

		$(2y^2+y)/y$	$[2(x^2+y^2)]-1$	$z^2 - OC$	$x^2 - CR$	$(x^2 - CR)^2$	$z^2 - PN$	$z - x$	$(z - x)^2$	$x^2 - x$			$PN = \Delta Mp^2 \cdot 2^p / 8$ $\Delta Mp^2 = (Mp+1)^2 - (Mp-1)^2$	
		$(2x^2-x)/x$	$4CR + 1$	$xMp = 2CR + x$	$xz/Mp = (Mp+1)/2$	$CR + x$	$yMp = 2CR - y$	$yz/Mp = CR - y$ $(Mp - 1)/2$	$CR - y$	$y^2 + y$				
		$x + y = x^2 - y^2$	$xz + yz$	$x^2 + xy = 2xy + x = 2x^2 - x$	$x^2 - xy$	$xz - xy$	$y^2 + xy = 2xy - y = 2y^2 + y$	$x - 1 = (xz - 1)/(2^p + 1)$	$(yz/z)^2$	$xz - x^2$	$[(xz-1)/y] - 1$	$(xz-1)/y$	"STEPS"	
	$2x^{exp}$	$2PN/2^p$	$PN + OC$	$Mp + OC$	PN/Mp	$(PN/Mp)^2$	$PN - Mp$	OC/Mp	$(OC/Mp)^2$	$PN-PNS$	$2PN/Mp$	$(PN-1)/y$	from PD to PN	
	p	z	z^2	xz	x	x^2	yz	y	y^2	xy	$z + 1$	$z + 2$	$x/4$	p
#	p	$Mp = 2^p - 1$	$Mp^2 = MPS$	$PN = (2^{p-1})(2^p - 1)$	$2^{p-1} = 2^p/2$	PNS	OC	OC/Mp	OCS	CR	2^p	$2^p + 1$	$2^p/8$	p
1	2	3	9	6	2	4	3	1	1	2	4	5	0.5	2
2	3	7	49	28	4	16	21	3	9	12	8	9	1	3
3	4	15	225	120	8	64	105	7	49	56	16	17	2	4
4	5	31	961	496	16	256	465	15	225	240	32	33	4	5
5	6	63	3969	2016	32	1024	1953	31	961	992	64	65	8	6
6	7	127	16129	8128	64	4096	8001	63	3969	4032	128	129	16	7
7	8	255	65025	32640	128	16384	32385	127	16129	16256	256	257	32	8
8	9	511	261121	130816	256	65536	130305	255	65025	65280	512	513	64	9
9	10	1023	1046529	523776	512	262144	522753	511	261121	261632	1024	1025	128	10
10	11	2047	4190209	2096128	1024	1048576	2094081	1023	4190209	4192256	2048	2049	256	11
11	12	4095	16769025	8386560	2048	4194304	8382465	2047	16769025	16773120	4096	4097	512	12
12	13	8191	67092481	33550336	4096	16777216	33542145	4095	67092481	67100672	8192	8193	1024	13
13	14	16383	268402689	134209536	8192	67108864	134193153	8191	268402689	268419072	16384	16385	2048	14
14	15	32767	1073676289	536854528	16384	268435456	536821761	16383	1073676289	1073709056	32768	32769	4096	15
15	16	65535	4294836225	2147450880	32768	1073741824	2147385345	32767	4294836225	4294901760	65536	65537	8192	16
16	17	131071	17179607041	8589869056	65536	4294967296	8589737985	65535	17179607041	17179738112	131072	131073	16384	17
17	18	262143	68718952449	34359607296	131072	17179869184	34359345153	131071	68718952449	68719214592	262144	262145	32768	18
18	19	524287	274876858369	137438691328	262144	68719476736	137438167041	262143	274876858369	274877382656	524288	524289	65536	19
19	20	1048575	1099509530625	549755289600	524288	274877906944		0	1099509530625	1099510579200	1048576	1048577	131072	20
20	21	2097151	4398042316801	2199022206976	1048576	1099511627776			4398042316801	4398044413952	2097152	2097153	262144	21
21	22	4194303	17592177655809	8796090925056	2097152	4398046511104			17592177655809	17592181850112	4194304	4194305	524288	22
22	23	8388607	70368727400449	35184367894528	4194304	17592186044416			70368727400449	70368735789056	8388608	8388609	1048576	23
23	24	16777215	281474943156225	140737479966720	8388608	70368744177664			281474943156225	281474959933440	16777216	16777217	2097152	24
24	25	33554431	1125899839733760	562949936644096	16777216	281474976710656			1125899839733760	1125899873288192	33554432	33554433	4194304	25
25	26	67108863	4503599493152770	2251799780130816	33554432	1125899906842624			4503599493152770	4503599560261632	67108864	67108865	8388608	26
26	27	134217727	18014398241046500	9007199187632128	67108864	4503599627370496		0	18014398241046500	18014398375264256	134217728	134217729	16777216	27
27	28	268435455	72057593501057000	36028796884746240	134217728	18014398509481984		0	72057593501057000	72057593769492480	268435456	268435457	33554432	28
28	29	536870911	288230375077970000	144115187807420416	268435456	72057594037927936		0	288230375077970000	288230375614840832	536870912	536870913	67108864	29
29	30	1073741823	1152921502459360000	576460751766552576	536870912	28823037615171968		0	1152921502459360000	1152921502459363329	1073741824	1073741825	134217728	30
30	31	2147483647	4611686014132420609	2305843008139952128	1073741824	1152921504606846976	2305843005992468481	1073741823	4611686014132420609		2147483648	2147483649	268435456	31
31	Ends	1 or 7	1 or 9	6 or 8	4 or 6	6	1 or 5	3 or 5	5 or 9	0 or 2	2 or 8	3 or 9	4 or 6	
32	p	ODD	ODD	EVEN	EVEN	EVEN	ODD	ODD	ODD	EVEN	EVEN	ODD	EVEN	p

finish table: next entry would be p=20, x=524288...

KEY: p=PRIME Mp=Mersenne Prime = 2^p - 1 Mp² = Mersenne Prime Square PN=Perfect Number = (2^{p-1})(2^p - 1) OC=ODD Complement (to PN) PNS=Perfect Number Square OCS=ODD Complement Square CR=Complement Rectangle

End # Analysis: z²+xz=7 z²+xy=1 x+xz=2 y+xz=1 x+xy=6 y²+yz=0 xz-xy=6 z²·x=6 x²·z²=x y²·z²=yz Δx&y=1 Δy²&xz=1 holds true for ALL except for first, p=2. See Table 137.

Table 124: Mersenne Prime Squares: 13 parameters of the First 51 Mersenne Primes. copyright©2021-23, Reginald Brooks, Brooks Design. All rights reserved.