

Weekly Problem 5

Due: 12 Feb 2026 at midnight EST as a PDF on Submittity

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1. Consider a **monotonically increasing** function $f()$ on positive integers. I.e., for integers x and y where $x \leq y$, we know that $f(x) \leq f(y)$. We have connected graph G with integer weighted edges and a unique MST. $\forall e \in E(G)$, we modify edge weight $w(e)$ by applying function $f(w(e))$. Prove or disprove whether MSTs on the original G and our modified G' use equivalent edges.

Hint: Structure your argument around an MST algorithm. (4 pts)