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[> # check Goldbach's Conjecture
[> # my first step is to find the number of primes between 3 and n over 2.
[> n := 88 :
[> notwo :=  $\frac{n}{2}$ ;
[> notwo := 44
[> # I do the best with what I have to work with
[> # Maple code beginner here
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(1)

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> cp := proc(notwoo) :: integer
  description "Find the number of primes less than the input variable";
  local b, pcount;
  pcount := 1;
  while ithprime(pcount) < notwoo do
    pcount := pcount + 1;
  end do;
  b := ithprime(pcount - 1);
  print("The ", pcount - 1, " th prime number is ", b, "
    and this is less than ", notwoo);
  b;
end proc;

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```
cp := proc(notwoo)::integer;
```

(2)

```
local b, pcount;
```

```
description "Find the number of primes less than the input variable";
```

```
pcount := 1;
```

```
while ithprime(pcount) < notwoo do pcount := pcount + 1 end do;
```

```
b := ithprime(pcount - 1);
```

```
print("The ", pcount - 1, " th prime number is ", b, "\n and this is less than ", notwoo);
```

```
b
```

```
end proc
```

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> d := cp(9);
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"The ", 4, " th prime number is ", 7, "
and this is less than ", 9
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d := 7
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(3)

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> d := cp(68);
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"The ", 19, " th prime number is ", 67, "
and this is less than ", 68
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d := 67
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(4)

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>
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> for a from 8 to 200 by 2 do
  for c from 2 to  $\frac{a}{2}$  do
    f := ithprime(c) :
    for g from c to a do
      g := ithprime(g) :
      if g + f = a then print("Goldbach's conjecture holds for ", a, " because ", g, " + ", f, " is ", a);
        end if;
      end do;
    end do;
  end do;
  "Goldbach's conjecture holds for ", 10, " because ", 7, " + ", 3, " is ", 10
  "Goldbach's conjecture holds for ", 10, " because ", 5, " + ", 5, " is ", 10
  "Goldbach's conjecture holds for ", 14, " because ", 7, " + ", 7, " is ", 14
  "Goldbach's conjecture holds for ", 18, " because ", 13, " + ", 5, " is ", 18
  "Goldbach's conjecture holds for ", 22, " because ", 19, " + ", 3, " is ", 22
  "Goldbach's conjecture holds for ", 22, " because ", 11, " + ", 11, " is ", 22
  "Goldbach's conjecture holds for ", 26, " because ", 19, " + ", 7, " is ", 26
  "Goldbach's conjecture holds for ", 26, " because ", 13, " + ", 13, " is ", 26
  "Goldbach's conjecture holds for ", 34, " because ", 17, " + ", 17, " is ", 34
  "Goldbach's conjecture holds for ", 38, " because ", 19, " + ", 19, " is ", 38
  "Goldbach's conjecture holds for ", 46, " because ", 23, " + ", 23, " is ", 46
  "Goldbach's conjecture holds for ", 48, " because ", 43, " + ", 5, " is ", 48
  "Goldbach's conjecture holds for ", 48, " because ", 37, " + ", 11, " is ", 48
  "Goldbach's conjecture holds for ", 56, " because ", 43, " + ", 13, " is ", 56
  "Goldbach's conjecture holds for ", 58, " because ", 29, " + ", 29, " is ", 58
  "Goldbach's conjecture holds for ", 62, " because ", 31, " + ", 31, " is ", 62
  "Goldbach's conjecture holds for ", 74, " because ", 71, " + ", 3, " is ", 74
  "Goldbach's conjecture holds for ", 74, " because ", 37, " + ", 37, " is ", 74
  "Goldbach's conjecture holds for ", 78, " because ", 71, " + ", 7, " is ", 78
  "Goldbach's conjecture holds for ", 78, " because ", 61, " + ", 17, " is ", 78
  "Goldbach's conjecture holds for ", 82, " because ", 41, " + ", 41, " is ", 82
  "Goldbach's conjecture holds for ", 86, " because ", 43, " + ", 43, " is ", 86
  "Goldbach's conjecture holds for ", 90, " because ", 71, " + ", 19, " is ", 90
  "Goldbach's conjecture holds for ", 94, " because ", 47, " + ", 47, " is ", 94
  "Goldbach's conjecture holds for ", 106, " because ", 53, " + ", 53, " is ", 106
  "Goldbach's conjecture holds for ", 112, " because ", 89, " + ", 23, " is ", 112
  "Goldbach's conjecture holds for ", 118, " because ", 59, " + ", 59, " is ", 118
  "Goldbach's conjecture holds for ", 122, " because ", 61, " + ", 61, " is ", 122
  "Goldbach's conjecture holds for ", 134, " because ", 67, " + ", 67, " is ", 134
  "Goldbach's conjecture holds for ", 142, " because ", 113, " + ", 29, " is ", 142
  "Goldbach's conjecture holds for ", 142, " because ", 71, " + ", 71, " is ", 142
  "Goldbach's conjecture holds for ", 146, " because ", 73, " + ", 73, " is ", 146
  "Goldbach's conjecture holds for ", 158, " because ", 79, " + ", 79, " is ", 158

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"Goldbach's conjecture holds for ", 162, " because ", 131, " + ", 31, " is ", 162
"Goldbach's conjecture holds for ", 166, " because ", 83, " + ", 83, " is ", 166
"Goldbach's conjecture holds for ", 174, " because ", 163, " + ", 11, " is ", 174
"Goldbach's conjecture holds for ", 178, " because ", 89, " + ", 89, " is ", 178
"Goldbach's conjecture holds for ", 194, " because ", 97, " + ", 97, " is ", 194
"Goldbach's conjecture holds for ", 198, " because ", 193, " + ", 5, " is ", 198
"Goldbach's conjecture holds for ", 200, " because ", 163, " + ", 37, " is ", 200

(5)

> # yay it functions. sort of.

> ithprime(2)

3

(6)