



The Dozenal Society of Great Britain

Primes in base twelve

List 1: primes under *600 (omitting 2 and 3)

	5	7	ε
11	15	17	1ε
	25	27	
31	35	37	3ε
	45		4ε
51		57	5ε
61		67	6ε
	75		
81	85	87	8ε
91	95		
		77	7ε
	ε5	ε7	
	105	107	
111		117	11ε
	125		12ε
131			13ε
141	145	147	
		157	
		167	16ε
171	175		17ε
181			18ε
	195		19ε
	175	177	
1ε1	1ε5	1ε7	
	205		
		217	21ε
221	225		
		237	
241			24ε
251	255		25ε
		267	
271		277	27ε
	285		
291	295		
271			27ε
2ε1			2εε

301		307	30E
	315		
321	325	327	32E
			33E
		347	34E
		357	35E
	365		
	375	377	
391		397	
	3Z5		3ZE
	3E5	3E7	
401			40E
	415		41E
421		427	
431	435	437	
		447	
	455	457	45E
	465		46E
471			
481	485		48E
		497	
	4Z5		
4E1			4EE
		507	
511		517	51E
		527	
531	535		
541	545		
		557	
	565		
	575	577	
	585	587	58E
591			59E
5E1	5E5	5E7	5EE

Prime numbers above 3 are confined, in dozenal notation, to the four possible endings 1, 5, 7 and E). They are thus of the form $10n\pm 1$ and $10n\pm 5$.

These four cases are variants of the forms $4n\pm 1$ and $6n\pm 1$, the latter of which have been described in another leaflet.

The Manual of the Dozen System (DSA) points out that each of the four dozenal classifications has its own special characteristics. As an illustration, consider the prime number 7, which is of the form $10n-5$. If we divide 1 by 7 we get as a reciprocal a circulating dozenal of 6 figures [186Z35]. The number of figures in such reciprocals is at most one less than the prime ($p-1$), or it is a factor of ($p-1$). But all of the primes whose reciprocals extend to the full period ($p-1$) occur in the groups $10n\pm 5$. The $10n$ formulæ refine the $4n$ formulæ by eliminating numbers ending in 3 or 9 as composites, although they number one-third of the possible $4n$ cases. This is a good illustration of the special refinements which dozenals offer in number analysis.