Factoring Polynomials with 4-terms

- Start with GCF, if any.
- Try factoring into two binomial factors.
- Look to see if either binomial can be factored further using Difference of Perfect Squares.

Agilemind website: Topic 6
Exploring"Other Polynomial Equations"

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Agilemind Workbook: SAS4 Question #11

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Agilemind Workbook: SAS4 Question #12

Factoring 4-terms: $3x^4 - 6x^3 + 27x^2 - 54x$

GCF 1ST: $3x(x^3 - 2x^2 + 9x - 18)$

Method 1:
Factor by grouping
"using parentheses"

$(x^3 - 2x^2) + (9x - 18)$

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

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

$3x(x^2+9)(x-2)$

Method 2:
Factor using the Box
"area model"

	x	-2
x^2	x^3	$-2x^2$
$+9$	$+9x$	-18

$3x(x^2+9)(x-2)$

Same result

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Agilemind Workbook: SAS4 Question #13 a-c

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13. Factor the following polynomials by grouping using the method of your choice.

a. $6x^3 - 4x^2 - 9x + 6$

Group using an area model:

	$3x$	-2
$2x^2$	$6x^3$	$-4x^2$
-3	$-9x$	$+6$

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

Group using parentheses:

$(6x^3 - 4x^2) + (-9x + 6)$

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

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

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b. $8x^4 - 40x^3 - x + 5$

Group using an area model:

	x	-5
$8x^3$	$8x^4$	$-40x^3$
-1	$-x$	$+5$

Group using parentheses:

$(8x^3 - 1)(x - 5)$

c. $2x^4+3x^3+16x+40$

Group using an area model:

Group using parentheses:

$(2x^4+3x^3)+(16x+40)$

$x^3(2x+3)+8(2x+5)$

These don't match, therefore, this is not factorable

Hwk #33 **Due Wednesday**

Topic 6: Polynomial Equations

Agilemind Workbook: SAS4 question 15 &16 these go together

Agilemind website: More Practice #'s 14-18