

Problem of the Week-3: A Polynomial Equation

Does there exist a polynomial $P(x)$ with *integer coefficients* (i.e. $P(x) \in \mathbb{Z}[x]$) such that the equation

$$(P(x + 9))^2 - 24 = P(x^2 - 2010)$$

holds for all real numbers x ?

As always, prove your answer.

Posting Date 9/24/2010. Submit solutions to Noah Aydin, Mathematics Department, RBH 319 (e-mail or hard-copy, but hard copy submissions must include a time stamp) by 10 am on 10/6/2010 (before the October break).