

정보구조 HW3
2014-19498
독어교육과 정은주

Problem 1

```
power(2, 18)
    power(2, 9)
        power(2, 4)
            power(2, 2)
                power(2, 1)
                    power(2, 0)
                    return 1;
                power(2, 1)
                return 2;
            power(2, 2)
            return 2**2;
        power(2, 4)
        return 2**4;
    power(2, 9)
    return 2**9;
power(2, 18)
return 2**18;
```

1
2
4
16
512
26214
그냥 이렇게 씀

Problem 2

```
In [ ]: #problem 2
```

```
In [23]: def Harmonic(n) :
          if(n == 1):      괄호 없이 if n == 1: 이게 맞음
              return 1
          else:
              return 1/n + Harmonic(n-1)
```

```
In [24]: print(Harmonic(10))

2.9289682539682538
```

```
In [26]: print(Harmonic(3))

1.8333333333333333
```

Problem 3

$$O(\log n)$$

Problem 4

answer: `res *= x`

```
In [46]: #problem 4
```

```
In [47]: def power_(x, n):  
         res = 1  
         i = 0  
         while n>0:  
             if(n%2 == 1):  
                 res *= x  
             n = n//2  
             x = x*x  
         return res
```

```
In [48]: power_(2, 18)
```

```
Out[48]: 262144
```

```
In [49]: power(2,10)
```

```
Out[49]: 1024
```