

Pag 184, Introd. to Program. with *Mathematica*. Búsqueda de los números primos de una lista. Criba de Eratóstenes.

Obtiene los números primos comprendidos en el intervalo desde 1 hasta N especificado.

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In[6]:= primos[n_] := Module[{primos = Table[i, {i, 1, n}], p = 2},
    Print["Inicial: primos=", primos, ", p= ", p];
    While[p ≠ n + 1, Do[primos[[i]] = 1, {i, 2 p, n, p}];
    p = p + 1;
    While[p ≠ n + 1 && primos[[p]] == 1, p = p + 1];
    Print["Iter.: primos=", primos, ", p=", p];
    Select[primos, #1 ≠ 1 &]
]

In[7]:= primos[100]

Inicial: primos={1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20,
21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41,
42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61,
62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81,
82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100}, p= 2

Iter.: primos={1, 2, 3, 1, 5, 1, 7, 1, 9, 1, 11, 1, 13, 1, 15, 1, 17, 1, 19, 1, 21, 1, 23, 1,
25, 1, 27, 1, 29, 1, 31, 1, 33, 1, 35, 1, 37, 1, 39, 1, 41, 1, 43, 1, 45, 1, 47, 1, 49, 1,
51, 1, 53, 1, 55, 1, 57, 1, 59, 1, 61, 1, 63, 1, 65, 1, 67, 1, 69, 1, 71, 1, 73, 1, 75, 1,
77, 1, 79, 1, 81, 1, 83, 1, 85, 1, 87, 1, 89, 1, 91, 1, 93, 1, 95, 1, 97, 1, 99, 1}, p=3

Iter.: primos={1, 2, 3, 1, 5, 1, 7, 1, 1, 1, 11, 1, 13, 1, 1, 1, 17, 1, 19, 1, 1, 1, 23, 1, 25,
1, 1, 1, 29, 1, 31, 1, 1, 1, 35, 1, 37, 1, 1, 1, 41, 1, 43, 1, 1, 1, 47, 1, 49, 1, 1,
1, 53, 1, 55, 1, 1, 1, 59, 1, 61, 1, 1, 1, 65, 1, 67, 1, 1, 1, 71, 1, 73, 1, 1, 1,
77, 1, 79, 1, 1, 1, 83, 1, 85, 1, 1, 1, 89, 1, 91, 1, 1, 1, 95, 1, 97, 1, 1, 1}, p=5

Iter.: primos={1, 2, 3, 1, 5, 1, 7, 1, 1, 1, 11, 1, 13, 1, 1, 1, 17, 1, 19, 1, 1, 1, 23, 1,
1, 1, 1, 1, 29, 1, 31, 1, 1, 1, 1, 37, 1, 1, 1, 41, 1, 43, 1, 1, 1, 47, 1, 49, 1,
1, 1, 53, 1, 1, 1, 1, 59, 1, 61, 1, 1, 1, 1, 67, 1, 1, 1, 71, 1, 73, 1, 1, 1,
77, 1, 79, 1, 1, 1, 83, 1, 1, 1, 1, 1, 89, 1, 91, 1, 1, 1, 1, 97, 1, 1, 1}, p=7

Iter.: primos={1, 2, 3, 1, 5, 1, 7, 1, 1, 1, 11, 1, 13, 1, 1, 1, 17, 1, 19, 1, 1, 1, 23, 1,
1, 1, 1, 1, 29, 1, 31, 1, 1, 1, 1, 37, 1, 1, 1, 41, 1, 43, 1, 1, 1, 47, 1, 1, 1,
1, 1, 53, 1, 1, 1, 1, 59, 1, 61, 1, 1, 1, 1, 67, 1, 1, 1, 71, 1, 73, 1, 1, 1,
1, 1, 79, 1, 1, 1, 83, 1, 1, 1, 1, 1, 89, 1, 1, 1, 1, 1, 97, 1, 1, 1}, p=11

Iter.: primos={1, 2, 3, 1, 5, 1, 7, 1, 1, 1, 11, 1, 13, 1, 1, 1, 17, 1, 19, 1, 1, 1, 23, 1,
1, 1, 1, 1, 29, 1, 31, 1, 1, 1, 1, 37, 1, 1, 1, 41, 1, 43, 1, 1, 1, 47, 1, 1, 1,
1, 1, 53, 1, 1, 1, 1, 59, 1, 61, 1, 1, 1, 1, 67, 1, 1, 1, 71, 1, 73, 1, 1, 1,
1, 1, 79, 1, 1, 1, 83, 1, 1, 1, 1, 1, 89, 1, 1, 1, 1, 1, 97, 1, 1, 1}, p=13

