AC Method: Factoring when a ≠ 1

Do Now: Factor each of the following.

Trinomial

1) $x^2 + 5x - 14$ $-14 \mid 5$ $-2 \cdot 7 \mid -2+7=5$

$(x-2)(x+7)$

3) Grouping $15x^3 + 5x^2 + 3x + 1$

$5x^2$ $5x^2$ 1 1

$5x^2(3x+1)+1(3x+1)$

$(3x+1)(5x^2+1)$

DOTS

2) $x^2 - 36$

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

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AC Method: Factoring when a ≠ 1

Review of Factor by Grouping:

$16y^3 - 8y^2 - 14y + 7$

$8y^2$ $8y^2$ -7 -7

$8y^2(2y-1)-7(2y-1)$

$(2y-1)(8y^2-7)$

Steps: CHECK FOR GCF FIRST

1) Factor out gcf of first two terms

2) Factor out gcf of last two terms

3) Factor out gcf binomial ()

4) Check to see if you need to factor further

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AC Method: Trinomial to Binomial Factoring

ax^2+bx+c (Standard form)

&

Combination of Factor by Grouping

1) Multiply A and C
2) Make a table
3) Split middle term
4) Factor by grouping

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AC Method: Factoring when a ≠ 1

ax^2+bx+c

Ex1) $2x^2 + 9x - 5$

a=2
b=9
c=-5

ac	b
-10	9

10·-1 | 10+-1=9

$(2x^2+10x)(-1x-5)$

2x 2x -1 -1

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

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

Steps: CHECK FOR GCF FIRST

1) Multiply the "a" and "c" terms
2) Find two numbers that multiply to step 1 and add to the "b" term
3) Split the middle term based on the numbers found in step 2

Continue on as you did when you factored by grouping

4) Factor out gcf of first two terms
5) Factor out gcf of last two terms
6) Factor out common parenthesis

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AC Method: Factoring when a ≠ 1

1) $3y^2 - 14y - 5$

$-15 \mid -14$

$1 \cdot -15$

$(3y^2 + 1y)(-15y - 5)$

$\frac{}{y} \quad \frac{}{y} \quad \frac{}{-5} \quad \frac{}{-5}$

$y(3y+1) - 5(3y+1)$

$(y-5)(3y+1)$

2) $2x^2 + 13x - 7$

$-14 \mid 13$

$-1 \cdot 14 \mid -1+14$

$(2x^2 - 1x)(+14x - 7)$

$\frac{}{x} \quad \frac{}{x} \quad \frac{}{7} \quad \frac{}{7}$

$x(2x-1) + 7(2x-1)$

$(x+7)(2x-1)$

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AC Method: Factoring when a ≠ 1

3) $2x^2 + 7x + 6$

$12 \mid 7$

$3 \cdot 4 \mid 3+4$

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

$\frac{}{x} \quad \frac{}{x} \quad \frac{}{2} \quad \frac{}{2}$

$x(2x+3) + 2(2x+3)$

$(x+2)(2x+3)$

4) $5z^2 + 19z - 4$

$a = 5$

$b = 19$

$c = -4$

$ac = -20 \mid b = 19$

$-1 \cdot 20 \mid -1+20 = 19$

$(5z^2 - 1z)(+20z - 4)$

$1z(5z-1) + 4(5z-1)$

$(1z+4)(5z-1)$

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