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Title: The Mordell–Weil bases for the elliptic curve of the form $y^2 = x^3 - m^2x + n^2$

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Let $E_{m,n}$ be an elliptic curve over $\mathbb{Q}$ of the form $y^2 = x^3 - m^2x + n^2$, where m and n are positive integers. Brown and Myers showed that the curve $E_{1,n}$ has rank at least two for all n . In the present paper, we specify the two points which can be extended to a basis for $E_{1,n}(\mathbb{Q})$ under certain conditions described explicitly. Moreover, we verify a similar result for the curve $E_{m,1}$, which, however, gives a basis for the rank three part of $E_{m,1}(\mathbb{Q})$.

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