

A COMBINATORIAL APPROACH TO CATALAN NUMBERS

Ayşın Erkan Gürsoy¹, Kürşat Aker²

¹*Istanbul Technical University, Istanbul, Turkey*

²*Middle East Technical University, Northern Cyprus Campus, KKTC via
Mersin 10, Turkey*

MSC 2000: 34C10

Abstract

In this paper, we form a bijection between two sets which their cardinalities are Catalan numbers. Also we prove a conjecture in [1] with regard to the equality of two generating functions are connected with these two sets whose cardinalities are Catalan numbers.

Keywords: Catalan numbers, generating functions, Dyck paths

References

- [1] K. Aker, M. B. Can, *From Parking Functions to Gelfand Pairs*, Proceedings of the American Mathematical Society Volume 140, Number 4, (2012), Pages 1113-1124 S 0002-9939(2011)11010-4.
- [2] R. P. Stanley, Catalan Addendum (2013) <http://www-math.mit.edu/~rstan/ec/catadd.pdf>

¹aysinerkan@itu.edu.tr

²kaker@metu.edu.tr