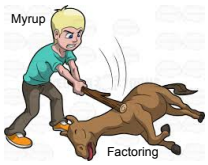
Factoring Review

Objectives: 7) I can factor polynomial expressions.



Let's finally kill the beast, shall we?

No horses were, are, or will be harmed during this class.

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Factoring: Finding what factors to multiply together to get an expression. It is like "splitting" an expression into the multiplication of factors.

Ex. Write the number 6 as a product of factors.

6 = (2)(3)

Ex. Factor the expression: x^2+3x+2

$x^2+3x+2=(x+2)(x+1)$

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GCF Factoring:

$3x^2y+6xy^3-xy$

$2x^2+4x$

$2x(x-1)+5(x-1)$

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Factor by grouping

$4x-4y+ax-ay$ $6z^2+2z+9z+3$

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Quadratic Factoring

$ax^2 + bx + c$

What should the factors look like?

How do you multiply two binomials?

$(a+b)(c+d) =$

Factoring is just this backwards!

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How to Factor a Quadratic Expression

Factoring quadratics in the form $ax^2 + bx + c$

1. Factor out the GCF
2. Multiply a and c
3. Find two factors of ac that add to b
   *If ac is negative, factor.s must have opposite signs
   *If ac is positive, factors must have same (+ or -) signs
4. Re-write equation with b split up into factors
5. Find the GCF by grouping
6. Factor the GCF of the whole

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Factor the given expressions.

$x^2 - 2x - 8$ $3x^2 + 5x - 8$

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Factor the given expressions.

$x^2 + 17x + 70$ $2x^2 - x - 15$

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What if...?!

$x^2 - 9$ $4x^2 - 49$

Notice a pattern?

$x^2 - 1$

These are called a *difference of squares*.

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$x^2 + 6x + 9$

This is a *perfect square trinomial*.

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Formulas:

$$(a+b)^2 = a^2 + 2ab + b^2$$
$$(a-b)^2 = a^2 - 2ab + b^2$$
$$(a+b)(a-b) = a^2 - b^2$$

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