

R1.6 Factoring

$$x^2 + 6x + 5$$

$$(x+1)(x+5)$$

GCF
NO

$$3x^2 + 6x + 15$$

$$3(x^2 + 2x + 5)$$

GCF

$$x^2 - x - 12$$

$$(x-4)(x+3)$$

1·12
2·6
3·4

$$3x^2 + 6x + 3$$

$$3(x^2 + 2x + 1)$$

$$3(x+1)(x+1)$$

$$x^2 - 25 \quad \text{Difference of the Squares}$$

$$(x + 5)(x - 5)$$

$$\frac{x^2 + 25}{(x + 5)(x + 5)}$$

$$x^2 + 10x + 25$$

$$(x + 4)^2$$

$$(x + 4)(x + 4)$$

$$x^2 + 8x + 16$$

Perfect Square
Trinomial

$$x^2 + 10x + 25$$

$$(x + 5)(x + 5)$$

$$(x + 5)^2$$

$$x^2 + 14x + 49$$

$$(x + 7)^2$$

$$(x + 7)(x + 7)$$

Sum of the Cubes

$$u^3 + v^3 = (u + v)(u^2 - uv + v^2)$$

$$x^3 + 8$$

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

Difference of the Cubes

$$u^3 - v^3 = (u - v)(u^2 + uv + v^2)$$

$$x^3 - 27$$

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

$$27x^3 - 64$$

$$(3x)^3 - 4^3 = (3x - 4)(9x^2 + 12x + 16)$$

$$u^3 - v^3 = (u - v)(u^2 + uv + v^2)$$

$$(3x)^2 \quad 3x(4) \quad 4^2$$

$$5x^3 - 10x^2 + 3x - 6 \quad \begin{matrix} 1 \cdot 6 \\ 2 \cdot 3 \end{matrix}$$

$$(5x^2 + 3)(x - 2)$$

$$(5x^3 - 10x^2) + (3x - 6)$$

$$5x^2(x-2) + 3(x-2)$$

$$(x-2)(5x^2+3)$$

$$(x^2 + 6x + 9) - 25$$

$$(x+3)^2 - 25$$

$$(x+3+5)(x+3-5)$$

$$(x+8)(x-2)$$

$$x^2 + 6x - 16$$

$$(x-1)^2 + 6(x-1)$$

$$(x-1)(x-1) + 6(x-1)$$

$$(x-1)(x-1+6)$$

$$(x-1)(x+5)$$