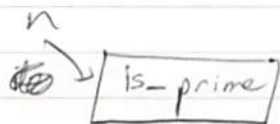


Project Euler Problem 7

What is the 10001st prime?



test from  $M=2$  to  $\sqrt{n}$  for  $i \in \{-1, 0, 1, 2, 3\}$   
 All primes are of form  $6k \pm 1$  (2/3 exceptions)  
 check  $n/2 \neq n/3$   
 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

 $6k + -1 \rightarrow$  must test $6k + 0 \rightarrow$  div by 2 $6k + 1 \rightarrow$  must test $6k + 2 \rightarrow$  div by 2 $6k + 3 \rightarrow$  div by 3 $6k + 4 \rightarrow$  div by 2

Sieve-prime

def

