

ON THE DIOPHANTINE EQUATION

$$x^p - x = y^q - y$$

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Abstract

We consider the diophantine equation

(*)
$$x^p - x = y^q - y$$

in integers (x, p, y, q) . We prove that for given p and q with $2 < p < q$ (*) has only finitely many solutions. Assuming the abc-conjecture we can prove that p and q are bounded. In the special case $p = 2$ and y a prime power we are able to solve (*) completely.

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