a b

4 x 3 = 4 + 4 + 4

value times 4 + 4x2

return 4 + ( )

4 + 4 x 1

= 4

timesb == 1

return value a

else :

return a + add(a, b-1)

```
def prod(a, b)
    if b == 1:
        return a
    else:
        return a + prod(a, b-1)
```

100 x 1 : 100

5000 x 1 : 5000

4 x 3 = 4 + 4 x 2 = 12

4 + 4 + 4

$5! = 5 \times 4 \times 3 \times 2 \times 1$

$5 = 5 + 4 + 3 + 2 + 1$

fact(5):

if num == 0
return 1

$0! = 1$

$1! = 1$

$5! = 5 \times 4!$

$5! = 5 \times 4!$

$= 120$

$4! = 4 \times 3!$

$3! = 3 \times 2!$

$2! = 2 \times 1!$

$1! = 1 \times 0!$

$0! = 1$

0 1 1 2 3 5 8 13

fib(32)

fib(31) fib(30)

30 29 29 28

29 28 28 27 28 27 27 26

fib(8) fib(5)