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),

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

where

\[
g(x) = -\frac{1}{16} - \frac{1}{3} x - x^2, \quad h(x) = x^2 - \frac{1}{108}.
\]

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