Notes #3 Factoring when $a>1$

You are used to $x^2-11x+30$

$(x-5)(x-6)$

Same: 30; -5, -6; -11; both $\ominus$

is going to be a # >1

ax^2+bx+c

Ex 1. $3x^2+23x+14$

rewrite

Keep $3x^2$, Keep 14

14, 23 — red flag

$3\cdot14$, 42; 21, 2; 23

$3x^2+21x+2x+14$

$3x\cdot x+3\cdot7x+2x+2\cdot7$

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

Check each side for GCF

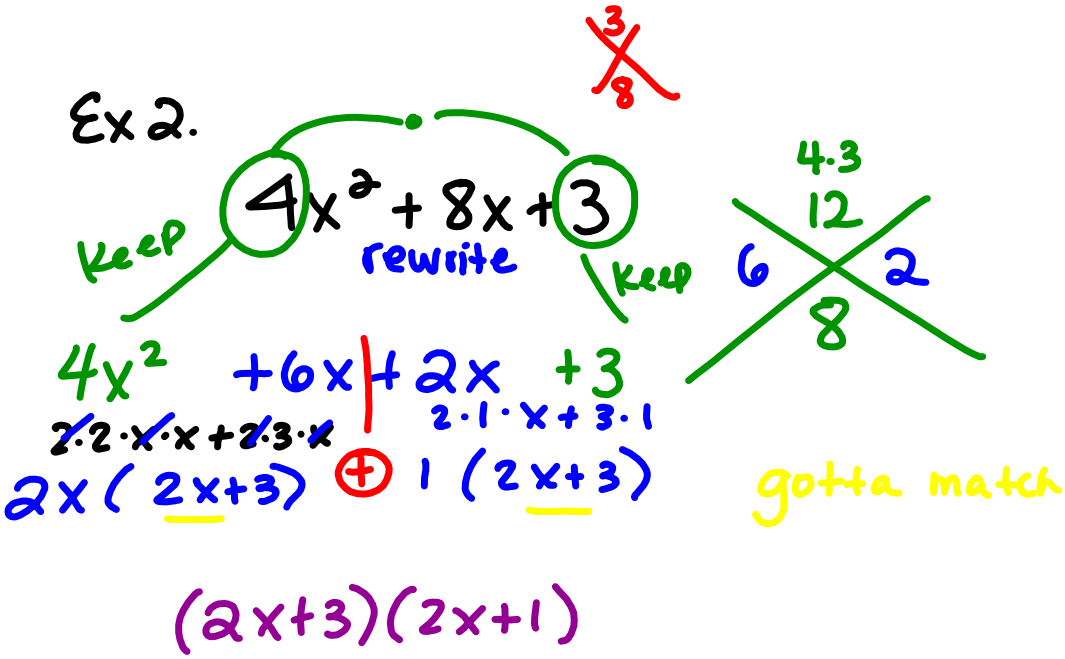
Split down middle w/ $\oplus$

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

one of the match — GCFs

( ) MATCH

those should ALWAYS MATCH


Ex 2.
$4x^2 + 8x + 3$
keep
rewrite
keep
3
8
4·3
12
6
2
8
$4x^2 + 6x + 2x + 3$
$2 \cdot 2 \cdot x \cdot x + 2 \cdot 3 \cdot x$
$2 \cdot 1 \cdot x + 3 \cdot 1$
$2x(2x+3) + 1(2x+3)$
gotta match
$(2x+3)(2x+1)$