

## Binomial coefficients

X29864\_en

The *binomial coefficient*  $\binom{N}{k}$ ,  $0 \leq k \leq N$ , is an important concept in mathematics. Formally,  $\binom{N}{k}$  represents the number of ways to choose a subset of  $k$  elements from a set of  $N$  elements. For example, there are three ways to choose a subset of 2 elements from a set  $\{a, b, c\}$  of three elements, namely  $\{a, b\}$ ,  $\{a, c\}$  and  $\{b, c\}$ . Hence  $\binom{3}{2} = 3$ .

To compute  $\binom{N}{k}$ , it is convenient to use the following recursive formula:

$$\binom{N}{k} = \binom{N-1}{k-1} + \binom{N-1}{k}.$$

The base case given by  $\binom{N}{0} = \binom{N}{N} = 1$  for any  $N \geq 0$ .

The binomial coefficients can be arranged into *Pascal's triangle*:

				1					
				1		1			
			1		2		1		
		1		3		3		1	
	1		4		6		4		1
1		5		10		10		5	
	1	6		15		20		15	
		1	6		15		20		1

Each row  $N \geq 0$  contains the binomial coefficients  $\binom{N}{0}, \dots, \binom{N}{N}$ , and each element is the sum of the two elements immediately above it.

### Input

The input starts with an integer  $C$ , the number of cases. On each of the following  $C$  lines are two integers  $N$  and  $k$  satisfying  $0 \leq k \leq N \leq 20$ .

### Output

For each case, output the binomial coefficient  $\binom{N}{k}$  on a single line.

#### Sample input 1

```
4
0 0
3 2
4 4
6 2
```

#### Sample output 1

```
1
3
1
15
```

### Problem information

Author: Anders Jonsson

Generation: 2026-01-25T14:59:33.474Z

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