피보나치 반복문

```
ifib(10)
 if(n<2):
   return n

 pp=0
 p=1
 for i in range(2,n+1):
   current = p+pp
    pp=p
    p=current

 return curr
```

2 3 4 5 6 7
8 9 10

pp=0 p=1 (2,11)

c=1	c=2	c=3
pp=1	pp=1	pp=2
p=1	p=2	p=3
c=5	c=8	c=13
pp=3	pp=5	pp=8
p=5	p=8	p=13
21	34	55
13	21	34
21	34	55

```
rpower(2,10) (x,n)
if n==0:
  return 1
elif (n%2)==0
   return rpower(x*x, n//2)
else
   return x*rpower(x*x, (n-1)//2)
```

x^n 순환호출

return rpower(4,5)
return 4(rpower(16, 2))
↓
return rpower(256,1)
↓
256(rpower(256^2, 0))
↓
1

4(256(1))
=> 1024. 2^{10}

하노이 타워

n=1 disk 1 : 1 → 3

```
hanoi(n, fr, tmp, to)
if n==1
  print("disk %d : %s → %s" %(n, fr, to))
else
  hanoi(n-1, fr, to, tmp)
  print("disk %d : %s → %s" %(n, fr, to))
  hanoi(n-1, tmp, fr, to)
```

fr tmp to
A C B

hanoi(3, A, B, C)

fr tmp to

hanoi(2, A, C, B)
disk 3 : A → C
hanoi(2, B, A, C)

hanoi(1, A, B, C)
disk 2 : A → B
hanoi(1, C, A, B)

hanoi (2, A, C, B)

Disk 3 : A → C ①

hanoi (2, B, A, C)

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hanoi (1, A, B, C)

Disk 2 : A → B ②

hanoi (1, C, A, B)

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hanoi (1, B, C, A)

Disk 1 : B → C