L6 Factoring More Difficult Trinomials

Saturday, September 17, 2022   8:00 PM

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Lesson 6 Factoring More Difficult Trinomials_____

Form: $ax^2 + bx + c$, where $a \neq 1$

PSF shortcut: ex) $2x^2 + 7x + 6$

➤ Product of (a)(c) $2 \cdot 6$ P   ($2 \times 6 = 12$)

➤ Sum of "b" 7 S   (7)

➤ Factors of the product (a)(c)   F $\dfrac{4}{2}$ and $\dfrac{3}{1}$

➤ Take the GCF of each factor and "a"   GCF of 4 and 2 is **2** $\left(\dfrac{4}{2}\right)$

         GCF of 3 and 2 is **1** $\left(\dfrac{3}{1}\right)$
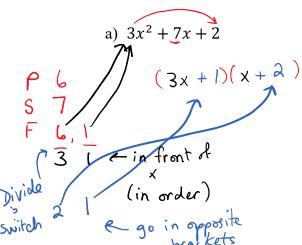
➤ Use GCFs as the coefficients of the first term

$$(2x + ?)(x + ?)$$

➤ Divide each factor by the GCF to get the second variable in the **opposite** bracket

$$\left(\dfrac{4}{2}\right) 4 \div 2 = \boxed{2} \text{ and } \left(\dfrac{3}{1}\right) 3 \div 1 = \boxed{3}, \text{ therefore } (2x + 3)(x + 2)$$

Example 1
Factor.

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

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

P 6
S 7
F 6, 1

$\dfrac{3}{?} \quad \dfrac{1}{?}$ ← in front of x

(in order)

Divide → switch 2 1

← go in opposite brackets

b) $4x^2 + 11x + 6$

P 24
S 11
F $\frac{8,3}{4}\ \overline{1}$

2   3

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

*can check using multiplication

c) $6x^2 - 7x - 10$

P -60
S -7
F $\frac{-12,5}{6}\ \overline{1}$

-2   5

$(6x+5)(x-2)$

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

Try
$5x^2 - 16x + 3$
$(5x-1)(x-3)$

d) $6x^2 - 11x - 35$

P -210
S -11
F $-21,\ \frac{10}{2}$
$\frac{}{3}$

$(3x+5)(2x-7)$

e) $6x^2 - 9x + 3$

f) $24h^2 - 20h - 24$

g) $2c^2 + 7cb + 6b^2$

h) $6x^2 - 21xy + 9y^2$