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[Cheng P.4-3] Prove that a potential function satisfying Laplace's equation in a given region possesses no maximum or minimum within the region.

*Solution:* At a point where  $V$  is a maximum (minimum) the second derivatives of  $V$  with respect to  $x$ ,  $y$ , and  $z$  would all be negative (positive); their sum could not vanish, as required by Laplace's Equation.

*Answer:* Proof problem