题目链接:https://projecteuler.net/problem=216

题意

求#2\le n \le 5e7#有多少个n满足$t(n)=2n^2-1$是个质数

题解

要证明几个关于$t(n)=2n^2-1$的性质: 1、若$p|t(n)$则$p|t(n+kp)且p|t(-n+kp)$

证明: $$ \begin{aligned} t(n+p)-t(n) & =2(n+p)^2-2n^2 \\ & =2p(2n+p) \\ \end{aligned} $$
若$p|t(n)$又因为$p|(t(n+p)-t(n))$所以有$p|t(n+p)$从而有$p|t(n+kp)$

$p|t(-n+kp)$同理