

Factoring Trinomials when $a > 1$ Notes

Name _____ Class Period _____

Factor:

- Put Expression in Standard Form $ax^2 + bx + c$
- Take out the GCF
- Play X Game: $a \cdot c$ goes at the top, b goes at the bottom. Find two numbers that multiply to give you the top # and add to give you the bottom #
- Then either:



Method 1: Factoring by grouping: write out your polynomial as 4 terms, group the first two, group the last two, find the GCF and write your factors

Method 2: "Slip & Divide": Write your factors as $(x+p)(x+q)$. Divide each factor (p & q) by your a . Simplify if you can or move the a to the front of the factor

Examples:

GROUPING

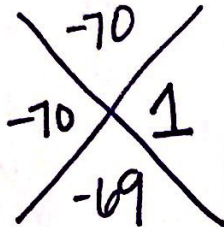
1. $7n^2 - 69n - 10$

$a=7$ $b=-69$ $c=-10$

$(7n^2 - 70n) + (1n - 10)$

$7n(n-10) + 1(n-10)$

$(n-10)(7n+1)$



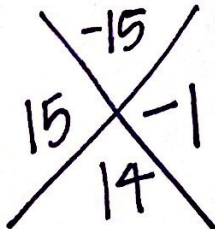
3. $3x^2 + 14x - 5$

$a=3$ $b=14$ $c=-5$

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

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

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



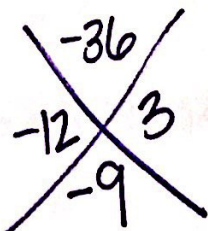
5. $9x^2 - 9x - 4$

$a=9$ $b=-9$ $c=-4$

$(9x^2 - 12x) + (3x - 4)$

$3x(3x-4) + 1(3x-4)$

$(3x-4)(3x+1)$



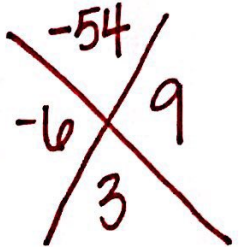
SLIP & DIVIDE

2. $4x^2 + 6x - 54$

$2(2x^2 + 3x - 27)$

$a=2$ $b=3$ $c=-27$
 $(x-6)(x+9)$
 $\rightarrow \frac{\quad}{2} \quad \rightarrow \frac{\quad}{2}$

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



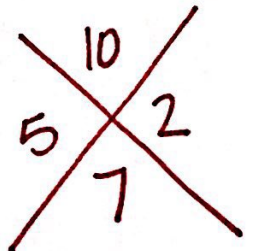
4. $5x^2 + 7x + 2$

$a=5$ $b=7$ $c=2$

$(x+5)(x+2)$
 $\frac{\quad}{5} \quad \frac{\quad}{5}$

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

(a value) (a value)



6. $10x^2 - 29x - 3$

$10x^2 - 29x - 3$

$a=10$ $b=-29$ $c=-3$

$(x-30)(x+1)$
 $\frac{\quad}{10} \quad \frac{\quad}{10}$

$(x-3)(10x+1)$

