5-2 Factoring Special Products

Difference of 2 Squares: $A^2 - B^2 = (A - B)(A + B)$

Ex. 1 $162x^2 - 242$

$2(81x^2 - 121)$

$2(9x+11)(9x-11)$

Ex. 2 $(x^2 - 3x + 2)^2 - 144$

$((x^2-3x+2)+12)((x^2-3x+2)-12)$

$(x^2-3x+14)(x^2-3x-10)$

$(x^2-3x+14)(x+2)(x-5)$

Trinomial Squares: $A^2 + 2AB + B^2 = (A + B)^2$

$A^2 - 2AB + B^2 = (A - B)^2$

MEMORIZE

Ex. 3 $49x^2 - 14x + 1$

$(7x)^2 - 2(7x)(1) + (1)^2$

$= (7x - 1)^2$

Ex. 4 $75x^3 - 180x^2 + 108x$

$3x(25x^2 - 60x + 36)$

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

Ex. 5 $4x^{2n} - 12x^n + 9$

$(2x^n)^2 \quad (2x^n - 3)^2$

$= 4x^{2n}$

The zeros of a function are values of x that make the value of the function equal 0.

Ex. 6 Find the zeros $y = 2x^2 - 16x + 24$.

$\div 2 \quad [0 = 2x^2 - 16x + 24]$

$0 = x^2 - 8x + 12$

$0 = (x-6)(x-2)$

Zeros: 6, 2