Iter.: primos={1, 2, 3, 1, 5, 1, 7, 1, 1, 1, 11, 1, 13, 1, 1, 1, 17, 1, 19, 1, 1, 1, 23, 1,
1, 1, 1, 1, 29, 1, 31, 1, 1, 1, 1, 37, 1, 1, 1, 41, 1, 43, 1, 1, 1, 47, 1, 1, 1,
1, 1, 53, 1, 1, 1, 1, 59, 1, 61, 1, 1, 1, 1, 67, 1, 1, 1, 71, 1, 73, 1, 1, 1,
1, 1, 79, 1, 1, 1, 83, 1, 1, 1, 1, 1, 89, 1, 1, 1, 1, 1, 97, 1, 1, 1}, p=17
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Iter.:primos={1, 2, 3, 1, 5, 1, 7, 1, 1, 1, 11, 1, 13, 1, 1, 1, 17, 1, 19, 1, 1, 1, 23, 1,
  1, 1, 1, 1, 29, 1, 31, 1, 1, 1, 1, 1, 37, 1, 1, 1, 41, 1, 43, 1, 1, 1, 47, 1, 1, 1,
  1, 1, 53, 1, 1, 1, 1, 1, 59, 1, 61, 1, 1, 1, 1, 1, 67, 1, 1, 1, 71, 1, 73, 1, 1, 1,
  1, 1, 79, 1, 1, 1, 83, 1, 1, 1, 1, 1, 89, 1, 1, 1, 1, 1, 1, 1, 1, 97, 1, 1, 1}, p=71
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Iter.:primos={1, 2, 3, 1, 5, 1, 7, 1, 1, 1, 11, 1, 13, 1, 1, 1, 17, 1, 19, 1, 1, 1, 23, 1,
  1, 1, 1, 1, 29, 1, 31, 1, 1, 1, 1, 1, 37, 1, 1, 1, 41, 1, 43, 1, 1, 1, 47, 1, 1, 1,
  1, 1, 53, 1, 1, 1, 1, 1, 59, 1, 61, 1, 1, 1, 1, 1, 67, 1, 1, 1, 71, 1, 73, 1, 1, 1,
  1, 1, 79, 1, 1, 1, 83, 1, 1, 1, 1, 1, 89, 1, 1, 1, 1, 1, 1, 1, 1, 97, 1, 1, 1}, p=73
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Iter.:primos={1, 2, 3, 1, 5, 1, 7, 1, 1, 1, 11, 1, 13, 1, 1, 1, 17, 1, 19, 1, 1, 1, 23, 1,
  1, 1, 1, 1, 29, 1, 31, 1, 1, 1, 1, 1, 37, 1, 1, 1, 41, 1, 43, 1, 1, 1, 47, 1, 1, 1,
  1, 1, 53, 1, 1, 1, 1, 1, 59, 1, 61, 1, 1, 1, 1, 1, 67, 1, 1, 1, 71, 1, 73, 1, 1, 1,
  1, 1, 79, 1, 1, 1, 83, 1, 1, 1, 1, 1, 89, 1, 1, 1, 1, 1, 1, 1, 1, 97, 1, 1, 1}, p=79
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Iter.:primos={1, 2, 3, 1, 5, 1, 7, 1, 1, 1, 11, 1, 13, 1, 1, 1, 17, 1, 19, 1, 1, 1, 23, 1,
  1, 1, 1, 1, 29, 1, 31, 1, 1, 1, 1, 1, 37, 1, 1, 1, 41, 1, 43, 1, 1, 1, 47, 1, 1, 1,
  1, 1, 53, 1, 1, 1, 1, 1, 59, 1, 61, 1, 1, 1, 1, 1, 67, 1, 1, 1, 71, 1, 73, 1, 1, 1,
  1, 1, 79, 1, 1, 1, 83, 1, 1, 1, 1, 1, 89, 1, 1, 1, 1, 1, 1, 1, 1, 97, 1, 1, 1}, p=83
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Iter.:primos={1, 2, 3, 1, 5, 1, 7, 1, 1, 1, 11, 1, 13, 1, 1, 1, 17, 1, 19, 1, 1, 1, 23, 1,
  1, 1, 1, 1, 29, 1, 31, 1, 1, 1, 1, 1, 37, 1, 1, 1, 41, 1, 43, 1, 1, 1, 47, 1, 1, 1,
  1, 1, 53, 1, 1, 1, 1, 1, 59, 1, 61, 1, 1, 1, 1, 1, 67, 1, 1, 1, 71, 1, 73, 1, 1, 1,
  1, 1, 79, 1, 1, 1, 83, 1, 1, 1, 1, 1, 89, 1, 1, 1, 1, 1, 1, 1, 1, 97, 1, 1, 1}, p=89
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Iter.:primos={1, 2, 3, 1, 5, 1, 7, 1, 1, 1, 11, 1, 13, 1, 1, 1, 17, 1, 19, 1, 1, 1, 23, 1,
  1, 1, 1, 1, 29, 1, 31, 1, 1, 1, 1, 1, 37, 1, 1, 1, 41, 1, 43, 1, 1, 1, 47, 1, 1, 1,
  1, 1, 53, 1, 1, 1, 1, 1, 59, 1, 61, 1, 1, 1, 1, 1, 67, 1, 1, 1, 71, 1, 73, 1, 1, 1,
  1, 1, 79, 1, 1, 1, 83, 1, 1, 1, 1, 1, 89, 1, 1, 1, 1, 1, 1, 1, 1, 97, 1, 1, 1}, p=97
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Iter.:primos={1, 2, 3, 1, 5, 1, 7, 1, 1, 1, 11, 1, 13, 1, 1, 1, 17, 1, 19, 1, 1, 1, 23, 1,
  1, 1, 1, 1, 29, 1, 31, 1, 1, 1, 1, 1, 37, 1, 1, 1, 41, 1, 43, 1, 1, 1, 47, 1, 1, 1,
  1, 1, 53, 1, 1, 1, 1, 1, 59, 1, 61, 1, 1, 1, 1, 1, 67, 1, 1, 1, 71, 1, 73, 1, 1, 1,
  1, 1, 79, 1, 1, 1, 83, 1, 1, 1, 1, 1, 89, 1, 1, 1, 1, 1, 1, 1, 1, 97, 1, 1, 1}, p=101
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Out[7]= {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}
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