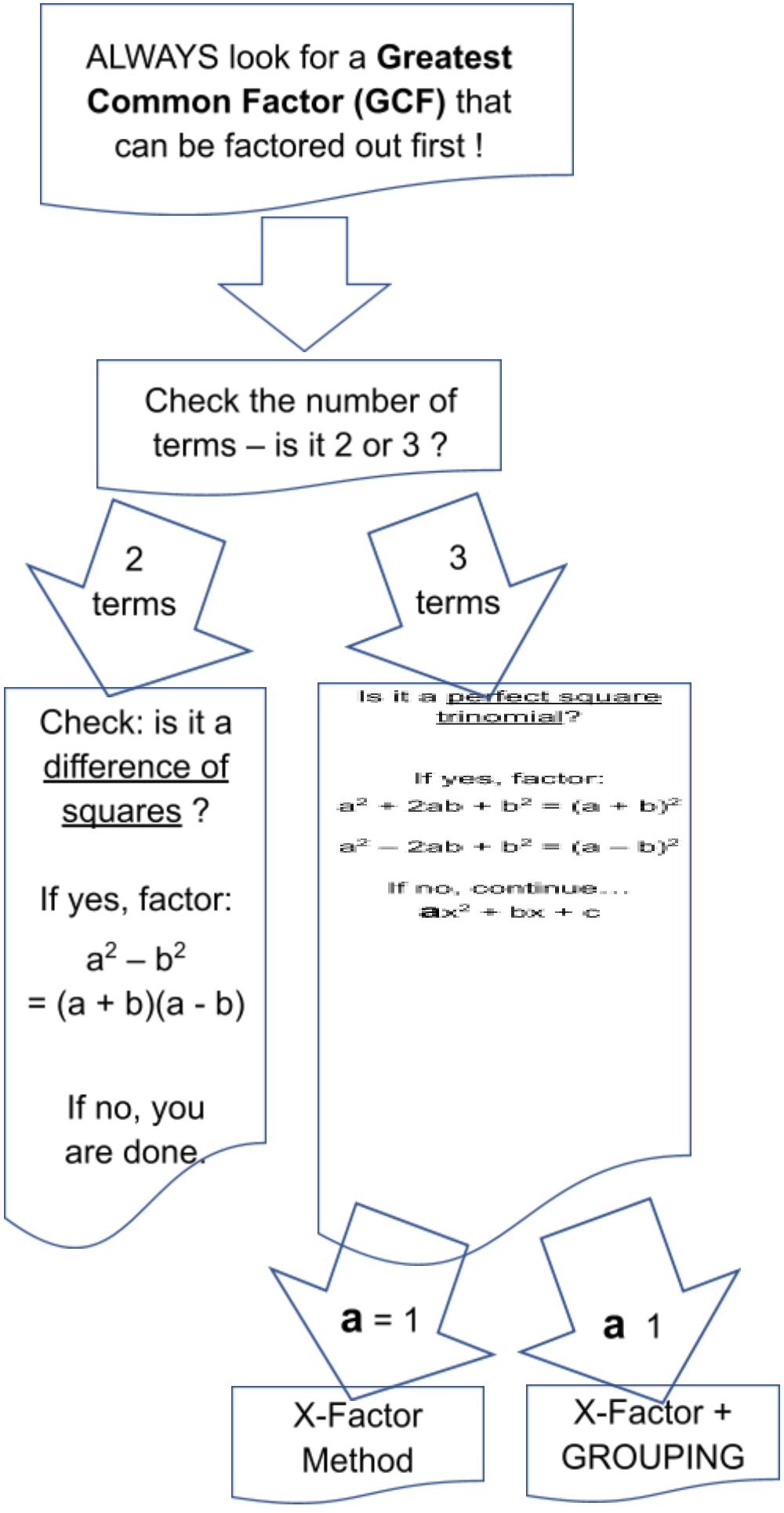
A Factoring Flow Chart - TRUST the Process



Use the flow chart to factor the following expressions:

