FACTORING REVIEW

Type	Indicator	Example
GCF	all terms share a common factor	ex: $\frac{11x^2y}{11x^2y} - \frac{110x^{3-1}y^{2-1}}{11x^2y}$ $11x^2y(1 - 10xy)$ ex: $\frac{\sin^2x\cos x}{\sin x\cos x} - \frac{2\sin x\cos x}{\sin x\cos x}$ $\sin x\cos x(\sin x - 2)$
Difference of Perfect Squares	2 terms in form $a^2 - b^2$	$a^2 - b^2 = (a+b)(a-b)$ ex: $100x^2 - 16 \Rightarrow 4(25x^2 - 4)$ $(10x+4)(10x-4) \Rightarrow 4(5x+2)(5x-2)$ completely factored
Quadratics when $a \neq 1$	ax^2+bx+c • one squared variable • usually 3 terms	ex: $3x^2 - 8x + 4$ ($3\cdot1$, $1\cdot4$, $2\cdot2$) $(3x \quad 4)(x \quad 1)$ $4x$, $3x$ can not add or subtract to $= -8x$ $(3x-2)(x-2)$ $-2x$, $-6x$ $(3x-2)(x-2)$

ex: $2x^2+3x-9$

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

$-3x$

$+6x$

Factoring by Grouping

use on 4 term polynomials

ex: $4x^3+12x^2-5x-15$

$4x^2(x+3)-5(x+3)$

$(x+3)(4x^2-5)$

*Find GCF of each half

treat $x+3$ as a GCF

ex: $2x^3-14x^2+3x-21$

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

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