

Problem 4 (due Monday, October 23)

Let  $f(x) = ax^2 + bx + c$  be a quadratic polynomial with integral coefficients. Suppose that there are  $n \geq 5$  consecutive integers at which the value of  $f$  is a perfect square. Prove that  $b^2 - 4ac$  is divisible by every prime number smaller or equal than  $n$ .

The problem was solved by Dr. Mathew Wolak. Matt's solution is essentially the same as one of our in-house solutions. For detailed solutions, some additional discussion and related open questions see the following link [Solution](#).

From:

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