

Example 2 (Repeat, now using right side)

Prove $(x+a)(x+b) = x^2 + ax + bx + ab$

side I'm working on

$x^2 + ax + bx + ab$

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

Factor out GCF of each pair

(I'm going to

factor the right side

to make it

look like

the right)

$(x+a)(x+b) = (x+a)(x+b)$

left side

Factor out GCF of front + back

(put leftovers in their own)'s

Example 3

Verify numerically & prove algebraically:

$a^3 - b^3 = (a-b)(a^2 + ab + b^2)$

Verify

let $a=2, b=3$

$2^3 - 3^3 \stackrel{?}{=} (2-3)(2^2 + 2(3) + 3^2)$

$8 - 27 \stackrel{?}{=} (-1)(4 + 6 + 9)$

$-19 \stackrel{?}{=} -1(19)$

$-19 = -19 \checkmark$

Prove working left side

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

$a^3 + a^2b + ab^2 - a^2b - ab^2 - b^3$

$a^3 - b^3 = a^3 - b^3 \checkmark$
right side