

# Kryptografie, Primzahlen

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## Die Primzahlen bis 1013

```
f:=x->nextprime(x+1);  
li:=(f@@k)(1)$ k=1..20;  
li:=(f@@k)(li[20])$ k=1..15;  
li:=(f@@k)(li[15])$ k=1..15;
```

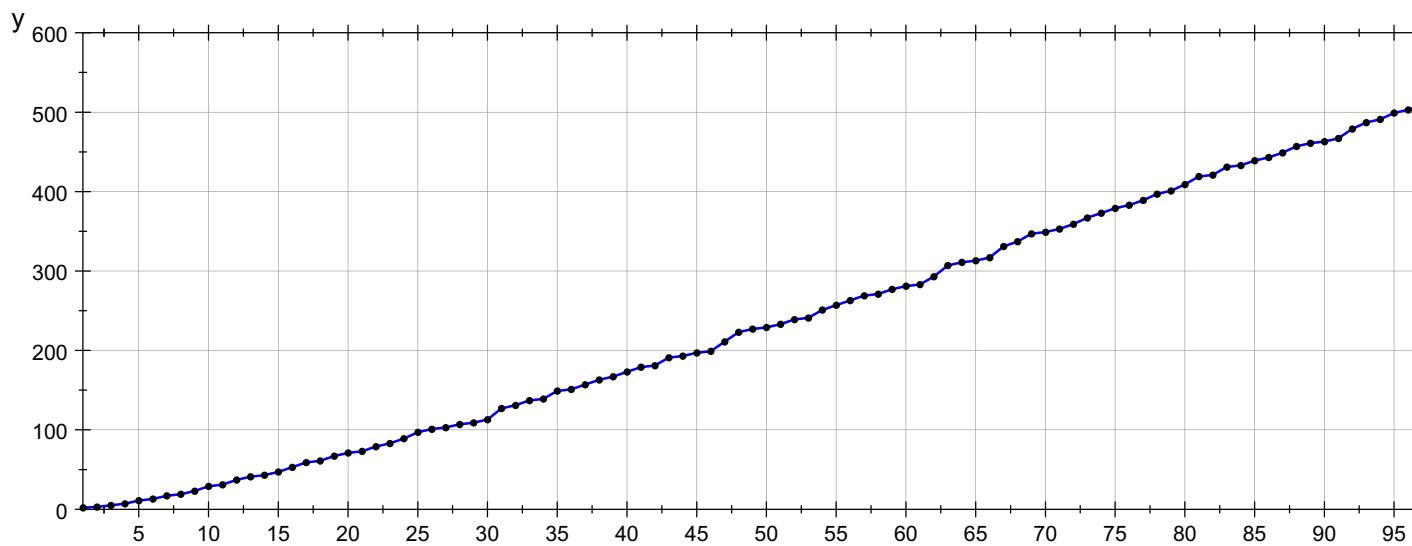
$x \rightarrow \text{nextprime}(x + 1)$

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71  
73, 79, 83, 89, 97, 101, 103, 107, 109, 113, 127, 131, 137, 139, 149  
151, 157, 163, 167, 173, 179, 181, 191, 193, 197, 199, 211, 223, 227, 229  
233, 239, 241, 251, 257, 263, 269, 271, 277, 281, 283, 293, 307, 311, 313  
317, 331, 337, 347, 349, 353, 359, 367, 373, 379, 383, 389, 397, 401, 409  
419, 421, 431, 433, 439, 443, 449, 457, 461, 463, 467, 479, 487, 491, 499  
503, 509, 521, 523, 541, 547, 557, 563, 569, 571, 577, 587, 593, 599, 601  
607, 613, 617, 619, 631, 641, 643, 647, 653, 659, 661, 673, 677, 683, 691  
701, 709, 719, 727, 733, 739, 743, 751, 757, 761, 769, 773, 787, 797, 809  
811, 821, 823, 827, 829, 839, 853, 857, 859, 863, 877, 881, 883, 887, 907  
911, 919, 929, 937, 941, 947, 953, 967, 971, 977, 983, 991, 997, 1009, 1013

## Die Primzahlen ersten 100 Primzahlen

```
li:=[[k,(f@@k)(1)] $k=1..100]  
[[1, 2], [2, 3], [3, 5], [4, 7], [5, 11], [6, 13], [7, 17], [8, 19], [9, 23], [10, 29], [11, 31], [12, 37], [13, 41], [14, 43], [15, 47], [16, 53], [17, 59], [18, 61], [19, 67], [20, 71], [21, 73], [22, 79], [23, 83], [24, 89], [25, 97], [26, 101]]  
  
prim:=plot::Listplot(li,x=1..100,  
ViewingBoxYRange=0..600, PointSize=1, GridVisible=TRUE):  
plot(prim)
```





Die Lücken zwischen den Primzahlen sind nicht vorhersagbar

```
lueck:=([[k,(f@@(k+1))(1)-(f@@(k))(1)] $ k=1..400]);
plot(plot::Listplot(lueck))
```

`[[1, 1], [2, 2], [3, 2], [4, 4], [5, 2], [6, 4], [7, 2], [8, 4], [9, 6], [10, 2], [11, 6], [12, 4], [13, 2], [14, 4], [15, 2], [16, 4], [17, 2], [18, 4], [19, 6], [20, 2], [21, 4], [22, 2], [23, 4], [24, 2], [25, 4], [26, 2], [27, 4], [28, 2], [29, 4], [30, 2], [31, 4], [32, 2], [33, 4], [34, 2], [35, 4], [36, 2], [37, 4], [38, 2], [39, 4], [40, 2], [41, 4], [42, 2], [43, 4], [44, 2], [45, 4], [46, 2], [47, 4], [48, 2], [49, 4], [50, 2], [51, 4], [52, 2], [53, 4], [54, 2], [55, 4], [56, 2], [57, 4], [58, 2], [59, 4], [60, 2], [61, 4], [62, 2], [63, 4], [64, 2], [65, 4], [66, 2], [67, 4], [68, 2], [69, 4], [70, 2], [71, 4], [72, 2], [73, 4], [74, 2], [75, 4], [76, 2], [77, 4], [78, 2], [79, 4], [80, 2], [81, 4], [82, 2], [83, 4], [84, 2], [85, 4], [86, 2], [87, 4], [88, 2], [89, 4], [90, 2], [91, 4], [92, 2], [93, 4], [94, 2], [95, 4]]`

