functions / Methods

2, 3, 4, 5, 6, 7

```
int x = 1;
int y = 2;
int ans = x*y;

int c = 7;
int d = 8;
int ans = c*d;

int a = 5;
int b = 6;
int ans2 = a*b;
```

```
main(){
  mul(1,2);
  mul(5,6);
  mul(7,8);
}

mul(a,b){
  int ans = a*b;
}
```

(1)

function

- main();
- .length();
- charAt();
- nextInt()

Parameter

public static void/returntype mul name (arguments){

}

string ⇒ str.length( ); ⇒ size of string

People

count = 123456

Qu factorial

$6! = 6*5\times4\times3\times2\times1$

$= 720$

$n! = n*(n-1)*(n-2)*(n-3)$ ---- I

code repeation

combination

$^{n}C_{r} = \frac{n!}{r!(n-r)!}$

$n=6$

$r=5$

$= \frac{6!}{5!(6-5)!} = \frac{6!}{5!*1!}$

```
public class Solution {
    p.s.v.m (Args[] String) {
        int n = 6;
        int r = 4;
        int nMr = n - r;
```

$$\frac{n!}{(r! \times nMr!)}$$

$n!$ = [for(n to 1){ ans * i; }]

$r!$ for(r to 1){ ans * 2 }

for(nMr to 1){ ans * 1; }

// repeation of code

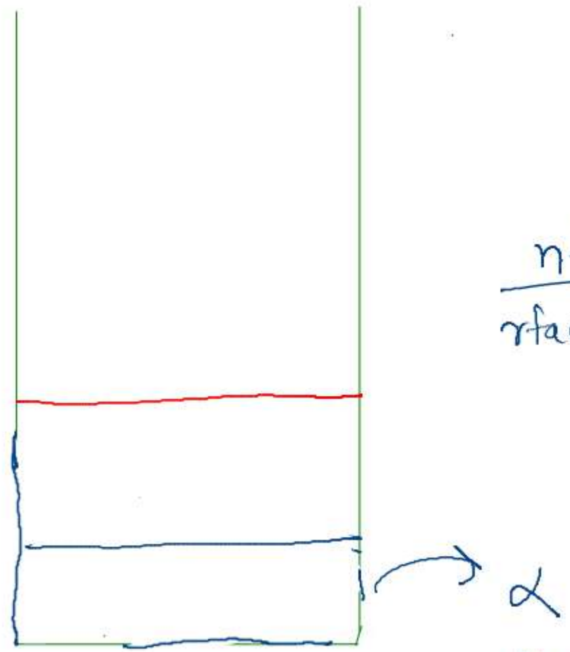
```
    }
}
```

$$\frac{6!}{4! * (6-4)!} = \frac{6!}{4! * 2!} = \frac{6 * 5 * 4!}{4! * 2}$$

$= 15$

```java
Run | Debug
public static void main(String[] args){
    int n =6;
    int r = 4;
    int nmr= n-r;
    int nfact = factorial(n);
    int rfact = factorial(r);
    int nmrfact= factorial(nmr);
    int ans = nfact/(rfact * nmrfact);
    System.out.println(ans);
}

public static int factorial(int x){
    int result=1;
    for(int i=x;i>=1;i--){
        result *=i;
    }
    return result;
}
```

OUTPUT DEBUG CONSOLE TERMINAL



$$\frac{nfact}{rfac * nmrfact} = \frac{720}{24 \times 2} = 15$$

Stack → dry run method

public static returntype functionName (Parameters) & Arguments

int | boolean

factorial

// code here

other than predefined java keywords

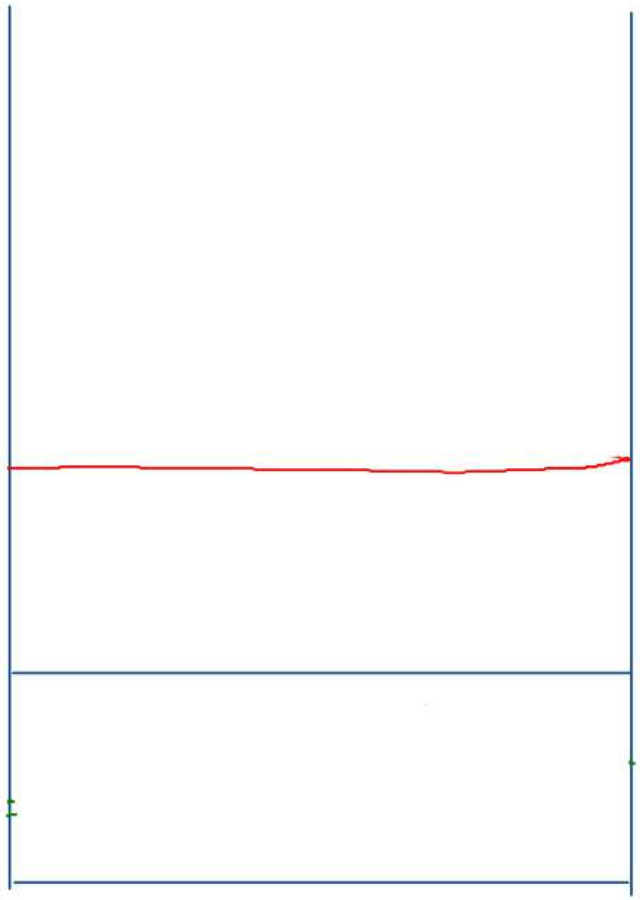
15

```
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    int n = scn.nextInt();

    int ans = factorial(n);
    System.out.println(ans);
    }

    public static int factorial(int x){
        int result=1;
        for(int i=x;i>=1;i--){
            result *=i;
        }
        return result;
    /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your
}
```

5

5

120



Qu find sum

# of testCases

for (1 to #qTC) {

int a = sc.nextInt();

int b = sc.nextInt();

int ans = Sum(a,b);

Syso(ans); }

```
public static void main(String[] args) {

    Scanner scn = new Scanner(System.in);
    int n = scn.nextInt();
    for(int i =1;i<=n;i++){
        int a = scn.nextInt();
        int b = scn.nextInt();
        int ans = Sum(a,b);
        System.out.println(ans);
    }
    /* Enter your code here. Read input from STDIN. Print output to
}

public static int Sum(int a, int b){
    int result = a+b;
    return result;
}
```

2

10 20

70 30

30

100