

```

ln[ * ]:= (* arithmetic progressions of primes starting with 5*)
Do[If[PrimeQ[5 + 2 * k] && PrimeQ[5 + 4 * k] && PrimeQ[5 + 6 * k] && PrimeQ[5 + 8 * k],
  Print[5, ",", 5 + 2 k, ",", 5 + 4 * k, ",", 5 + 6 * k, ",", 5 + 8 * k], Null], {k, 1, 1000}]
5,11,17,23,29
5,17,29,41,53
5,47,89,131,173
5,53,101,149,197
5,101,197,293,389
5,131,257,383,509
5,257,509,761,1013
5,431,857,1283,1709
5,479,953,1427,1901
5,599,1193,1787,2381
5,641,1277,1913,2549
5,809,1613,2417,3221
5,1223,2441,3659,4877
5,1319,2633,3947,5261
5,1433,2861,4289,5717
5,1571,3137,4703,6269
5,1733,3461,5189,6917
5,1901,3797,5693,7589

```

```

ln[1]:= (* Define the initial terms 1,3,7,9*)
a[1] := 1
a[2] := 3
a[3] := 7
a[4] := 9

```

```

ln[ * ]:= (* arithmetic progressions of primes of length 6*)
Do[Do[Do[If[PrimeQ[a[i] + 10 * k] && PrimeQ[a[i] + 10 * k + 10 * j] && PrimeQ[a[i] + 10 * k + 20 * j] &&
  PrimeQ[a[i] + 10 * k + 30 * j] && PrimeQ[a[i] + 10 * k + 40 * j] && PrimeQ[a[i] + 10 * k + 50 * j],
  Print[a[i] + 10 * k, ",", a[i] + 10 * k + 10 * j, ",", a[i] + 10 * k + 20 * j, ",",
  a[i] + 10 * k + 30 * j, ",", a[i] + 10 * k + 40 * j, ",", a[i] + 10 * k + 50 * j],
  Null], {j, 1, 100}], {k, 0, 20}], {i, 1, 4}]

```

11, 71, 131, 191, 251, 311
 11, 491, 971, 1451, 1931, 2411
 41, 461, 881, 1301, 1721, 2141
 13, 103, 193, 283, 373, 463
 13, 223, 433, 643, 853, 1063
 23, 263, 503, 743, 983, 1223
 43, 463, 883, 1303, 1723, 2143
 53, 113, 173, 233, 293, 353
 73, 223, 373, 523, 673, 823
 83, 383, 683, 983, 1283, 1583
 163, 823, 1483, 2143, 2803, 3463
 193, 613, 1033, 1453, 1873, 2293
 193, 823, 1453, 2083, 2713, 3343
 7, 37, 67, 97, 127, 157
 7, 157, 307, 457, 607, 757
 7, 937, 1867, 2797, 3727, 4657
 47, 257, 467, 677, 887, 1097
 97, 607, 1117, 1627, 2137, 2647
 97, 937, 1777, 2617, 3457, 4297
 107, 137, 167, 197, 227, 257
 127, 457, 787, 1117, 1447, 1777
 157, 307, 457, 607, 757, 907
 149, 599, 1049, 1499, 1949, 2399
 179, 389, 599, 809, 1019, 1229
 179, 809, 1439, 2069, 2699, 3329
 199, 409, 619, 829, 1039, 1249

in[] := (* arithmetic progressions of primes of length 7*)

```

Do[Do[Do[If[PrimeQ[a[i] + 10 * k] && PrimeQ[a[i] + 10 * k + 10 * j] &&
  PrimeQ[a[i] + 10 * k + 20 * j] && PrimeQ[a[i] + 10 * k + 30 * j] &&
  PrimeQ[a[i] + 10 * k + 40 * j] && PrimeQ[a[i] + 10 * k + 50 * j] && PrimeQ[a[i] + 10 * k + 60 * j],
Print[a[i] + 10 * k, ",", a[i] + 10 * k + 10 * j, ",", a[i] + 10 * k + 20 * j, ",",
  a[i] + 10 * k + 30 * j, ",", a[i] + 10 * k + 40 * j, ",", a[i] + 10 * k + 50 * j,
  ",", a[i] + 10 * k + 60 * j], Null], {j, 1, 400}], {k, 0, 100}], {i, 1, 4}]

