Multiplying Polynomials - Part 1

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Two Important Products:

① Perfect square trinomial:

$(a+b)^2$ OR $(a-b)^2$

$(a+b)(a+b)$

$a^2+ab+ab+b^2$

$a^2+2ab+b^2$

$(a-b)(a-b)$

$a^2-ab-ab+b^2$

$a^2-2ab+b^2$

② The Difference of Squares

$(a+b)(a-b)$

$a^2-ab+ab-b^2$ * middle terms cancel

a^2-b^2

Ex. $(x+15)^2$

$(x+15)(x+15)$

$x^2+15x+15x+225$

$x^2+30x+225$

✓ ✓ ✓

$(2a+3)(2a-3)$

$4a^2-6a+6a-9$

$4a^2-9$

$(5b^2-4c)^2$

$(5b^2-4c)(5b^2-4c)$ FOIL

$25b^4 - 20b^2c - 20b^2c + 16c^2$

$25b^4 - 40b^2c + 16c^2$

Ex. Expand:

$2(x-3)(2x+5)$

$(2x-6)(2x+5)$

$4x^2 + 10x - 12x - 30$

$4x^2 - 2x - 30$

Ex. $(x+2)(3x-5) - (2x-3)(4x-5)$

$(3x^2 - 5x + 6x - 10) + (8x^2 + 10x + 12x + 15)$

$-5x^2 + 23x - 25$