

● POWER (LINEAR)

Expectation

$P(x, n) = x \dots n \text{ times}$

Faith

$P(x, n-1) = x \dots n-1 \text{ times}$

Expectation meets Faith

$P(x, n) = P(x, n-1) \cdot x$

```

p s v m (s [J a) {
Scanner s = new Scanner (System.in);
int x = s.nextInt();
int n = s.nextInt();
int xn = power (x, n);
Syso (xn);
}

```

```

p s int power (int x, int n) {
    if (n == 0) ] // BASE CASE
        return 1;
    int xnm1 = power (x, n-1); ①
    int xn = x * xnm1; ②
    return xn; ③
}

```

↓
1 2 3
1 2 3
1 2 3
1 2 3
1 2 3
↑

AFTER reach base case, wipe out hona shuru hoga upper se ek ek krke pop out hony

3	0		
3	1	3	
3	2	9	
3	3	27	
3	4	81	
x	n	xnm1	xn

- phere line ① chalti rahegi tab tak jab tak BASE CASE attain nahi hota!
 - uske baad, Base case will return ① in xnm1 then multiplication of x and xnm1 will be done and stored in xn → this is done when line ② is run!
 - ab line ③ chalegi aur xn ko return kregi xnm1 me last tak
- The process goes on!