```

71, 2381, 4691, 7001, 9311, 11621, 13931
 631, 3361, 6091, 8821, 11551, 14281, 17011
 811, 3541, 6271, 9001, 11731, 14461, 17191
 881, 1091, 1301, 1511, 1721, 1931, 2141
 53, 1103, 2153, 3203, 4253, 5303, 6353
 113, 2633, 5153, 7673, 10193, 12713, 15233
 193, 613, 1033, 1453, 1873, 2293, 2713
 433, 3583, 6733, 9883, 13033, 16183, 19333
 7, 157, 307, 457, 607, 757, 907
 7, 2767, 5527, 8287, 11047, 13807, 16567
 7, 3457, 6907, 10357, 13807, 17257, 20707
 17, 2957, 5897, 8837, 11777, 14717, 17657
 47, 257, 467, 677, 887, 1097, 1307
 547, 2857, 5167, 7477, 9787, 12097, 14407
 947, 4517, 8087, 11657, 15227, 18797, 22367
 179, 389, 599, 809, 1019, 1229, 1439
 199, 409, 619, 829, 1039, 1249, 1459
 359, 1619, 2879, 4139, 5399, 6659, 7919
 409, 619, 829, 1039, 1249, 1459, 1669
 619, 829, 1039, 1249, 1459, 1669, 1879
 829, 1039, 1249, 1459, 1669, 1879, 2089

```

In[ ]:= (* arithmetic progressions of primes of length 8*)
Do[Do[Do[If[PrimeQ[a[i] + 10 * k] && PrimeQ[a[i] + 10 * k + 10 * j] &&
  PrimeQ[a[i] + 10 * k + 20 * j] && PrimeQ[a[i] + 10 * k + 30 * j] && PrimeQ[a[i] + 10 * k + 40 * j] &&
  PrimeQ[a[i] + 10 * k + 50 * j] && PrimeQ[a[i] + 10 * k + 60 * j] && PrimeQ[a[i] + 10 * k + 70 * j],
Print[a[i] + 10 * k, ",", a[i] + 10 * k + 10 * j, ",", a[i] + 10 * k + 20 * j, ",",
  a[i] + 10 * k + 30 * j, ",", a[i] + 10 * k + 40 * j, ",", a[i] + 10 * k + 50 * j, ",",
  a[i] + 10 * k + 60 * j, ",", a[i] + 10 * k + 70 * j], Null], {j, 1, 1200}], {k, 0, 300}], {i, 1, 4}]
  
```

61,9931,19801,29671,39541,49411,59281,69151
 521,10181,19841,29501,39161,48821,58481,68141
 541,9151,17761,26371,34981,43591,52201,60811
 881,1091,1301,1511,1721,1931,2141,2351
 1091,3821,6551,9281,12011,14741,17471,20201
 1531,6151,10771,15391,20011,24631,29251,33871
 73,5953,11833,17713,23593,29473,35353,41233
 103,4723,9343,13963,18583,23203,27823,32443
 433,3583,6733,9883,13033,16183,19333,22483
 1063,7573,14083,20593,27103,33613,40123,46633
 2063,3323,4583,5843,7103,8363,9623,10883
 2693,4583,6473,8363,10253,12143,14033,15923
 17,6947,13877,20807,27737,34667,41597,48527
 137,8117,16097,24077,32057,40037,48017,55997
 937,10177,19417,28657,37897,47137,56377,65617
 1637,2267,2897,3527,4157,4787,5417,6047
 1847,3947,6047,8147,10247,12347,14447,16547
 1867,10477,19087,27697,36307,44917,53527,62137
 199,409,619,829,1039,1249,1459,1669
 199,9439,18679,27919,37159,46399,55639,64879
 409,619,829,1039,1249,1459,1669,1879
 619,829,1039,1249,1459,1669,1879,2089
 1019,3329,5639,7949,10259,12569,14879,17189
 1289,2969,4649,6329,8009,9689,11369,13049
 1559,7019,12479,17939,23399,28859,34319,39779
 1609,11059,20509,29959,39409,48859,58309,67759
 1699,5689,9679,13669,17659,21649,25639,29629
 2239,2659,3079,3499,3919,4339,4759,5179
 2909,6899,10889,14879,18869,22859,26849,30839

