

## Neighborhood face-magic labelings of fans and ladders

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In a neighborhood face-magic labeling, we assign consecutive integer labels to the vertices, edges, and faces of a graph and the weight of each face is the sum of all labels of neighboring edges, vertices, and faces. We prove that fans, ladders, and triangular ladders admit this type of labeling. We also show that subdividing the set of edges of a graph preserves the neighborhood face-magic property.

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