

# 10 FMP Review Expanding Brackets

Hayato

Multiply two polynomials:

$$(x^2 + 3x + 5)(x^4 - 5x - 7) = \cancel{x^6} - 5x^3 - 7x^2 + 3x^5 - 15x^2 - 21x + 5x^4 - 25x - 35$$

$$= x^6 + 3x^5 + 5x^4 - 5x^3 - 22x^2 - 46x - 35$$

$$(x - 5)(x^3 - 6x + 2) = x^4 - 6x^2 + 2x - 5x^3 + 30x - 10$$

$$= x^4 - 5x^3 - 6x^2 + 32x - 10$$

Multiply More:

$$(2x + 1)(x - 5)(x^3 - 6x + 2) = (2x^2 - 9x - 5)(x^3 - 6x + 2)$$

$$= 2x^5 - 12x^3 + 4x^2 - 9x^4 + 54x^2 - 18x - 5x^3 + 30x - 10$$

$$= 2x^5 - 9x^4 - 17x^3 + 58x^2 + 12x - 10$$

$5(3x - 2) = 15x - 10$ $10(7x - 4) = 70x - 40$ $-4(3a + 5b) = -12a - 20b$ $-8(5x - 10y) = -40x + 80y$ $15x(x^2 + 3) = 15x^3 + 45x$ $x^3(x^2 + 1) = x^5 + x^3$	$4x^5(x^3 - 1) = 4x^8 - 4x^5$ $6x^2y(3x - y) = 18x^3y - 6x^2y^2$ $5x^2(x^2 + 3x - 1) = 5x^4 + 15x^3 - 5x^2$ $7a(4b - 5c) = 28ab - 35ac$ $4a^3b^5(a^2 - 3b^2) = 4a^5b^5 - 12a^3b^7$ $5ab(a + 1) = 5a^2b + 5ab$
<p>Using FOIL (or otherwise): Expand and simplify</p> $(x + 5)(x + 4) = x^2 + 9x + 20$ $(x - 3)(x + 8) = x^2 + 5x - 24$ $(2x + 1)(3x - 4) = 6x^2 - 8x + 3x - 4$ $= 6x^2 - 5x - 4$ $(3x - 1)(x + 7) = 3x^2 + 21x - x - 7$ $= 3x^2 + 20x - 7$ $(2x + 5)^2 = 4x^2 + 20x + 25$ $(5x - 7)(5x + 7) = 25x^2 - 49$	$3(x + 5)(x + 4) = 3(x^2 + 9x + 20)$ $= 3x^2 + 27x + 60$ $5(x - 3)(x + 8) = 5(x^2 + 5x - 24)$ $= 5x^2 + 25x - 120$ $-(x - 3)(x + 8) = -(x^2 + 5x - 24)$ $= -x^2 - 5x + 24$ $(5 - x)(2x + 3) = 10x + 15 - 2x^2 - 3x$ $= -2x^2 + 7x + 15$

