Factoring a Trinomial

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So far ....

expand & simplify .... $(c+3)(c-7)$ ← factors

$= c^2 - 7c + 3c - 21$

$= \boxed{c^2 - 4c - 21}$ ← trinomial

Factoring a Trinomial $x^2 + bx + c$

- factoring and multiplying are inverse process'

- to factor a trinomial of the form $x^2 + bx + c$
  1. What 2 # add up (sum) to b
  2. those same 2 # multiply to (product) c
  3. these #'s are the constant terms in 2 binomial factors $(x + \_\_)(x + \_\_)$

Ex. #1

(a.) $x^2 - 8x + 7$ → to get a $+7 \Rightarrow (-7)(-1) = 7$

$(x-1)(x-7)$

$(7)(1) = 7$

added together

$-7 + (-1) = -8$

added together

$7 + 1 = 8$

check your answer

$(x-1)(x-7)$

$= x^2 - 7x - 1x + 7$

$= x^2 - 7x - 1x + 7$

$= x^2 - 8x + 7$ ✓

(b.) ✓ $x^2 + 7x - 18$ → to get -18 ⇒ $(-9)(2) = -18$

$-9 + 2 = -7$

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

⇒ $(+2)(9) = -18$

$-2 + 9 = 7$

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

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

$= x^2 + 7x - 18$ ✓