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A Method for solving Legendre's Conjecture

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Abstract : Legendre’s conjecture states that there is a prime number between n^2 and (n + 1)^2 for every positive integer n. In this paper we prove that every composite number between n2 and (n + 1)2 can be written u^2 − v^2 or u^2 − v^2 + u − v that u > 0 and v ≥ 0. Using these result as well as induction and residues (modq) we prove Legendre’s conjecture.

Keywords : bertrand-chebyshev theorem, landau’s problems, goldbach’s conjecture, twin prime, ramanujan proof
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