2640-3601	1488	961	1152					[illegible]	625
532-1395-1493	434	98	961					863	625
644-2067-2165	546	98	1521					1423	1073
4017-4544-6065	2496	1521	2048					[illegible]	1073
2225-3648-4273	1600	625	2048					1423	1073
2775-5848-6473	2150	625	3698					3073	2173
8944-8967-12665	5246	3698	3721					[illegible]	2173
2844-5917-6565	2196	648	3721					[illegible]	2173
2340-3901-4549	1692	648	2209					1561	1165
4408-4935-6617	2726	1682	2209					[illegible]	1165
759-2320-2441	638	121	1682					1561	1165
693-1924-2045	572	121	1352					1231	901
3484-3813-5165	2132	1352	1681					[illegible]	901
1680-2911-3361	1230	450	1681					1231	901
1920-3871-4321	1470	450	2401					1951	1381
5644-5733-8045	3332	2312	2401					[illegible]	1381
1653-3604-3965	1292	361	2312					[illegible]	1381
1235-1932-2293	874	361	1058					697	545
1971-2300-3029	1242	729	1058					[illegible]	545
248-945-977	216	32	729					697	545
264-1073-1105	232	32	841					809	641
2291-2700-3541	1450	841	1250					[illegible]	641
1491-2300-2741	1050	441	1250					809	641
2037-4484-4925	1596	441	2888					2447	1733
7068-7205-10093	4180	2888	3025					[illegible]	1733
2448-4895-5473	1870	578	3025					[illegible]	1733
2176-3807-4385	1598	578	2209					1631	1189
4620-5029-6829	2820	1800	2209					409	1189
949-2580-2749	780	169	1800					1631	1189
1079-3360-3529	910	169	2450					2281	1709
6440-7239-9689	3990	2450	3249					[illegible]	1709
3476-5757-6725	2508	968	3249					2281	1709
4268-8925-9893	3300	968	5625					4657	3293
13568-13575-19193	7950	5618	5625					[illegible]	3293
4247-8904-9865	3286	961	5618					[illegible]	3293
3441-5680-6641	2480	961	3200					2239	1681
6321-7120-9521	3920	2401	3200					[illegible]	1681
1044-3283-3445	882	162	2401					2239	1681
900-2419-2581	738	162	1681					1519	1105
4305-4672-6353	2624	1681	2048					[illegible]	1105
2001-3520-4049	1472	529	2048					1519	1105
2231-4440-4969	1702	529	2738					2209	1565
6375-6512-9113	3774	2601	2738					[illegible]	1565
1820-4029-4421	1428	392	2601					[illegible]	1565
1316-2013-2405	924	392	1089					697	557
1976-2343-3065	1254	722	1089					[illegible]	557
215-912-937	190	25	722					697	557
185-672-697	160	25	512					487	377
1376-1593-2105	864	512	729					217	377
836-1323-1565	594	242	729					[illegible]	377
1100-2379-2621	858	242	1521					1279	905
3705-3752-5273	2184	1521	1568					[illegible]	905
1241-2520-2809	952	289	1568					1279	905
1071-1840-2129	782	289	1058					769	565
2175-2392-3233	1334	841	1058					[illegible]	565
420-1189-1261	348	72	841					769	565
444-1333-1405	372	72	961					889	661
2511-2800-3761	1550	961	1250					289	661
1311-2200-2561	950	361	1250					889	661
1577-3264-3625	1216	361	2048					1687	1193
4905-4928-6953	2880	2025	2048					[illegible]	1193
1508-3195-3533	1170	338	2025					[illegible]	1193
1196-1947-2285	858	338	1089					751	569
2120-2409-3209	1320	800	1089					[illegible]	569
329-1080-1129	280	49	800					751	569
496-897-1025	368	128	529					401	289
1140-1219-1669	690	450	529					[illegible]	289
259-660-709	210	49	450					[illegible]	289
528-1025-1153	400	128	625					497	353
1428-1475-2053	850	578	625					[illegible]	353
387-884-965	306	81	578					[illegible]	353
261-380-461	180	81	200					119	101
341-420-541	220	121	200					[illegible]	101
24-143-145	22	2	121		6864		312	119	101

Summary

Following U/c=p:

The U/c=p defines the COMMON DIAGONAL of the GOLDEN TREE QUARE to its AXIS.

$U = s^2 + t^2 = cp$

$p = U/c$

Each **Tertiary Branch cluster** segment has the **SAME *p-value*–AND–equals the previous *c-value*** of the **Branch** from which it came.

That *p*-value relates back to the previous, larger **Branch** from which it came by multiples of 4.

The differences Δ in the *p-values**: 4th-1stTert.

