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# Table of large $(\Delta, D)$ -graphs

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*Abstract*

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Given is a table of large  $(\Delta, D)$ -graphs (Table 1).

## **Graphs.**

- 2cy* Connection of two cycles [2],
- 9a* Cayley graphs found in a paper by 9 authors [7],
- Allwr* special graphs found by Allwright,
- BD* construction by Bond and Delorme [5],
- Cam* Cayley graphs found by Campbell [6],
- CCD* Cayley graphs found by Chudnovsky, Chudnovsky and Denneau [8],
- CR\** chordal rings found by Quisquater [19],
- Din* Cayley graphs found by Dinneen [14],
- Dinn* Cayley graphs found by Dinneen (August 1990),
- Doty* chordal rings found by Doty [15],
- C<sub>n</sub>* cycle on  $n$  vertices,
- GFS* special graph by Gómez, Fiol and Serra [17],
- H<sub>q</sub>* incidence graph of a regular generalized hexagon [3],
- HS* Hoffman–Singleton graph,
- K<sub>n</sub>* complete graph,

Table 1

<i>D</i>									
$\Delta$	2	3	4	5	6	7	8	9	10
3	<i>P</i>	$C_5 * F_4$	<i>YFA</i>	<i>YFA</i>	<i>GFS</i>	<i>CR*</i>	<i>CR*</i>	2cy	2cy
	10	20	38	70	130	184	320	540	938
4	$K_3 * C_5$	<i>Allwr</i>	$C_5 * C_{19}$	$H'_3$	<i>GFS</i>	<i>CCD</i>	<i>CCD</i>	<i>CCD</i>	<i>CCD</i>
	15	41	95	364	734	1 081	2 943	7 439	15 657
5	$K_3 * X_8$	<i>Lente</i>	2cy	$H'_3d$	<i>GFS</i>	<i>Dinn</i>	<i>Dinn</i>	2cy	2cy
	24	70	184	532	2 742	4 380	12 246	41 684	132 000
6	$K_4 * X_8$	$C_5 * C_{21}$	9a	<i>Dinn</i>	<i>GFS</i>	<i>Dinn</i>	<i>Dinn</i>	2cy	2cy
	32	105	355	1 088	7 832	14 878	53 368	210 000	900 000
7	<i>HS</i>	2cy	2cy	<i>Dinn</i>	<i>GFS</i>	<i>Dinn</i>	2cy	9a	<i>Cam</i>
	50	136	506	2 460	10 554	41 024	150 000	911 088	4 773 696
8	$P'_7$	9a	<i>Dinn</i>	<i>Dinn</i>	<i>GFS</i>	<i>Dinn</i>	2cy	2cy	<i>Cam</i>
	57	203	915	4 108	39 258	104 808	481 179	2 400 000	7 738 848
9	$P'_8d$	$Q'_8$	<i>Din</i>	<i>Dinn</i>	<i>GFS</i>	<i>Dinn</i>	2cy	<i>Dinn</i>	<i>Cam</i>
	74	585	1 254	6 890	74 954	217 622	1 320 000	4 965 098	19 845 936
10	$P'_9$	$Q'_8d$	<i>GFS</i>	9a	<i>GFS</i>	<i>Din</i>	2cy	2cy	$Q_7 \Sigma_2 H_7$
	91	650	1 820	12 144	132 932	490 052	3 000 000	9 000 000	47 059 200
11	$P'_9d$	$Q'_8d$	$Q_7(T_4)$	<i>Dinn</i>	$H_7(T_4)$	<i>Dinn</i>	<i>Cam</i>	<i>Cam</i>	$Q_7 \Sigma_6 H_8$
	94	715	3 200	16 578	156 864	914 414	4 200 000	21 345 930	179 755 200
12	$P'_{11}$	$Q'_8d$	$Q'_8 * X_8$	<i>Dinn</i>	<i>GFS</i>	<i>Dinn</i>	2cy	$P_8 \Sigma_7 H_9$	$Q_8 \Sigma_6 H_9$
	133	780	4 680	26 268	354 422	1 732 514	10 000 000	48 493 900	466 338 600
13	$P'_{11}d$	$Q'_8d$	$Q_9(T_4)$	<i>Dinn</i>	$H_9(T_4)$	<i>Cam</i>	2cy	$P_9 \Sigma_1 H_9$	$Q_9 \Sigma_6 H_9$
	136	845	6 560	33 354	531 440	2 723 040	15 000 000	72 541 560	762 616 400
14	$P'_{13}$	$Q'_8d$	$Q_9(T_3)$	$K_1 \Sigma_8 Q_{11}$	<i>GFS</i>	$K_1 \Sigma_8 H_{11}$	<i>Dinn</i>	$P_9 \Sigma_7 H_{11}$	$Q_8 \Sigma_6 H_{11}$
	183	910	8 200	51 240	804 624	6 200 460	29 992 052	164 755 080	1 865 452 680
15	$P'_{13}d$	$(\otimes Q_{2,4})'$	$Q_{11}(T_4)$	$K_1 \Sigma_8 Q_{11}$	$H_{11}(T_4)$	$K_1 \Sigma_8 H_{11}$	$K_{8,8} \Sigma_6 H_{11}d$	$P_{11} \Sigma_1 H_{11}$	$Q_{11} \Sigma_6 H_{11}$
	186	1 215	11 712	58 560	1 417 248	7 086 240	35 947 392	282 740 976	3 630 989 376
16	$P'_{13}d$	$(\otimes Q_3)'$	$Q_{11}(T_3)$	$(\otimes H_3)'$	$H_{11}(T_3)$	$K_1 \Sigma_8 H_{13}$	$K_{9,9} \Sigma_6 H_{13}$	$P_9 \Sigma_7 H_{11}$	$Q_{11}d \Sigma_6 H_{13}$
	197	1 600	14 640	132 496	1 771 560	14 882 658	86 882 544	585 652 704	7 394 669 856

- Lente* special graph designed by Lente,  
*P* Petersen graph,  
 $P_q$  incidence graph of projective plane [18],  
 $Q_q$  incidence graph of a regular generalized quadrangle [3],  
 $Q_{r,s}$  incidence graph of a generalized quadrangle [18],  
*T* tournament,  
*YFA* compound graphs designed by Yebra, Fiol and Alegre [1].

### Operations

- $G * H$  twisted product of graphs [4],  
*Gd* duplication of some vertices of *G* [12],  
*Gi* insertion of new vertices on some edges of *G* [12],  
*B'* quotient of the bipartite graph *B* by a polarity [9],

- $\otimes B$  the component with polarity of the Cartesian product of a bipartite graph  $B$  by itself [10],
- $B(T)$  compound using a bipartite graph  $B$  and a tournament  $T$  [16],
- $B\{T\}$  compound using a bipartite graph  $B$  and a tournament  $T$  [13],
- $G\Sigma_i H$  various compounding operations [17],
- $G\wedge H$  various compounding operations [13],
- $mH$  a partial graph of  $H$  [11],
- $\Omega G$  special compound by Gómez and Fiol [16].

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