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Discrete Mathematics

Let Us Count

Catalan Numbers - Part 4

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So we have seen that the total number of paths without crossing the diagonal from 0,0 to any n,n is given by 2nCn minus 2nCn plus one. This goes by the name the nth Catalan number denoted as Cn. This was given by the mathematician Catalan. So Cn is written by 2nCn minus 2nCn plus one. After simplification we get it as one by n plus one into 2nCn. So let us see how the sequence Cn goes. C0 is one. C1 is one by two into 2C1 which is one. C2 is one by three into 4C2 which is 2. C3 is one by four into 6C3 which is 5 and C4 is one by five into 8C4 which is 14 and so no. So the Catalan numbers sequence is 1, 1, 2, 5, 14, 42, 132 and so on. Let us see some interesting examples of Catalan numbers.

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