

$= 2$ , they are called Pell–Wieferich primes. For example, 241 is a Wieferich prime when  $P = 3$ , so it is a 3–Fibonacci–Wieferich prime or 3–Wall–Sun–Sun prime. In fact, 3 is an  $n$ –Fibonacci–Wieferich prime if and only if  $n$  congruent to 0, 4, or 5 (mod 9), like the traditional Wieferich primes, 3 is a base  $n$  Wieferich prime if and only if  $n$  congruent to 1 or 8 (mod 9).

=== Wieferich places ===

Let  $K$  be a global field, i.e. a number field or a function field in one variable over a finite field and let  $E$  be an elliptic curve. If  $v$  is a non-archimedean place of norm  $q_v$  of  $K$  and  $a \in K$ , with  $v(a) = 0$  then  $v(a^{q_v-1} - 1) \geq 1$ .  $v$  is called a Wieferich place for base  $a$ , if  $v(a^{q_v-1} - 1) > 1$ , an elliptic Wieferich place for base  $P \in E$ , if  $N_v P \in E^2$  and a strong elliptic Wieferich place for base  $P \in E$  if  $n_v P \in E^2$ , where  $n_v$  is the order of  $P$  modulo  $v$  and  $N_v$  gives the number of rational points (over the residue field of  $v$ ) of the reduction of  $E$  at  $v$ .