Inf := (* arithmetic progressions of primes of length 9*)

```

Do[Do[Do[If[PrimeQ[a[i] + 10 * k] && PrimeQ[a[i] + 10 * k + 10 * j] && PrimeQ[a[i] + 10 * k + 20 * j] &&
  PrimeQ[a[i] + 10 * k + 30 * j] && PrimeQ[a[i] + 10 * k + 40 * j] && PrimeQ[a[i] + 10 * k + 50 * j] &&
  PrimeQ[a[i] + 10 * k + 60 * j] && PrimeQ[a[i] + 10 * k + 70 * j] && PrimeQ[a[i] + 10 * k + 80 * j],
Print[a[i] + 10 * k, ",", a[i] + 10 * k + 10 * j, ",", a[i] + 10 * k + 20 * j, ",",
  a[i] + 10 * k + 30 * j, ",", a[i] + 10 * k + 40 * j, ",", a[i] + 10 * k + 50 * j, ",",
  a[i] + 10 * k + 60 * j, ",", a[i] + 10 * k + 70 * j, ",", a[i] + 10 * k + 80 * j],
Null], {j, 1, 3000}], {k, 0, 700}], {i, 1, 4}]

```

521 , 10 181 , 19 841 , 29 501 , 39 161 , 48 821 , 58 481 , 68 141 , 77 801
 881 , 19 571 , 38 261 , 56 951 , 75 641 , 94 331 , 113 021 , 131 711 , 150 401
 1361 , 29 921 , 58 481 , 87 041 , 115 601 , 144 161 , 172 721 , 201 281 , 229 841
 2111 , 26 261 , 50 411 , 74 561 , 98 711 , 122 861 , 147 011 , 171 161 , 195 311
 2141 , 15 581 , 29 021 , 42 461 , 55 901 , 69 341 , 82 781 , 96 221 , 109 661
 2711 , 21 191 , 39 671 , 58 151 , 76 631 , 95 111 , 113 591 , 132 071 , 150 551
 4091 , 12 071 , 20 051 , 28 031 , 36 011 , 43 991 , 51 971 , 59 951 , 67 931
 4721 , 7451 , 10 181 , 12 911 , 15 641 , 18 371 , 21 101 , 23 831 , 26 561
 5501 , 26 501 , 47 501 , 68 501 , 89 501 , 110 501 , 131 501 , 152 501 , 173 501
 6211 , 33 091 , 59 971 , 86 851 , 113 731 , 140 611 , 167 491 , 194 371 , 221 251
 433 , 3583 , 6733 , 9883 , 13 033 , 16 183 , 19 333 , 22 483 , 25 633
 2063 , 3323 , 4583 , 5843 , 7103 , 8363 , 9623 , 10 883 , 12 143
 3343 , 16 993 , 30 643 , 44 293 , 57 943 , 71 593 , 85 243 , 98 893 , 112 543
 3413 , 8663 , 13 913 , 19 163 , 24 413 , 29 663 , 34 913 , 40 163 , 45 413
 3823 , 6133 , 8443 , 10 753 , 13 063 , 15 373 , 17 683 , 19 993 , 22 303
 4673 , 16 223 , 27 773 , 39 323 , 50 873 , 62 423 , 73 973 , 85 523 , 97 073
 4943 , 33 083 , 61 223 , 89 363 , 117 503 , 145 643 , 173 783 , 201 923 , 230 063
 6043 , 6883 , 7723 , 8563 , 9403 , 10 243 , 11 083 , 11 923 , 12 763
 6143 , 16 433 , 26 723 , 37 013 , 47 303 , 57 593 , 67 883 , 78 173 , 88 463
 6553 , 14 323 , 22 093 , 29 863 , 37 633 , 45 403 , 53 173 , 60 943 , 68 713
 6703 , 23 293 , 39 883 , 56 473 , 73 063 , 89 653 , 106 243 , 122 833 , 139 423
 17 , 6947 , 13 877 , 20 807 , 27 737 , 34 667 , 41 597 , 48 527 , 55 457
 137 , 8117 , 16 097 , 24 077 , 32 057 , 40 037 , 48 017 , 55 997 , 63 977
 937 , 10 177 , 19 417 , 28 657 , 37 897 , 47 137 , 56 377 , 65 617 , 74 857
 1847 , 17 807 , 33 767 , 49 727 , 65 687 , 81 647 , 97 607 , 113 567 , 129 527
 6037 , 21 997 , 37 957 , 53 917 , 69 877 , 85 837 , 101 797 , 117 757 , 133 717
 199 , 409 , 619 , 829 , 1039 , 1249 , 1459 , 1669 , 1879
 409 , 619 , 829 , 1039 , 1249 , 1459 , 1669 , 1879 , 2089
 1699 , 5689 , 9679 , 13 669 , 17 659 , 21 649 , 25 639 , 29 629 , 33 619
 2729 , 22 469 , 42 209 , 61 949 , 81 689 , 101 429 , 121 169 , 140 909 , 160 649
 3499 , 3709 , 3919 , 4129 , 4339 , 4549 , 4759 , 4969 , 5179
 6089 , 29 819 , 53 549 , 77 279 , 101 009 , 124 739 , 148 469 , 172 199 , 195 929
 6949 , 17 029 , 27 109 , 37 189 , 47 269 , 57 349 , 67 429 , 77 509 , 87 589

