

functions

public ✓

static

int / char / boolean /
string / void

factorial
function name (int a, char ch) /
↓
parameter

return ans;

10, 20, 19, 17, 11, 15
↓
19

for (int i=0; i<n; i++) {
 boolean isPrime = prime(i);
 // ~~if (isPrime) {~~
 // ~~// ...~~
 // ~~}~~
}

- ① Reusability
- ② Readability
- ③ maintainability
- ④ Reduce size of code

public static boolean prime(int a) {
 //
 //
 //
 return true/false;
}

$$\begin{pmatrix} 32 \\ 2 \end{pmatrix} \Rightarrow \sim 10^9$$

$$2^{30+2} \Rightarrow \begin{pmatrix} 2^{30} \\ 2 \end{pmatrix} \neq \begin{pmatrix} 2 \\ 2 \end{pmatrix}$$

$$= \left(\begin{pmatrix} 10 \\ 2 \end{pmatrix} \right)^3 = (1024)^3$$

$$\Downarrow \cong (1000)^3 \Downarrow \cong (10^3)^3 = 10^9$$

$$\begin{matrix} a & b \\ \checkmark & \\ 3 \text{ % } 5 = 3 \end{matrix}$$

$$\begin{matrix} a & b \\ 8 & 9 \\ 10^8 \text{ % } 10^9 \Rightarrow 10^8 \end{matrix}$$

$$\begin{matrix} 11 & 9 \\ 10 & 10+7 \\ \text{ % } \end{matrix} = \textcircled{Z}$$

$$n = 6 \checkmark$$

$$r = 4 \checkmark$$

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

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

$$n! = n * n-1 * n-2 * \dots * 1$$

$$\text{while } (n > 0) \{$$

$$ans = ans * n;$$

$$n--;$$

$$n, r$$

```

public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    int n = scn.nextInt();
    int r = scn.nextInt();
    int ans = nCr(n,r);
    System.out.println(ans);
    /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class shc
}

public static int nCr(int n, int r){
    int nfact = factorial(n);
    int rfact = factorial(r);
    int nminusr = factorial(n-r);
    int ans = [nfact / rfact * nminusr];
    return ans;
}

public static int factorial(int a){
    int sol = 1;
    while(a>0){
        sol *= a;
        a--;
    }
    return sol;
}

```

$$\frac{720}{24} = 30$$

fact of 6

$$sol = 2 \times 1$$

② nCr

$$\begin{aligned} nfact &= 720 \\ rfact &= 24 \\ nminusr &= 2 \\ ans &= 15 \end{aligned}$$

① mainC)

$$\begin{aligned} n &= 6 \\ r &= 4 \\ ans &= nCr(6, 4) = 15 \end{aligned}$$

$$6! = 720$$

$$10! = 10 \times 9 \times 8 \times 7 \times 6!$$

$$90 \times 56$$



$$720$$

$$100!$$

$$int sol =$$

$$[100! \% 10000000000 + 7]$$

Q =

T = # of test cases.

↳

[10 20]
30 40

T →

while (T) ✓

int A =
int Y =
sum 0

4

T =

4

```
public class Solution {
```

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

```
        ✓ int test = scn.nextInt();
```

```
        ✓ int i=1;
```

```
        while(i<=test){
```

```
            int a = scn.nextInt();
```

```
            ✓ int b = scn.nextInt();
```

```
            sum(a,b);
```

```
            ✓ i++;
```

```
        }
```

```
    }
```

```
    public static void sum(int x , int y){
```

```
        int ans = x+y;
```

```
        System.out.println(ans);
```

```
    }
```

Handwritten notes in a box:

2	
✓ 10	✓ 20
✓ 30	✓ 40

Handwritten notes in a box:

30
70


```

} System.out.println(ans); ✓
}

```

$T = 2$
 $\sim \begin{bmatrix} 2 & 3 \\ 4 & 5 \end{bmatrix}$

Find product (x, y);

System.out.println(x * y);

10 20 30 40 50 60

$i++$ 0 $j--$
 \rightarrow \leftarrow
 $int j = 0;$
 while (i <= 5) {
 if (arr[i] == 0) {
 i++;
 j--;
 continue;
 }
 for (int j = n; i <= 5; j--) {
 i++;
 j++;
 }
 }

while (true) {
 if (data == 50) {
 break;
 }
 else {
 System.out.println(data);
 }
 }