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

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

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

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

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

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

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

$2(7x)1$

$= (7x - 1)^2$

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

$2(5x)(6)$

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

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

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

$2(2x^n)3$

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

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

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

parabola

$$\frac{0 = 2x^2 - 16x + 24}{2}$$

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

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

$x - 2 = 0$ $x - 6 = 0$

zeros: 2, 6

(2, 0) (6, 0) x-ints