

Try: Verify & prove: $(a+b)(a-b) = a^2 - b^2$

Verify

let $a=3, b=4$

$$(3+4)(3-4) \stackrel{?}{=} 3^2 - 4^2$$

$$(7)(-1) \stackrel{?}{=} 9 - 16$$

$$-7 = -7 \checkmark$$

Prove

$$(a+b)(a-b)$$

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

$$a^2 - b^2 = a^2 - b^2 \checkmark$$

-or- $a^2 - b^2$

$$a^2 + \underline{ab} - \underline{ab} - b^2$$

(I added zero to problem)

$$\underline{a(a+b) - b(a+b)}$$

Try: Verify and prove: $(a+b)^2 = a^2 + 2ab + b^2$

Verify

let $a=5, b=7$

$$(5+7)^2 \stackrel{?}{=} (5^2 + 2(5)(7) + 7^2)$$

$$12^2 \stackrel{?}{=} 25 + 70 + 49$$

$$144 = 144 \checkmark$$

Prove

$$(a+b)^2$$

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

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

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

$$(a+b)(a-b) = (a+b)(a-b) \checkmark$$

↑
right side

Try: prove

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

$$(a-b)^3$$

$$(a-b)(a-b)(a-b)$$

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

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

$$a^3 - \underline{2a^2b} + \underline{ab^2} - \underline{a^2b} + \underline{2ab^2} - b^3$$

$$a^3 - 3a^2b + 3ab^2 - b^3 = a^3 - 3a^2b + 3ab^2 - b^3 \checkmark$$