Δ 41-16= 25
Δ137-112= 25 Δ25-12=13 Δ13-8=5 Δ5-4=1
Δ109-84= 25
Δ205-132= 73
Δ425-352= 73 Δ73-60=13 Δ13-8=5 Δ5-4=1
Δ233-160= 73
Δ193-140= 53
Δ305-252= 53 Δ53-40=13 Δ13-8=5 Δ5-4=1
Δ125-72= 53

Δ173-88= 85
Δ481-396= 85 Δ85-56=29 Δ29-24=5 Δ5-4=1
Δ337-252= 85
Δ505-336=169
Δ985-816=169 Δ169-140=29 Δ29-24=5 Δ5-4=1
Δ509-340=169
Δ349-260= 89
Δ505-416= 89 Δ89-60=29 Δ29-24=5 Δ5-4=1
Δ185-96= 89

Δ 149-84= 65
Δ373-308= 65 Δ65-48=17 Δ17-12=5 Δ5-4=1
Δ241-176= 65
Δ305-208= 97
Δ565-468= 97 Δ97-80=17 Δ17-12=5 Δ5-4=1
Δ277-180= 97
Δ157-120= 37
Δ205-168= 37 Δ37-20=17 Δ17-12=5 Δ5-4=1
Δ 65-28= 37

3rd-2nd-1st Tertiary Branches

Δ 25-12=13
Δ 73-60=13 Δ13-8=5 Δ5-4=1
Δ 53-40=13
Δ 85-56=29
Δ169-140=29 Δ29-24=5 Δ5-4=1
Δ 89-60=29
Δ 65-48=17
Δ 97-80=17 Δ17-12=5 Δ5-4=1
Δ 37-20=17

*The Δ between (the Δ in the Middle Branch Cluster) - ∑ of the (Upper + Lower Branch Cluster) = ΔP - P$_{previous}$

Example from top: (112) - (16 + 84) = 12 = Δ25-13

$p=c_{previous}$ $P=r_{mid\text{-}next}$ $2P=\Delta p_{mid\text{-}next\ \&\ next}$
$2P+p_{next}=2P+c_{prev}=c_{mid\text{-}next\text{-}middlecluster}$
f_{mid}=constant $f_{u/l}+p_{u/l}=f_{mid}$
$\sqrt{8A+f^2}=f_{u/l\text{-}next}$ $f=b-a=t-s$ $p+r=s+t$
$r_{l/o\text{-}next}=\sum(a+b+c)/(a/2)$ for outside only
$2P+p_{next}=2P+c_{prev}=c_{mid\text{-}next\text{-}middlecluster}$
$2P+p_{next}=2P+c_{prev}=c_{mid\text{-}next\text{-}uppercluster}$
$2P+p_{next}=2P+c_{prev}=c_{mid\text{-}next\text{-}lowercluster}$
$f_{mid}-p_{mid\text{-}next}=f_{u/l\text{-}next}$ $f_{mid}+p_{mid\text{-}next}=f_{u/l\text{-}next}$
$c-b=s$ $c-a=t$ $a+c=s_{mid\text{-}next}$ $b+c=t_{mid\text{-}next}$
$r_{mid\text{-}next}=\sum(a+b+c)$ $r_{up\text{-}next}=\sum(a+b+c)/a$ for outside only
$P=2c+r$ $c-2r=p$ $c=2r+p$
$c-r_{u/l\text{-}next}=f_{mid\text{-}next}$ $r_{mid}-p=f_{u/l}$
$r_{mid}-f_{mid}-r_{u/l}=f_{u\&l}$

Table 2p

Key: **PPT=Primitive Pythagorean Triple**; *r*=**even #** such that $r^2/2=st$ where ***s,t*** are Factor Pairs; **A=Area; 4A=4Area; 8A=8Area; *f=b-a* & *f²=(b-a)²***, as $a^2 + b^2 = c^2 = 4A + f^2 = (8A + f^2) - 4A$ & ***U/c=p***.

The Tree of Pythagorean Triples branches from the **3-4-5 PPT** trunk first into a 3-part main branch, each of which further branches into 2nd, 3rd, 4th, …, tertiary branches. Each tertiary follows the lead *f*-value of its predecessor, but is actually formed as an intermediary to the upper and lower branches of which it is a part. All **PPTs** — with no repeats — are to be found. ***Pythagoras*** first discovered the UPPER branch sequence, ***Plato*** (a century later) discovered the LOWER branch sequence. The MIDDLE branch sequence follows as an intermediary, hybrid sequence of the UPPER and LOWER. Using the *Expanded Dickson Method* on the **BBS-ISL Matrix**, every **PPT** branch is accounted for by the previous branch. This is done by enlisting the *r,s,t,*A,4A,8A,*f* associated values. All these values are derived directly from the respective **PPT** by both algebra and geometry. In **Table 2a** we looked at the overall. In **Table 2b**, we examine how the UPPER and LOWER branches (blue) are made from the trunk (red). In **Table 2c**, we see how the MIDDLE branch (red) is formed from the UPPER and LOWER (blue) branches and the trunk (red). As a fractal, this ***Number Pattern Sequence*** that defines the first branchings, continues through the entire tree. **Table 2d** shows BLUE branching to **2nd Tertiary Branches**. **Table 2e** reveals the power of *f*. **Table 2f** tells all. **Table 2g-h** follows **Table 2f** and ***p***. In **Table 2i -j, the 4th Tertiary Branch is added.** In **Table 2l -n, the 5th Tertiary Branch is added.**

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$c-f_{mid}=r_{u/l\text{-}next}$ $c+f_{mid}=r_{u/l\text{-}next}$ $4A=r_{u/l\text{-}next}$ factors

∑ of s,t cross-members within a cluster are equal, AND, they follow a number pattern sequence down the table with linkage (2 entries), AND, always 1 EVEN & 1 ODD

(See Table 2m or 2n for closeups of the 5th Tertiary Tree.)
(See Tables 2e,g,j,k & l for examples of $\sqrt{8A+f^2}=f_{u/l\text{-}next}$)