

Algebra 2

Name Key

Factoring Review Notes 3.3

Greatest Common Factor (GCF)

1. $6x+18$ $6(x+3)$	2. $2x^3-4x^2-10x$ $2x(x^2-2x-5)$	3. $x^2(x-1)-4(x-1)$ $(x-1)(x^2-4)$ $(x-1)(x+2)(x-2)$
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Special Products

<p>Difference of Squares</p> $a^2 - b^2 = (a+b)(a-b)$ <i>must be -</i>	4. $9x^2 - 225y^2$ $9(x^2 - 25y^2)$ $9(x-5y)(x+5y)$	5. $16x^4 - 1$ $(4x^2-1)(4x^2+1)$ $(2x-1)(2x+1)(4x^2+1)$
<p>Difference of Cubes</p> $a^3 - b^3 = (a-b)(a^2 + ab + b^2)$ <i>will never factor</i>	6. $x^3 - 8$ $(x)^3 - (2)^3$ $a=x$ $b=2$ $(x-2)(x^2+2x+4)$	7. $27x^3 - 64$ $(3x)^3 - (4)^3$ $a=3x$ $b=4$ $(3x-4)(9x^2+12x+16)$
<p>Sum of Cubes</p> $a^3 + b^3 = (a+b)(a^2 - ab + b^2)$ <i>will never factor</i>	8. $7x^3 + 189$ $x^3 - 3^3$ $7(x^3 + 27)$ $7(x+3)(x^2-3x+9)$	9. $8x^3 + 1$ $(2x)^3 + 1^3$ $a=2x$ $b=1$ $(2x+1)(4x^2-2x+1)$

Grouping

10. $10x^2 - 14xy - 15x + 21y$ GCF $2x(5x-7y) - 3(5x-7y)$ $(2x-3)(5x-7y)$	11. $5x^3 + 10x^2 - 15x - 30$ GCF $5(x^3 + 2x^2 - 3x - 6)$ $5[x^2(x+2) - 3(x+2)]$ $5(x^2-3)(x+2)$
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Trinomials in the form $ax^2 + bx + c$

<p>12. $x^2 + 8x + 15$ $(x + 5)(x + 3)$</p>	<p>13. $x^6 - 2x^3 - 15$ $u^2 - 2u - 15$ $(u - 5)(u + 2)$ $(x^3 - 5)(x^3 + 2)$</p> <p>$u = x^3$ $u^2 = x^6$</p>
<p>14. $2x^4 - 5x^2 + 3$ $(2x^2 - 3)(x^2 - 1)$ $(x^2 - 3)(x + 1)(x - 1)$</p> <p>$u = x^2$ $u^2 = x^4$</p>	<p>15. $9x^2 - 24x + 16$ $(3x - 4)(3x - 4)$</p>
<p>16. $4x^4 - 20x^2 + 16$ $4(x^4 - 5x^2 + 4)$ $4(x^2 - 4)(x^2 - 1)$ $4(x + 2)(x - 2)(x + 1)(x - 1)$</p>	<p>17. $24x^2 - 28x - 12$ $4(6x^2 - 7x - 3)$ $4(3x + 1)(2x - 3)$</p>
<p>18. $49x^2 - 28x + 4$ $(7x - 2)^2$</p>	<p>19. $12x^3 - x^2 - 6x$ $x(12x^2 - x - 6)$ $x(4x - 3)(3x + 2)$</p>