

**Title:** On the reduced height of a polynomial

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Let  $P$  be a polynomial with real coefficients. We introduce its reduced height by the formula  $\mathbb{H}(P) = \inf_{Q \in \mathbb{R}[x]\text{-monic}} H(PQ)$  and study its properties. This problem can be restated as a problem for power series vanishing at points of a finite symmetric set in  $|z| < 1$  with prescribed multiplicities. Some relations of the reduced height of a polynomial to other measures of height are also given. Most of the results obtained in this paper show that the calculation of the reduced height of a polynomial is not straightforward. For example, we find that  $\mathbb{H}(x^2 - 18x - 82) = 63$  and  $\mathbb{H}((x - 8/5)^2) = 9216/8245$ , but  $\mathbb{H}(x^2 - 18x + 82) = 64.9999999999999999999999999999863\dots$  which is the sum of a certain infinite series. It seems likely that this constant is a transcendental number.

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