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David Grant* (grant@colorado.edu). *Resultants of division polynomials and their derivatives, and singular torsion on elliptic curves.*

If ψ_m is the m^{th} division polynomial of an elliptic curve E , calculating the resultant of ψ_m and ψ_n for general E is tantamount to the theory of elliptic units, and calculating the resultant of ψ_m and its derivative gives information on the ramification in the m^{th} division field of E . We will discuss the arithmetic significance of the resultant of ψ_m and its second derivative with respect to an invariant differential, by relating it to the location on E of *singular* torsion points, a class of torsion points developed with John Boxall, which give an analogue of the Manin-Mumford conjecture for elliptic curves. Namely, if J is the generalized jacobian of E with modulus twice the origin on E (a \mathbb{G}_a -extension of E), then there is a section $\phi : E \rightarrow J$ such that the singular torsion points are the intersection $\phi(E) \cap J_{\text{tors}}$. If time permits we will discuss the genus 2 analogue. (Received September 13, 2019)