

Scan

Domb & Barrett

1 page only

2

order full article  
then see how to include red sequences

$N1174 = A1764$   
 $N1985.5 = 3408$   
 $N1132.5 = 3409$   
 $A127537$

to be pointed

faq

Discrete Math. 9(1974) 341-358 A108

C. Domb, A.J. Barrett, Enumeration of ladder graphs,

355

Table 2  
Values of  $c(N, k)$

$N \backslash k$	1	2	3	4	5	6	7	8	9	10
0	1									
1		1								
2			3							
3			12							
4			9	55						
5			2	66	273					
6			30	455	1428					
7			5	315	3060	7752				
8				105	2856	20349	43263			
9				14	1428	23940	134596	246675		
10					378	15960	191268	888030		
11					42	6300	159390	1480050		
12						1386	83490	1480050		
13						132	27324	965250		
14							5148	418275		
15							429	117117		
								19305		
								1430		

$\Delta A127537$

These should be called connected ladder graphs

$N1174$  ✓  
 $New 3408 = N1985.5$  (SSC)

$New N1132.5 = 3409$  (SSC)  
Catalan  
A108

which is readily adaptable for use on a digital computer. We list in Table 2 values of  $C(N, k)$  to  $N = 10$ , as these are useful in physical applications.

8.

Darboux's theorem may be used to obtain an asymptotic expression for  $c_N(1)$ , the total number of connected ladder graphs which may be drawn on  $N$  points. From (48),

$$(50) \quad C(x, 1) = [g(x) - xh^{1/2}(x)]^{1/3} + (x + \frac{1}{9}) [g(x) - xh^{1/2}(x)]^{-1/3} - \frac{1}{3},$$

where

$$g(x) = -\frac{1}{27} - \frac{1}{2}x - x^2, \quad h(x) = x^2 - \frac{1}{108}.$$

In order to apply the technique of Darboux, it is necessary to know the singularities of  $C(x, 1)$ .  $g - xh^{1/2}$  has no zeroes, so the singularities occur only when