

Writing base cases in Recursion

① Factorial n where $n \geq 0$

I/P: $n=4$

O/P: 24

I/P: $n=0$

O/P: 1

```
def fact(n):
```

```
    if  $n == 0$ :
```

```
        return 1
```

```
    return  $n * \text{fact}(n-1)$ 
```

② n -th Fibonacci number where $n \geq 0$

I/P: $n=4$

O/P: 3

I/P: $n=0$

O/P: 0

The first few are

0, 1, 1, 2, 3, 5, 8, -----

```
def fib(n):
```

```
    if  $n == 0$ :
```

```
        return 0
```

```
    elif  $n == 1$ :
```

```
        return 1
```

```
    else:
```

```
        return  $\text{fib}(n-1) + \text{fib}(n-2)$ 
```