(* arithmetic progressions of primes of length 10*)

```

In[ ]:= Do[Do[Do[If[PrimeQ[a[i] + 10 * k] && PrimeQ[a[i] + 10 * k + 10 * j] &&
    PrimeQ[a[i] + 10 * k + 20 * j] && PrimeQ[a[i] + 10 * k + 30 * j] &&
    PrimeQ[a[i] + 10 * k + 40 * j] && PrimeQ[a[i] + 10 * k + 50 * j] && PrimeQ[a[i] + 10 * k + 60 * j] &&
    PrimeQ[a[i] + 10 * k + 70 * j] && PrimeQ[a[i] + 10 * k + 80 * j] && PrimeQ[a[i] + 10 * k + 90 * j],
Print[a[i] + 10 * k, ",", a[i] + 10 * k + 10 * j, ",", a[i] + 10 * k + 20 * j, ",",
    a[i] + 10 * k + 30 * j, ",", a[i] + 10 * k + 40 * j, ",", a[i] + 10 * k + 50 * j,
    ",", a[i] + 10 * k + 60 * j, ",", a[i] + 10 * k + 70 * j, ",", a[i] + 10 * k + 80 * j,
    ",", a[i] + 10 * k + 90 * j], Null], {j, 1, 10 000}], {k, 0, 2500}], {i, 1, 4}]

4831 , 35 281 , 65 731 , 96 181 , 126 631 , 157 081 , 187 531 , 217 981 , 248 431 , 278 881
5981 , 84 521 , 163 061 , 241 601 , 320 141 , 398 681 , 477 221 , 555 761 , 634 301 , 712 841
443 , 32 783 , 65 123 , 97 463 , 129 803 , 162 143 , 194 483 , 226 823 , 259 163 , 291 503
4943 , 65 003 , 125 063 , 185 123 , 245 183 , 305 243 , 365 303 , 425 363 , 485 423 , 545 483
6113 , 77 093 , 148 073 , 219 053 , 290 033 , 361 013 , 431 993 , 502 973 , 573 953 , 644 933
23 143 , 53 173 , 83 203 , 113 233 , 143 263 , 173 293 , 203 323 , 233 353 , 263 383 , 293 413
1847 , 17 807 , 33 767 , 49 727 , 65 687 , 81 647 , 97 607 , 113 567 , 129 527 , 145 487
5827 , 37 537 , 69 247 , 100 957 , 132 667 , 164 377 , 196 087 , 227 797 , 259 507 , 291 217
6007 , 36 037 , 66 067 , 96 097 , 126 127 , 156 157 , 186 187 , 216 217 , 246 247 , 276 277
17 317 , 79 687 , 142 057 , 204 427 , 266 797 , 329 167 , 391 537 , 453 907 , 516 277 , 578 647
199 , 409 , 619 , 829 , 1039 , 1249 , 1459 , 1669 , 1879 , 2089
10 139 , 81 749 , 153 359 , 224 969 , 296 579 , 368 189 , 439 799 , 511 409 , 583 019 , 654 629
22 679 , 72 869 , 123 059 , 173 249 , 223 439 , 273 629 , 323 819 , 374 009 , 424 199 , 474 389

