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On the positive integer solutions of the simultaneous Diophantine equations $8x^2 - 6y^2 = 2$ and $28y^2 - 8z^2 = 20$. (Chinese. English summary) Zbl 07448835

Summary: In this paper, by the method of recurrence sequences we show that the only two solutions in positive integers of the simultaneous Diophantine equations $8x^2 - 6y^2 = 2$ and $28y^2 - 8z^2 = 20$ are $(x, y, z) = (1, 1, 1)$ and $(x, y, z) = (181, 209, 391)$.

MSC: 11D09 Quadratic and bilinear Diophantine equations

Keywords: Diophantine equations; positive integer solution; recurrence sequence; quadratic residue