

```
> restart
>
> p := [0, 2, 6, 8, 12, 18, 20, 26, 30, 32, 36, 42];
      p := [0, 2, 6, 8, 12, 18, 20, 26, 30, 32, 36, 42] (1)
```

```
> o := ImportData( )
      o := [ 27489 x 1 Matrix
            Data Type: integer
            Storage: rectangular
            Order: Fortran_order ] (2)
```

```
> # For the current 12 tuple, file is in Documents directory, called underscore m10pat12b
> with(ArrayTools) :
> im := Size(p) :
> i := im(2)
> fm := Size(o) :
> f := fm(1)
```

```
>
>
> primesm := proc(n :: integer)
  description "determine if n has a prime factor between 30 and 150";
  # it looks for small factors
  if igcd(230641901847837585965243013016220101141887350867, n) = 1 then
    return false
  else return true;
  end if;
end proc;
```

```
>
> primelg := proc(n :: integer)
  description "determine if n has a prime factgor between 150 and 1062";
  # it looks for LarGer factors

  if
  igcd(
  1807127309025058414457655821627490753585326638738385818724618943140900244\
  1711261711730733278276854170919269666821683270171637872963451243700254419\
  2067365483686535509808399716367582562556087679357856956978002146007118956\
  8437935599700036936175064524788253552062590718386429413024722046783567175\
  4405808102295873446364433171958651727846433361800890498315780567118640253\
  095653552798691759889739, n) = 1 then
    return false;
  else return true;
  end if ;
end proc;
```

```
>
> primorial := proc(n :: integer) :: integer,
  description "Return the product of the first n primes. Find n#"
  local a, b;
  b := 1;
  for a from 1 to n do
    b := b·ithprime(a);
```

```
end do;
b;
end proc:
```

```
        i := 12
        f := 27489
```

```
> m := primorial(10)
        m := 6469693230
```

```
> #loopStart:=0 - (0 mod m) : loopStop := 1018 :
> loopStart := 559397483651135630 - (559397483651135630 mod m) : loopStop := loopStart
  + 1011 :
```

```
>
> # main loops
> st := time( ) :
for a from loopStart by m to loopStop do
  for b from 1 to f do
    counter := 1 :
    while counter > 0 and counter ≤ i do
      if primesm(a + o(b) + p[counter]) = false then counter := counter + 1;
      else counter := 0 :
      end if;
      end do;
      if counter = i + 1 then
        counter2 := 1 :
        while counter2 > 0 and counter2 < i + 1 do
          if primelg(a + o(b) + p[counter2]) = false then counter2 := counter2 + 1;
          else counter2 := 0 :
          end if ;
          end do;
          counter3 := 1 :
          if counter2 = i + 1 then
            while counter3 > 0 and counter3 < i + 1 do
              if isprime(a + o(b) + p[counter3]) = true then counter3 := counter3 + 1;
              else counter3 := 0 : end if;
            end do;
            if counter3 = 13 then printf("%20d", a + o(b));end if;
          end if;
          end if;
        end do;
        end do;
        time( ) - st;
```

```
        10.374
```

```
> a
        559397586922394220
```

```
>
```