

The slide features a light beige background with a blue grid pattern in the top-left and bottom-right corners. A dark blue rectangular area is positioned on the left side, containing the text. A vertical red bar is located on the far left edge of the slide.

Algebra 1

Chapter 8
Section 8-4

FOIL Review

(Write answers in standard form if possible)

$$(11x - 3)(x - 2)$$

$$(10m + 8p)(5p - 2s)$$

$$(5 + a)(a - 1)$$

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

$$11x^2 - 22x - 3x + 6$$

$$16ps$$

$$11x^2 - 25x + 6$$

$$5a - 5 + a^2 - a$$

simplified, but not in standard form)

$$a^2 + 4a - 5$$

$$50mp - 20ms + 40p^2 -$$

$$15 - 3x^2 - 5x + x^3 \text{ (already)}$$

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

Special Cases

$$(x + 3)(x + 3) = x^2 + 6x + 9$$

$$(2x + 5)(2x + 5) = 4x^2 + 20x + 25$$

$$(y + 9)(y + 9) = y^2 + 18y + 81$$

$$(4x - 1)(4x - 1) = 16x^2 - 8x + 1$$

$$x^2 + 3x + 3x + 9 = x^2 + 6x + 9$$

$$4x^2 + 10x + 10x + 25 = 4x^2 + 20x + 25$$

$$y^2 + 9y + 9y + 81 = y^2 + 18y + 81$$

$$16x^2 - 4x - 4x + 1 = 16x^2 - 8x + 1$$

Special Cases (Squares)

Take note

Key Concept The Square of a Binomial

Words The square of a binomial is the square of the first term plus twice the product of the two terms plus the square of the last term.

Algebra

$$(a + b)^2 = a^2 + 2ab + b^2$$

$$(a - b)^2 = a^2 - 2ab + b^2$$

Examples

$$(x + 4)^2 = x^2 + 8x + 16$$

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

Other Special Cases

$$(x + 4)(x - 4) = x^2 - 16$$

$$(x + y)(x - y) = x^2 - y^2$$

$$(5k + 3t)(3t - 5k) = 9t^2 - 25k^2$$

$$(4x - 1)(4x + 1) = 16x^2 - 1$$

$$x^2 - 4x + 4x - 16 = x^2 - 16$$

$$x^2 - xy + xy - y^2 = x^2 - y^2$$

$$15tk - 25k^2 + 9t^2 - 15tk = 9t^2 - 25k^2$$

$$16x^2 - 4x + 4x - 1 = 16x^2 - 1$$

Another Special Case

Take note

Key Concept The Product of a Sum and Difference

Words The product of the sum and difference of the same two terms is the difference of their squares.

Algebra

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

Examples

$$(x + 2)(x - 2) = x^2 - 2^2 = x^2 - 4$$

Practice with Special Cases

$$(7x - 2)(7x + 2)$$

$$(xy + z)(xy + z)$$

$$(r - 3)^2$$

$$(r + 3)(r - 7)$$

$$(9 - x)(9 + x)$$

$$(2x - 4y)(2x + 4y)$$

$$(7x)^2 - 2^2 = 49x^2 - 4$$
$$x^2y^2 + 2xyz + z^2$$

$$(xy)^2 + 2(xy)(z) + (z)^2 =$$

$$(r)^2 - 2(3)(r) + (3)^2 = r^2 - 6r + 9$$
$$21$$

$$r^2 - 7r + 3r - 21 = r^2 - 4r -$$

$$81 - x^2$$

$$(2x)^2 - (4y)^2 = 4x^2 - 16y^2$$