Reprint of
Total edge irregularity strength of subdivision of star
by
N. Hinding, N. Suardi and H. Basir
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Total edge irregularity strength of subdivision of star

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Abstract  
This research is the development from Siddiqui’s research on edge irregularity strength of subdivision of star. Siddiqui [3] had determined the total edge irregularity strength of subdivision of star $S_m^n$ for $1 \leq m \leq 8$ and $n \geq 3$. However, the total edge irregularity strength for star subdivision $S_m^n$ for $m \geq 9$ and $n \geq 3$ are still in an open problem and also the total edge irregularity strength of subdivision of star by inserting $m_i$ vertices on different to every edge of a star $S_i$ yet to be determined. In this paper, it will be proven that the total edge irregularity strength of subdivision of star $S_m^n$ for $m \geq 9$ and $n \geq 3$ and the total edge irregularity strength of subdivision of star $S_{m_i}^{k_{i-1}}$ for $m_i \geq 1, m_i < m_{i-1}, 1 \leq i \leq n$, and $n \geq 3$.

Keywords: Irregular total labeling, total edge irregularity strength, subdivision of star.

1. Introduction  
In the development of the irregularity strength, M. Bača, S. Jendroľ, M. Miller, and J. Ryan [1] introduced the total edge irregularity strength and total vertex irregularity strength. Total labeling is a mapping from the set of all vertices and edges to number (generally to the positive or negative integers).

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8. For \( j = m_s \), \( h(x_{n,n}, y_{n,n}) \leq \frac{m_1 + m_2 + m_3 + \ldots + m_n + n + 1}{3} \leq p \).

9. For \( j = m_s + 1 \), \( h(x_{n,n}, y_{n,n+1}) \leq \left( \frac{m_1 + m_2 + m_3 + \ldots + m_n + n + 2}{3} \right) \leq p \).

So that, the total labeling \( h \) is a map from \( V \cup E \) into \([1, 2, 3, \ldots, p]\). Since \( h \) is an edge irregular total labeling of \( S_{n,n,n,\ldots,n} \) and the largest label used is \( p \) where \( p = \left\lceil \frac{m_1 + m_2 + m_3 + \ldots + m_n + n + 2}{3} \right\rceil \), then
\[
tes(S_{n,n,n,\ldots,n}) \leq \left( \frac{m_1 + m_2 + m_3 + \ldots + m_n + n + 2}{3} \right)
\]

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References


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