Algebra 1 8.4

Find squares of sums and differences

Find the product of a sum and a difference

sum +

difference −

product ×

EWE FOIL

difference of squares

X-factor

EWE: look for patterns

$(x+5)^2 = x^2+10x+25$

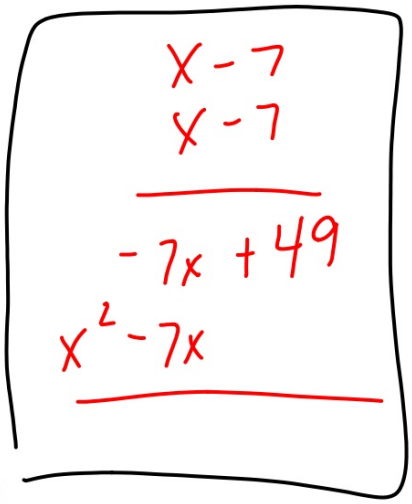
$(x+3)^2 = x^2+6x+9$

$(x-10)^2 = x^2-20x+100$

$(x+8)^2 = x^2+16x+64$

$(x-7)^2 = x^2-14x+49$

$(x+8)^2 = x^2+16x+64$



EWE always!

GuidedPractice

Find each product.

2A. $(6p - 1)^2$

$36p^2 - 12p + 1$

$6p - 1$

$6p - 1$

$-6p + 1$

$36p^2 - 6p$

$36p^2 - 12p + 1$

2B. $(a - 2b)^2$

$a^2 - 4ab + 4b^2$

$a - 2b$

$a - 2b$

$-2ab + 4b^2$

$a^2 - 2ab$

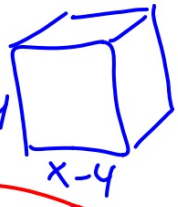
$a^2 - 4ab + 4b^2$

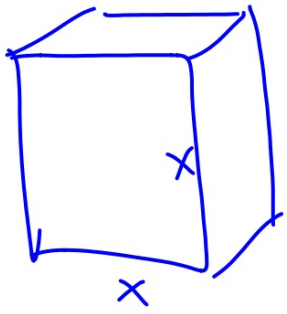
Real-World Example 3 Square of a Difference

PHYSICAL SCIENCE Each edge of a cube of aluminum is 4 centimeters less than each edge of a cube of copper. Write an equation to model the surface area of the aluminum cube.

Gema

Aluminum





Copper

$6(x^2)$

$6(x-4)^2$

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

$SA = 6(x^2-8x+16)$

$SA = 6x^2-48x+96$

GuidedPractice

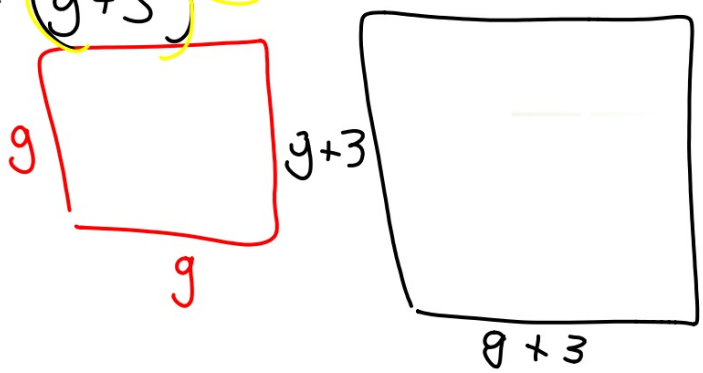
3. GARDENING Alano has a garden that is g feet long and g feet wide. He wants to add 3 feet to the length and the width.

A. Show how the new area of the garden can be modeled by the square of a binomial. $(g+3)(g+3) = (g+3)^2$

B. Find the square of this binomial.

$g+3$
$g+3$

g^2+6g+9



"Difference of squares:" EWE look for a pattern

$(x + 5)(x - 5) = x^2 - 25$

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

$(x + 9)(x - 9) = x^2 - 81$

$x + 3$
$x - 3$

$(x+7)(x-7) = x^2 - 49$

$x + 5$
$x - 5$

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

Example 4 Product of a Sum and a Difference

Find $(2x^2 + 3)(2x^2 - 3)$. $= 4x^4 - 9$

$2x^2 + 3$

$2x^2 - 3$

$6x$

$4x^4$ $6x^2$ -9

GuidedPractice

Find each product.

4A. $(3n + 2)(3n - 2)$

$9n^2 + -4$

$9n^2 - 4$

4B. $(4c - 7d)(4c + 7d)$

$16c^2 - 49d^2$