

Special Products of Polynomials

Sum & Difference

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

~~-ab + ab~~

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

$$17 \times 23 = (20-3)(20+3) = 20^2 - 3^2$$

$$= 400 - 9$$

$$= 391$$

$$63 \times 81 = (72-9)(72+9) = 72^2 - 9^2$$

$$\begin{array}{r} 72 \\ \times 72 \\ \hline 144 \\ 5040 \\ \hline 5184 \end{array}$$

$$9(8-1)(9)(8+1)$$

$$81(7)(9)$$

$$(70+2)^2$$

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

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

$$70^2 + 2(70)(2) + 2^2$$

$$4900 + 280 + 4 = 5184$$

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

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

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

$$= 4x^2 - 12x + 9$$

$$(5x-3y)^2 = 25x^2 - 30xy + 9y^2$$

RECAP:

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

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

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