

```
[> # check Goldbach's Conjecture by example
[> # ` `
[> # filename "check g conjecture 26b. mw"
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[> # 11 - 5 - 2016
[>
[>
[>
```

```
> n := 8;
n := 8 (1)
```

```
> notwoo :=  $\frac{n}{2}$ ;
notwoo := 4 (2)
```

```
> # n over two o
```

```
>
```

```
> # cp is for count primes. A procedure.
```

```
>
```

```
> 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;
```

```
cp := proc(notwoo)::integer; (3)
```

```
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
```

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

```
> d := cp(68);
"The ", 19, " th prime number is ", 67, "
and this is less than ", 68
d := 67 (5)
```

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>
```

```
> for a from 8 to 80 by 2 do
```

```
FoundSumForA := false :
```

```
for c from 2 to  $\frac{a}{2}$  do
```

```
f := ithprime(c) :
```

```
for g from c to a do
```

```
h := ithprime(g) :
```

```
if  $h + f = a$  then if FoundSumForA = false then print("Goldbach's conjecture holds for ", a,  
" because ", h, " + ", f, " is ", a); FoundSumForA := true; end if  
end if;  
end do;  
end do;  
end do;
```

```
    FoundSumForA := false  
    "Goldbach's conjecture holds for ", 8, " because ", 5, " + ", 3, " is ", 8  
    FoundSumForA := false  
    "Goldbach's conjecture holds for ", 10, " because ", 7, " + ", 3, " is ", 10  
    FoundSumForA := false  
    "Goldbach's conjecture holds for ", 12, " because ", 7, " + ", 5, " is ", 12  
    FoundSumForA := false  
    "Goldbach's conjecture holds for ", 14, " because ", 11, " + ", 3, " is ", 14  
    FoundSumForA := false  
    "Goldbach's conjecture holds for ", 16, " because ", 13, " + ", 3, " is ", 16  
    FoundSumForA := false  
    "Goldbach's conjecture holds for ", 18, " because ", 13, " + ", 5, " is ", 18  
    FoundSumForA := false  
    "Goldbach's conjecture holds for ", 20, " because ", 17, " + ", 3, " is ", 20  
    FoundSumForA := false  
    "Goldbach's conjecture holds for ", 22, " because ", 19, " + ", 3, " is ", 22  
    FoundSumForA := false  
    "Goldbach's conjecture holds for ", 24, " because ", 19, " + ", 5, " is ", 24  
    FoundSumForA := false  
    "Goldbach's conjecture holds for ", 26, " because ", 23, " + ", 3, " is ", 26  
    FoundSumForA := false  
    "Goldbach's conjecture holds for ", 28, " because ", 23, " + ", 5, " is ", 28  
    FoundSumForA := false  
    "Goldbach's conjecture holds for ", 30, " because ", 23, " + ", 7, " is ", 30  
    FoundSumForA := false  
    "Goldbach's conjecture holds for ", 32, " because ", 29, " + ", 3, " is ", 32  
    FoundSumForA := false  
    "Goldbach's conjecture holds for ", 34, " because ", 31, " + ", 3, " is ", 34  
    FoundSumForA := false  
    "Goldbach's conjecture holds for ", 36, " because ", 31, " + ", 5, " is ", 36  
    FoundSumForA := false  
    "Goldbach's conjecture holds for ", 38, " because ", 31, " + ", 7, " is ", 38  
    FoundSumForA := false  
    "Goldbach's conjecture holds for ", 40, " because ", 37, " + ", 3, " is ", 40  
    FoundSumForA := false  
    "Goldbach's conjecture holds for ", 42, " because ", 37, " + ", 5, " is ", 42  
    FoundSumForA := false
```

"Goldbach's conjecture holds for ", 44, " because ", 41, " + ", 3, " is ", 44
FoundSumForA := false

"Goldbach's conjecture holds for ", 46, " because ", 43, " + ", 3, " is ", 46
FoundSumForA := false

"Goldbach's conjecture holds for ", 48, " because ", 43, " + ", 5, " is ", 48
FoundSumForA := false

"Goldbach's conjecture holds for ", 50, " because ", 47, " + ", 3, " is ", 50
FoundSumForA := false

"Goldbach's conjecture holds for ", 52, " because ", 47, " + ", 5, " is ", 52
FoundSumForA := false

"Goldbach's conjecture holds for ", 54, " because ", 47, " + ", 7, " is ", 54
FoundSumForA := false

"Goldbach's conjecture holds for ", 56, " because ", 53, " + ", 3, " is ", 56
FoundSumForA := false

"Goldbach's conjecture holds for ", 58, " because ", 53, " + ", 5, " is ", 58
FoundSumForA := false

"Goldbach's conjecture holds for ", 60, " because ", 53, " + ", 7, " is ", 60
FoundSumForA := false

"Goldbach's conjecture holds for ", 62, " because ", 59, " + ", 3, " is ", 62
FoundSumForA := false

"Goldbach's conjecture holds for ", 64, " because ", 61, " + ", 3, " is ", 64
FoundSumForA := false

"Goldbach's conjecture holds for ", 66, " because ", 61, " + ", 5, " is ", 66
FoundSumForA := false

"Goldbach's conjecture holds for ", 68, " because ", 61, " + ", 7, " is ", 68
FoundSumForA := false

"Goldbach's conjecture holds for ", 70, " because ", 67, " + ", 3, " is ", 70
FoundSumForA := false

"Goldbach's conjecture holds for ", 72, " because ", 67, " + ", 5, " is ", 72
FoundSumForA := false

"Goldbach's conjecture holds for ", 74, " because ", 71, " + ", 3, " is ", 74
FoundSumForA := false

"Goldbach's conjecture holds for ", 76, " because ", 73, " + ", 3, " is ", 76
FoundSumForA := false

"Goldbach's conjecture holds for ", 78, " because ", 73, " + ", 5, " is ", 78
FoundSumForA := false

"Goldbach's conjecture holds for ", 80, " because ", 73, " + ", 7, " is ", 80

(6)

> # yay it functions.

> ithprime(2)

(7)