

Multiplication with Monomials and Polynomials

When multiplying a monomial and a polynomial, we multiply each term in the polynomial by the monomial. We call this the property of distribution.

Once you have distributed the monomial through the polynomial, the brackets are eliminated.

Example 1

$$2x(3x - 1)$$

$$= 6x^2 - 2x$$

Example 2

a) $5ab^2(2a^3 - 3a^2 + 7a)$

$$10a^4b^2 - 15a^3b^2 + 35a^2b^2$$

b) $-5x(x^2 - 4x + 1)$

$$-5x^3 + 20x^2 - 5x$$

c) $5x^2(x^2 - 4x + 3)$

$$5x^4 - 20x^3 + 15x^2$$

d) $\frac{1}{8}(4x^2 + 16x + 1)$

$$\frac{1}{2}x^2 + 2x + \frac{1}{8}$$

e) $-2xy(x - 3y + 10)$

$$-2x^2y + 6xy^2 - 20xy$$

f) $0.25pq(8p^2q^2 - 12)$

$$2p^3q^3 - 3pq$$