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Diophantine equation $\frac{q^n-1}{q-1} = y$ for four prime divisors of $y-1$

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Abstract: In this paper the special diophantine equation $\frac{q^n-1}{q-1} = y$ with integer coefficients is discussed and integer solutions are sought. This equation is solved completely just for four prime divisors of $y-1$.

Keywords: diophantine equation, Fermat and Mersenne primes, Catalan conjecture

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