Binomische Formeln (a + b) mit ganzzahligen Exponenten > 2

$$(a+b)^2 = (a+b)\cdot(a+b)$$
$$= a^2 + ab + ab + b^2$$
$$= \mathbf{a^2 + 2ab + b^2}$$
$$= \mathbf{1a^2 + 2ab + 1b^2}$$

$$(a+b)^3 = (a+b)^2\cdot(a+b)$$
$$= (a^2 + 2ab + b^2)\cdot(a+b)$$
$$= a^3 + a^2b + 2a^2b + 2ab^2 + ab^2 + b^3$$
$$= \mathbf{a^3 + 3a^2b + 3ab^2 + b^3}$$
$$= \mathbf{1a^3 + 3a^2b + 3ab^2 + 1b^3}$$

$$(a+b)^4 = (a+b)^3\cdot(a+b)$$
$$= (a^3 + 3a^2b + 3ab^2 + b^3)\cdot(a+b)$$
$$= a^4 + a^3b + 3a^3b + 3a^2b^2 + 3a^2b^2 + 3ab^3 + ab^3 + b^4$$
$$= \mathbf{a^4 + 4a^3b + 6a^2b^2 + 4ab^3 + b^4}$$
$$= \mathbf{1a^4 + 4a^3b + 6a^2b^2 + 4ab^3 + 1b^4}$$

$$(a+b)^5 = (a+b)^4\cdot(a+b)$$
$$= (a^4 + 4a^3b + 6a^2b^2 + 4ab^3 + b^4)\cdot(a+b)$$
$$= a^5 + a^4b + 4a^4b + 4a^3b^2 + 6a^3b^2 + 6a^2b^3 + 4a^2b^3 + 4ab^4 + ab^4 + b^5$$
$$= \mathbf{a^5 + 5a^4b + 10a^3b^2 + 10a^2b^3 + 5ab^4 + b^5}$$
$$= \mathbf{1a^5 + 5a^4b + 10a^3b^2 + 10a^2b^3 + 5ab^4 + 1b^5}$$