Special Product Formulas

- $(A+B)(A-B)=A^2-B^2$ Sum and difference of same terms
- $(A+B)^2=A^2+2AB+B^2$ Square of a sum
- $(A-B)^2=A^2-2AB+B^2$ Square of a difference
- $(A+B)^3=A^3+3A^2B+3AB^2+B^3$ Cube of a sum
- $(A-B)^3=A^3-3A^2B+3AB^2-B^3$ Cube of a difference
- $(x-a)(x^2+ax+a^2)=x^3-a^3$ Difference of Two Cubes
- $(x+a)(x^2-ax+a^2)=x^3+a^3$ Sum of Two Cubes

Example 1:

Use the Special Product Formulas to find each product.

$(x^2-2)^3$

$(x+y-1)(x+y+1)$

Example 2: Multiply the algebraic expressions using a Special Product Formula

- $(5x + 1)^2$
- $(2u + v)(2u - v)$
- $(2 + y^3)^2$
- $(\sqrt{x} + 2)(\sqrt{x} - 2)$
- $(1 - b)^2(1 + b)^2$
- $\big(x + (2 + x^2)\big)\big(x - (2 + x^2)\big)$