

## Paired Dominating Sets and Domino Tilings in Fixed-Width Grid Graphs

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In this paper, the number of paired dominating sets and domino tilings on fixed-width grid graphs  $P_m \square P_n$ ,  $m \in \{2, 3, 4\}$ , are analysed, and their asymptotic growth rates as  $n$  increases are determined. Explicit rational generating functions are derived from the linear recurrences, and their asymptotic behaviour is obtained using singularity analysis together with the Cauchy integral formula, where the dominant singularity governs the exponential growth and the residue determines the leading constant.

### References

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