For complex **distributive** problems, follow these steps:

First, multiply the signs.

If the signs are the same, the product is positive.

(+ · + = + and – · – = +)

If the signs are opposite, the product is negative.

(+ · – = – and – · + = –)

Write down the sign.

Second, multiply the numbers.

Since you've already multiplied the signs, just multiply the numbers and write the product after the sign. If there is only one number, write it down. There may be no number.

Third, multiply the variables (letters).

$a \cdot b = ab$ $ac \cdot bd = abcd$ (listed in alphabetical order)

$c \cdot c = c^2$ For $d^2 \cdot d^4$, add the exponents,

because $d^2 = d \cdot d$, and $d^4 = d \cdot d \cdot d \cdot d$,

so $d^2 \cdot d^4 = (d \cdot d) \cdot (d \cdot d \cdot d \cdot d) = d^{2+4} = d^6$

Example: $-6m^2n^3(5mp - 3n^5)$

$- \cdot + = -$

$6 \cdot 5 = 30$

$m^2n^3 \cdot mp = m \cdot m \cdot n \cdot n \cdot n \cdot m \cdot p = m^3n^3p$

1st product: $-30m^3n^3p$

$- \cdot - = +$

$6 \cdot 3 = 18$

$m^2n^3 \cdot n^5 = m \cdot m \cdot n \cdot n \cdot n \cdot n \cdot n \cdot n \cdot n \cdot n = m^2n^8$

2nd product: $+18m^2n^8$

Answer: $-30m^3n^3p + 18m^2n^8$

Find the area of the rectangle.

$w(w + 4) = w^2 + 4w$