

Algebra Factoring Review

I. Greatest Common Factor - GCF: $ab+ac = a(b+c)$

- | | | |
|---------------|-----------------------|--------------------------------|
| 1. $3x+6$ | 4. $12x+15y$ | 7. $39-9/a+130x^2$ |
| 2. x^2+2x | 5. $8a+12ab+16a^2b^2$ | 8. $x^2-2bx^2+ax^3$ |
| 3. $8x-16x^2$ | 6. $34x-51y+68z$ | 9. $328x^2y-204xy^2+806x^2y^2$ |

II. Difference of Squares - DOS: $a^2-b^2 = (a+b)(a-b)$

- | | | | |
|--------------|------------------|-------------------|---------------------------|
| 1. x^2-81 | 4. $16x^2-121$ | 7. $169-36x^2y^2$ | 10. x^8-y^8 |
| 2. x^2-144 | 5. $81x^2-144$ | 8. $18x^2-50x^4$ | 11. $324x^2y^6-361z^{10}$ |
| 3. x^2-225 | 6. $12x^2-75y^2$ | 9. x^4-1 | 12. $400-441x^6$ |

III. Perfect Square Trinomials - PST: $a^2 \pm 2ab + b^2 = (a \pm b)^2$

- | | | | |
|-----------------|-----------------------|----------------------------|-----------------------|
| 1. x^2+4x+4 | 4. $4x^2-20x+25$ | 7. $12x^2+60x+75$ | 10. x^4-2x^2+1 |
| 2. $x^2-8x+16$ | 5. $16x^2+72xy+81y^2$ | 8. $169x^2-26x+1$ | 11. $x^8-2x^4y^2+y^4$ |
| 3. $x^2+14x+49$ | 6. $9x^2-60x+100$ | 9. $196x^2+420xy^2+225y^4$ | 12. $x^2+13x+36$ |

IV. Second Sign Plus - SS+: Add to get middle term.

- | | | | |
|-----------------|-------------------|------------------------|---------------------|
| 1. x^2+5x+6 | 6. $6x^2+13x+6$ | 11. $12x^2-43x+35$ | 16. $24x^2-82x+63$ |
| 2. x^2-6x+5 | 7. $2x^2-13x+20$ | 12. $57x^2+76x+28$ | 17. $72x^2+174x+60$ |
| 3. $x^2+12x+35$ | 8. $8x^2+30x+7$ | 13. $36x^2-74xy+30y^2$ | 18. $48x^2-226x+45$ |
| 4. x^2-9x+8 | 9. $6x^2+26x+24$ | 14. $36x^2+84x+45$ | 19. $98x^2+203x+96$ |
| 5. $x^2+7x+12$ | 10. $4x^2+16x+16$ | 15. $48x^2-136x+63$ | 20. $54x^2-123x+68$ |

V. Second Sign Minus - SS-: Subtract for middle term

- | | | | |
|----------------|------------------|--------------------|---------------------|
| 1. x^2-x-2 | 7. $2x^2+x-3$ | 13. $24x^2+2x-15$ | 19. $30x^2+23x-40$ |
| 2. x^2+x-6 | 8. $6x^2-x-2$ | 14. $14x^2-3x-27$ | 20. $28x^2-15x-27$ |
| 3. x^2-x-20 | 9. $5x^2+2x-3$ | 15. $48x^2-26x-35$ | 21. $40x^2+3x-28$ |
| 4. $x^2+2x-15$ | 10. $5x^2-14x-3$ | 16. $24x^2-98x-45$ | 22. $30x^2-13x-56$ |
| 5. $x^2-2x-63$ | 11. $6x^2+5x-6$ | 17. $10x^2-29x-21$ | 23. $48x^2+104x-77$ |
| 6. $x^2+4x-32$ | 12. $6x^2+x-15$ | 18. $18x^2-15x-25$ | 24. $96x^2-24x-180$ |

VIII. Grouping : Distributive Property

1. $x(3a+b) + y(3a+b)$

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

3. $x^2(x+3) - 4(x+3)$

4. $x^3(2x-1) - 27(2x-1)$

5. $4xy + 6x + 6y + 9$

6. $2x^3 - 3x^2 - 18x + 27$

7. $ax^2 + bx^2 - 4a - 4b$

8. $ax^2 - 9b + bx^2 - 9a$

9. $5x^3 - 2x^2$

10. $3x^3 - 3xy^2 + x^2 - y^2$

11. $x^2 - 4x + 4 - y^2$

12. $x^2 - 4x^2 - 12xy - 9y^2$