

No of paths in a Complete graph

Muralidhara V N
IIIT Bangalore

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How many distinct simple paths are there in a complete graph with n nodes ?

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$$n_{n-1} = n * (n - 1) * (n - 2) * (n - 3)....1.$$

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The the number of distinct simple paths in a complete graph with n nodes is

$$\sum_{i=1}^{i=n-1} n_i = n! \sum_{i=2}^{i=n-1} \frac{1}{(n-i)!}$$