Problem of the Week

Finishing date: 10/14/2015

Let $\{P_n(x)\}_{n\geq 0}$ be a sequence of polynomials in one variable x defined by

$$P_0(x) = 1, \quad P_1(x) = x$$

and for all integers $n \ge 2$

$$P_n(x) = xP_{n-1}(x) - P_{n-2}(x).$$

Does there exist a common real root of

$$P_{2016}(x) - P_{2015}(x)$$
 and $\sum_{n=1}^{2015} P_n(x)?$

Previous problem winners:

There were no correct solutions for the previous problem.



Submit your solutions before the finishing date to the address: ProbOfTheWeek@utdallas.edu