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Positive Integer Solutions of Some Diophantine Equations Involving Lucas-Balancing Numbers,

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Abstract

This paper is devoted to solving the equations $x^s - 8C_nxy + 16y^t = \pm 2^r$ for $(s, t) \in \{(2, 2), (2, 4), (4, 2)\}$ in positive integers x and y . The solutions are obtained in terms of the balancing, Pell, and Lucas-Pell numbers.