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Problems connected to the factorization of $f(x)x^n + g(x)$

There are a variety of topics that have connections to the factorization of $f(x)x^n + g(x)$. These include a generalization of Sierpiński numbers to polynomials, a problem of Turán to show polynomials in $\mathbb{Z}[x]$ are always near irreducible polynomials, estimating the largest absolute value for a root of a given non-cyclotomic polynomial, the element with smallest norm in a principal ideal in $\mathbb{Z}[x]$, the Prouhet-Tarry-Escott problem, and a question involving a special sequence of Newman polynomials. We discuss these connections to the extent that time permits. This talk will focus on work of Schinzel as well as multiple joint research projects of the speaker with E. Dobrowolski, M. Mossinghoff, C. Nicol, M. Robinson and F. Wheeler, and with my former students P. Banerjee, C. Finch, I. Solan and A. Vincent, and with my current student J. Harrington.