TOPIC: SPECIAL PRODUCTS

Squaring Binomials

◆ To square a binomial, you can use a formula instead of using FOIL.

► Note: The product is called a **Perfect Square Trinomial**.

EXAMPLE Multiply the polynomials.

(A) $(y+5)^2$

New

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

(Square of a Binomial)

$$\underbrace{(a+b)}_{(\text{binomial})^2} = \underbrace{a^2}_{(\text{first term})^2} + \underbrace{2ab}_{2\cdot(\text{product of terms})} + \underbrace{b^2}_{(\text{second term})^2}$$

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

New

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

(Square of a Binomial)

PRACTICE Square each binomial.

(A) $\left(b-\frac{1}{5}\right)^2$

(B) $(-3y+5)^2$

Recall

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

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PRACTICE Square each binomial.

Recall

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

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

$(\boldsymbol{A})$ $(x^2+1)^2$

$(\boldsymbol{B})$ $(5xy^3-2)^2$

TOPIC: SPECIAL PRODUCTS

Multiply Using the Difference of Squares Formula

◆ To multiply the product of a **sum** & **difference** of 2 terms (conjugates), use **New** $(a \quad b)(a \quad b) = a^2 \quad b^2$

(Difference of Squares)

EXAMPLE Multiply the polynomials.

(A) $(x+7)(x-7)$

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

PRACTICE Square each binomial.

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

(A) $\left(y+\frac{1}{8}\right)\left(y-\frac{1}{8}\right)$

(B) $(3m+4n)(3m-4n)$

(C) $(x^2-1)(x^2+1)$

(D) $(p^3q+7q^2)(p^3q-7q^2)$

TOPIC: SPECIAL PRODUCTS

EXAMPLE Find each product & compare your answers.

Recall

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

$(\boldsymbol{A})$ $(5x+7)^2$

$(\boldsymbol{B})$ $(5x-7)^2$

$(\boldsymbol{C})$ $(5x+7)(5x-7)$