

Putnam E.03

Po-Shen Loh

14 September 2015

1 Problems

Putnam 1994/B1. Find all positive integers n that are within 250 of exactly 15 perfect squares.

Putnam 1994/B2. For which real numbers c is there a straight line which intersects the curve

$$x^4 + 9x^3 + cx^2 + 9x + 4$$

in four distinct points?

Putnam 1994/B3. Find the set of all real numbers k with the following property: For any positive, differentiable function f that satisfies $f'(x) > f(x)$ for all x , there is some number N such that $f(x) > e^{kx}$ for all $x > N$.