Binomická věta

$$\boxed{(a+b)^n = \binom{n}{0}a^n b^0 + \binom{n}{1}a^{n-1}b^1 + \binom{n}{2}a^{n-2}b^2 + \dots + \binom{n}{n-1}a^1 b^{n-1} + \binom{n}{n}a^0 b^n}$$

$$(a+b)^3 = \binom{3}{0}a^3 b^0 + \binom{3}{1}a^{3-1}b^1 + \binom{3}{2}a^{3-2}b^2 + \binom{3}{3}a^0 b^3 =$$

$$= a^3 + 3a^2 b + 3ab^2 + b^3$$

$$(a+b)^4 = a^4 + 4a^3 b + 6a^2 b^2 + 4ab^3 + b^4$$

$$(a+b)^5 = a^5 + 5a^4 b + 10a^3 b^2 + 10a^2 b^3 + 5ab^4 + b^5$$

---

1 .... $(a+b)^0$

1 1 .... $(a+b)^1$

1 2 1 ...... $(a+b)^2$

1 3 3 1 ...... $(a+b)^3$

1 4 6 4 1 .... $(a+b)^4$

1 5 10 10 5 1 ...... $(a+b)^5$

1 6 15 20 15 6 1 ... $(a+b)^6$

1 7 21 35 35 21 7 1 ... $(a+b)^7$

⋮

$$\binom{0}{0}$$

$$\binom{1}{0} \quad \binom{1}{1}$$

$$\binom{2}{0} \quad \binom{2}{1} \quad \binom{2}{2}$$

$$\binom{3}{0} \quad \binom{3}{1} \quad \binom{3}{2} \quad \binom{3}{3}$$

$$\binom{4}{0} \quad \binom{4}{1} \quad \binom{4}{2} \quad \binom{4}{3} \quad \binom{4}{4}$$

Pascalův trojúhelník

$$\binom{n}{k} = \frac{n!}{k!(n-k)!}$$