```

```

In[5]:= (* arithmetic progressions of primes of length 11*)
Do[Do[Do[If[PrimeQ[a[i] + 10 * k] && PrimeQ[a[i] + 10 * k + 10 * j] &&
    PrimeQ[a[i] + 10 * k + 20 * j] && PrimeQ[a[i] + 10 * k + 30 * j] && PrimeQ[a[i] + 10 * k + 40 * j] &&
    PrimeQ[a[i] + 10 * k + 50 * j] && PrimeQ[a[i] + 10 * k + 60 * j] && PrimeQ[a[i] + 10 * k + 70 * j] &&
    PrimeQ[a[i] + 10 * k + 80 * j] && PrimeQ[a[i] + 10 * k + 90 * j] && PrimeQ[a[i] + 10 * k + 100 * j],
Print[a[i] + 10 * k, ",", a[i] + 10 * k + 10 * j, ",", a[i] + 10 * k + 20 * j, ",",
    a[i] + 10 * k + 30 * j, ",", a[i] + 10 * k + 40 * j, ",", a[i] + 10 * k + 50 * j,
    ",", a[i] + 10 * k + 60 * j, ",", a[i] + 10 * k + 70 * j, ",",
    a[i] + 10 * k + 80 * j, ",", a[i] + 10 * k + 90 * j, ",", a[i] + 10 * k + 100 * j],
Null], {j, 1, 40 000}], {k, 0, 10 000}], {i, 1, 4}]

```

31 741 , 207 301 , 382 861 , 558 421 , 733 981 ,
909 541 , 1 085 101 , 1 260 661 , 1 436 221 , 1 611 781 , 1 787 341

68 261 , 294 641 , 521 021 , 747 401 , 973 781 ,
1 200 161 , 1 426 541 , 1 652 921 , 1 879 301 , 2 105 681 , 2 332 061

99 881 , 233 861 , 367 841 , 501 821 , 635 801 ,
769 781 , 903 761 , 1 037 741 , 1 171 721 , 1 305 701 , 1 439 681

4943 , 65 003 , 125 063 , 185 123 , 245 183 , 305 243 , 365 303 , 425 363 , 485 423 , 545 483 , 605 543

23 143 , 53 173 , 83 203 , 113 233 , 143 263 , 173 293 , 203 323 , 233 353 , 263 383 , 293 413 , 323 443

53 173 , 83 203 , 113 233 , 143 263 , 173 293 , 203 323 , 233 353 , 263 383 , 293 413 , 323 443 , 353 473

65 003 , 125 063 , 185 123 , 245 183 , 305 243 , 365 303 , 425 363 , 485 423 , 545 483 , 605 543 , 665 603

3617 , 213 827 , 424 037 , 634 247 , 844 457 ,
1 054 667 , 1 264 877 , 1 475 087 , 1 685 297 , 1 895 507 , 2 105 717

75 307 , 105 337 , 135 367 , 165 397 , 195 427 , 225 457 , 255 487 , 285 517 , 315 547 , 345 577 , 375 607

74 729 , 197 159 , 319 589 , 442 019 , 564 449 , 686 879 , 809 309 , 931 739 , 1 054 169 , 1 176 599 , 1 299 029