$3x^2 - 24$

$-3x^3 - 90x$

$4x^5 - 8x^3$

$x^2 + 6x + 9$

$x^2 + 10x + 24$

$x^2 - 25$

$6x^3 + 12x^2 - 18x$

$2x^2 - 7x - 15$

$x^2 + 8x + 20$

$3x^2 - 12x + 12$

$x^2 + 49$

$5x^2 - 30x - 80$

$3x^3 - 48x$

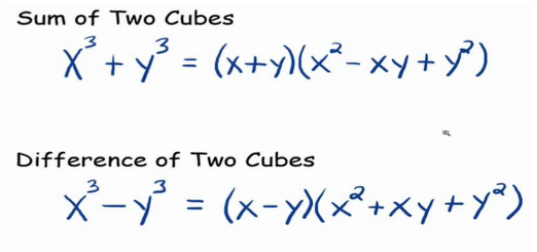
$12x^2 - 28x + 8$

$x^2 + 4x - 21$

$4x^3 + 40x^2 + 100x$

Factoring Practice: Continue to use the Flow Chart to factor all below.

* two BONUS factoring shortcuts:



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1. $9x^2 - 4$
2. $x^3 + 64$
3. $200x^2 - 50$
4. $7x^3 + 14x^2 + 7x$
5. $2x^3 - 4x^2 - 3x - 6$
6. $3x^2 + 81$
7. $2x^2 - x - 3$
8. $x^2 + 3x - 10$
9. $x^2 + 8x + 16$
10. $4x^2 - 20x + 25$
11. $2x^2 - 5x + 2$
12. $3x^2 - 11x - 20$

13. $x^3 - 3x^2 - 5x + 15$

14. $3x^4 - 11x^2 - 20$

15. $4x^2 - 49$

16. $x^2 - 18x + 81$

17. $16x^2 - 81$

18. $2x^3 - 3x^2 + 4x - 6$

19 $8x^3 - 27y^3$

20. $.x^4 - 4x^2 + 3$

21. $12abx^2 + 6a^2bx^3 - 30ab^3$

SOLUTIONS:

$$3x^2 - 24 = 3(x^2 - 8)$$

$$-3x^3 - 90x = -3x(x^2 + 30)$$

$$4x^5 - 8x^3 = 4x^3(x^2 - 2)$$

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

$$x^2 + 10x + 24 = (x + 6)(x + 4)$$

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

$$6x^3 + 12x^2 - 18x = 6x(x^2 + 2x - 3) = 6x(x + 3)(x - 1)$$

$$2x^2 - 7x - 15 = 2x^2 - 10x + 3x - 15 = (2x + 3)(x - 5)$$

$$x^2 + 8x + 20 = prime, cannot\ be\ factored$$

$$3x^2 - 12x + 12 = 3(x^2 - 4x + 4) = 3(x-2)^2$$

$$x^2 + 49 = prime, cannot\ be\ factored$$

$$5x^2 - 30x - 80 = 5(x^2 - 6x - 16) = 5(x-8)(x-2)$$

$$3x^3 - 48x = 3x(x^2 - 16) = 3x(x+4)(x-4)$$

$$12x^2 - 28x + 8 = 4(3x^2 - 7x + 2) = 4(3x-1)(x-2)$$

$$x^2 + 4x - 21 = (x-3)(x+7)$$

$$4x^3 + 40x^2 + 100x = 4x(x^2 + 10x + 25) = 4x(x+5)^2$$

1. $(3x+2)(3x-2)$
2. $(x+4)(x^2-4x+16)$
3. $50(2x+1)(2x-1)$
4. $7x(x+1)(x+1)$
5. Prime
6. $3(x^2+27)$
7. $(2x-3)(x+1)$
8. $(x+5)(x-2)$
9. $(x+4)(x+4)$
10. $(2x-5)(2x-5)$
11. $(x-2)(2x-1)$
12. $(3x+4)(x-5)$
13. $(x^2-5)(x-3)$
14. $(2x+7)(2x-7)$
15. $(3x^2+4)(x^2-5)$
16. $(x-9)(x-9)$
17. $(4x+9)(4x-9)$
18. $(x^2+2)(2x-3)$
19. $(2x-3y)(4x^2+6xy+9y^2)$
20. $(x^2-3)(x+1)(x-1)$
21. $6ab(2x^2+ax^3-5b^2)$