tools must be, until the desired proofs would be found.

References [15] and [16] were called to the author's attention by K. A. Hirsch.

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GROUPS OF PRIMES HAVING MAXIMUM DENSITY

By John Leech

The following lists give groups of six or more primes which minimize the difference between first and last, the lists being complete for the range 50 to 100 00000. Four numbers out of nine can be prime, such as 191, 193, 197, 199. There are 897 such groups of four in the range. Five numbers out of thirteen can be prime; there are 318 such groups in the range. Six numbers out of seventeen can be prime, such as 97, 101, 103, 107, 109, 113; there are seventeen such groups in the range, centered on:

Received February 7, 1955. Due to misfiling in the *MTAC* office, this paper is appearing later than was scheduled; see *MTAC*, Review 110, v. 11, 1957, p. 274. Some of the results have meanwhile appeared in "On a generalization of the prime pair problem," by Herschel F. Smith, *MTAC*, v. 11, 1957, p. 274.

105	1091265	2839935	6503595	8741145
16065	1615845	3243345	7187775	
19425	1954365	3400215	7641375	
43785	2822715	6005895	8062005	

Seven numbers out of 21 can be prime, eight out of 27 and nine out of 31. These all occur and are listed below. It is possible for ten numbers out of 33 to be prime and eleven out of 37, but these do not occur in the range; included in the list are such groups of nine out of 33 and ten out of up to 37 as occur in the range.

	1	3	5	7	9	1	3	5	7	9	1	3	5	7	9	1	3	5	7	9	7	8	9	10
																						out of		
1271	31	19	—	*	*	—	*	—	—	*	*	—	—	*	—	*	*	—	*	7	—	27	31	
5621	7	*	—	17	13	—	43	—	—	*	*	—	—	*	—	*	*	—	*	*	21			
88781	7	47	—	19	*	—	*	—	—	*	*	—	—	*	—	*	*	—	*	*	21	27	31	
113141	7	*	—	*	*	—	*	—	—	*	*	—	—	*	—	*	*	—	*	11	—	27	31	35
165701	*	*	—	*	*	—	*	—	—	*	*	—	—	103	—	53	17	—	11	7	21			
284711	7	11	—	23	101	—	*	—	—	*	*	—	—	*	—	*	*	—	*	*	21	27		
416381	7	11	—	*	*	—	*	—	—	*	*	—	—	*	—	29	*	—	*	*	—	—	33	
626591	7	11	—	*	*	—	17	—	—	*	*	—	—	*	—	*	*	—	*	*	21	—	33	
855701	7	19	—	149	*	—	*	—	—	*	*	—	—	*	—	*	*	—	*	*	21	27	31	
1068701	*	*	—	*	*	—	*	—	—	*	*	—	—	11	—	19	47	—	29	7	21			
1146761	7	*	—	43	13	—	*	—	—	*	*	—	—	*	—	*	*	—	*	*	21	27		
2580641	7	13	—	*	*	—	*	—	—	*	*	—	—	*	—	*	*	—	11	457	—	27		
6560981	7	11	—	*	29	—	*	—	—	*	*	—	—	*	—	*	*	—	*	*	21	27	33	
6937931	7	*	—	*	*	—	*	—	—	*	*	—	—	13	—	*	*	—	*	*	—	—	33	37
7540421	7	11	—	1879	13	—	41	—	—	*	*	—	—	*	—	*	*	—	*	*	21			
8573411	7	*	—	191	*	—	17	—	—	*	*	—	—	*	—	*	*	—	*	*	21			

In each line, the number in the left hand column is the first number for the line, an asterisk indicates a prime, a dash a multiple of 3 or 5 and a number the least factor of any other composite. There are thus seen to be eleven groups of seven primes in 21 numbers, eight of eight primes in 27, five of nine primes in 31 (two in the line beginning with 113141) and four more of nine in 33, and one group of ten in 35 and one of ten in 37. The range 1 to 50 is excluded as being altogether exceptional. A list of the groups of four and five has been deposited in the *UMT* file of *MTAC* (see Review **110**, *MTAC*, v. 11, 1957, p. 274).

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REVIEWS AND DESCRIPTIONS OF TABLES AND BOOKS

60[**A, B, C, D, H, I, K, L, M, P, R, V, X, Z**].—George E. Forsythe, *Bibliography of Russian Mathematics Books*, Chelsea Publishing Co., New York, 1956, 106 p., 20 cm. Price $3.95.

Professor Forsythe precedes his very useful bibliography of Russian mathematical books with an informative introduction which contains, among others, a complete review of the book. To quote Prof. Forsythe:

"The subject matter of the books listed is mathematics, pure and applied, including tables beyond the most elementary, but excluding descriptive geometry. There are a few titles on quantum mechanics and other branches of mathematical physics, and more on mechanics, mathematical machines and nomography, but