L6 Factoring Special Polynomials

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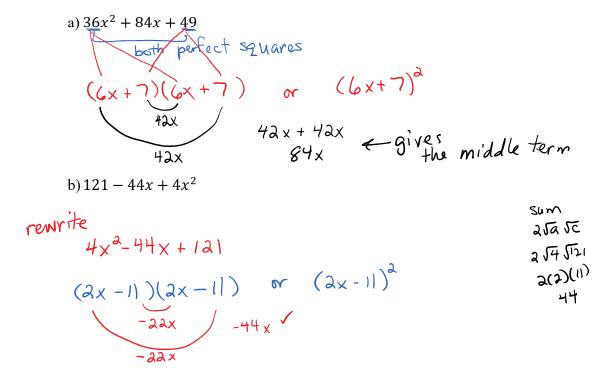


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Lesson 6 Factoring Special Polynomials

Example 1 – Perfect Square Trinomials

Factor each trinomial. (Recall: Use multiplication to check.)



Difference of Squares

A Difference of Squares is a binomial of the form $a^2 - b^2$.

A difference of squares results when you multiply two binomials that are the *sum* and the *difference* of the same two quantities (conjugates).

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

$$(a+b)(a-b)$$

$$x^{2}-x^{2}+x^{2}-y^{2}$$

Example 3 – Factoring a Difference of Squares

Perfect square - Perfect square

Factor each binomial.

a)
$$36x^2 - 25$$

$$(6x-5)(6x+5)$$

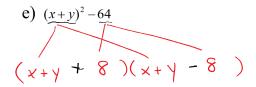
b)
$$16x^2 - 49y^2$$

c)
$$\frac{3a^3}{3a}$$
 - $\frac{12ab^2}{3a}$

$$3a(a^2-4b^2)$$
 difference of squares
GCF $3a(a+ab)(a-ab)$

d)
$$x^4 - 16$$

$$(x^{2}+4)(x-2)(x+2)$$



f)
$$(x+1)^2 - (y+3)^2$$

 $(x+1 + y+3)(x+1 - 1(y+3))$
 $(x+y+4)(x+1-y-3)$
 $(x+y+4)(x-y-2)$

g)
$$x^{2n} - 25$$

 $(x^n - 5)(x^n + 5)$

$$x^n \cdot x^n$$
 add exponents x^{n+n} x^{2n}

Try
$$x^{2}-9 \quad (x-3)(x+3)$$

$$2x^{2}-32$$

$$2(x^{2}-16)$$

$$2(x-4)(x+4)$$