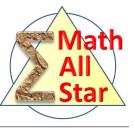
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Indeterminate Equation

The Factorization Method



Learn how to solve this *type* of problems, not just this problem.

- 1. Find the number of different rectangles whose sides lengths are all integers and areas are 2015.
- 2. Find the number of positive integers solutions to $x^2 y^2 = 105$. (Ref Ref 163)
- 3. Determine all positive integers m and n such that $m^2 + 1$ is a prime number and $10(m^2 + 1) =$ $n^2 + 1.$
 - (Ref Ref 2821)
- 4. For positive integers n and m, each exterior angle of a regular n-sided polygon is 45 degrees larger than each exterior angle of a regular m-sided polygon. One example is n = 4 and m = 8because the measures of each exterior angle of a square and a regular octagon are 90 degrees and 45 degrees, respectively. What is the greatest of all possible values of m? (Ref Ref 1116: 2014 MathCounts)
- 5. Let b and c be two positive integers, and a be a prime number. If $a^2 + b^2 = c^2$, show that a < b and b + 1 = c. (Ref Ref 157: 1982 Germany Olympiad)