ON SIZE OF GRAPHS WITH GIRTH GREATER THAN 8

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We present new lower bounds on the maximum size of graphs with prescribed order, \( n \), and girth, \( g > t \), for \( t \in \{8; 9; 10\} \) and \( n \leq 200 \). We use these bounds and some new constructions to establish the maximum size of the graphs with orders; \( n \in \{23; 24; 25; 26\} \) and \( t = 8 \); \( n \in \{26; 27; 28; 29\} \) and \( t = 9 \); and \( n = 30 \) and \( t = 10 \). We also find an infinite family of graphs with maximum size, considering girth and order restraints based on the subdivision of the Petersen graph.

**Keywords:** Extremal graph, Extremal number, girth.