8.6 Factoring Perfect Squares Guided Notes

Objective:

Special Product Rules

Perfect Square Trinomial:

Perfect Square Trinomial:

Things to Notice:

1.

2.

3.

4.

Examples: Are the following perfect square trinomials? If so, factor it.

1) $x^2 + 6x + 9$

2) $25x^2 - 110x + 121$

3) $9x^2 - 30x + 10$

Different Methods of Factoring

CONCEPT SUMMARY — *Factoring Polynomials*

Number of Terms	Factoring Technique		Example
2 or more	greatest common factor		$3x^2 + 6x^2 - 15x = 3x(x^2 + 2x - 5)$
2	difference of squares	$a^2 - b^2 = (a + b)(a - b)$	$4x^2 - 25 = (2x + 5)(2x - 5)$
3	perfect square trinomial	$a^2 + 2ab + b^2 = (a + b)^2$ $a^2 - 2ab + b^2 = (a - b)^2$	$x^2 + 6x + 9 = (x + 3)^2$ $4x^2 - 4x + 1 = (2x - 1)^2$
	$x^2 + bx + c$	$x^2 + bx + c = (x + m)(x + n)$ when $m + n = b$ and $mn = c$.	$x^2 - 9x + 20 = (x - 5)(x - 4)$
	$ax^2 + bx + c$	$ax^2 + bx + c = ax^2 + mx + nx + c$ when $m + n = b$ and $mn = ac$. Then use factoring by grouping.	$6x^2 - x - 2 = 6x^2 + 3x - 4x - 2$ $= 3x(2x + 1) - 2(2x + 1)$ $= (2x + 1)(3x - 2)$
4 or more	factoring by grouping	$ax + bx + ay + by$ $= x(a + b) + y(a + b)$ $= (a + b)(x + y)$	$3xy - 6y + 5x - 10$ $= (3xy - 6y) + (5x - 10)$ $= 3y(x - 2) + 5(x - 2)$ $= (x - 2)(3y + 5)$

Factor each polynomial

4) $4x^2 - 36$

5) $25x^2 + 5x - 6$

Solve each equation

6) $a^2 + 12a + 36 = 0$

7) $6b^3 - 24b^2 + 24b = 0$