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 $2 \leq p < q$ (∗) 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.