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Project Euler Problem 7

What is the 10001st prime?

n → [is_prime]

test from $n=2$ to $\sqrt{n}$ for $i \in \{-1,0,1,2,3\}$

All primes are of form $6k \pm 1$ (2 & 3 exceptions)

check $n/2$ & $n/3$

Then check $6k \pm 1$

[count_prime]

All integers can be expressed as $6k+i$, $i \in \{-1,0,1,2,3,4\}$

[try_next]

$6k+-1$ → must test

$6k+0$ → div by 2

$6k+1$ → must test

$6k+2$ → div by 2

$6k+3$ → div by 3

[sieve_prime]

$6k+4$ → div by 2

~~dict~~