

## Useful Formulas for Factoring:

<b>Difference of Perfect Squares:</b>	$a^2 - b^2 = (a + b)(a - b)$
<b>Sum of Perfect Cubes:</b>	$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$
<b>Difference of Perfect Cubes:</b>	$a^3 - b^3 = (a - b)(a^2 + ab + b^2)$
<b>Equation 4:</b>	$a^5 - b^5 = (a - b)(a^4 + a^3b + a^2b^2 + ab^3 + b^4)$
<b>Equation 5:</b>	$a^5 + b^5 = (a + b)(a^4 - a^3b + a^2b^2 - ab^3 + b^4)$
<b>If n is odd:</b>	$a^n + b^n = (a + b)(a^{n-1} - a^{n-2}b + a^{n-3}b^2 - \dots - ab^{n-2} + b^{n-1})$
<b>Perfect Square Trinomial:</b>	$a^2 + 2ab + b^2 = (a + b)^2$
<b>Perfect Square Trinomial:</b>	$a^2 - 2ab + b^2 = (a - b)^2$
<b>Equation 9:</b>	$a^3 + 3a^2b + 3ab^2 + b^3 = (a + b)^3$
<b>Equation 10:</b>	$a^3 - 3a^2b + 3ab^2 - b^3 = (a - b)^3$
<b>Equation 11:</b>	$a^2 + b^2 + c^2 + 2ab + 2bc + 2ca = (a + b + c)^2$
<b>Sum of Perfect Squares:</b> $i = \sqrt{-1}$ and $i^2 = -1$	$a^2 + b^2 = (a + bi)(a - bi) = (b + ai)(b - ai)$