



# Solving Diophantine equations with binomial coefficients in study group sessions using both elementary and higher mathematical methods

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*Abstract.* The paper can be considered as the continuation of [4] in the sense that we are studying Diophantine equations containing binomial coefficients. It was an important aspect that one should be able to discuss these problems — even if not in complete depth — also in high school study group sessions with the most talented students. We present various methods through several examples, which help the successful handling of other questions too, including problems in math competitions. Our discussion starts with the elementary treatment of easier problems, and then proceed gradually to more difficult questions which require higher mathematical methods.

*Key words and phrases:* Diophantine equations, binomial coefficients, arithmetic, quadratic form.

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