

Problem 7

By listing the first six prime numbers: 2, 3, 5, 7, 11, and 13, we can see that the 6th prime is 13.

What is the 10 001st prime number?

Solution

Using built-in functions:

```
In[220]:= Prime[10 001]
```

```
Out[220]= 104 743
```

Using the rather impressive lazy-list functions at <https://github.com/sblom/mathematica-lazy>

```
In[236]:= << "~/Desktop/Lazy.m"
```

```
In[249]:= Block[{$IterationLimit = 10 010},  
             Select[Lazy[Integers], PrimeQ][[10 001]] // AbsoluteTiming
```

```
Out[249]= {2.496707, 104 743}
```