ax^2+bx+c **3 Terms** **4 Terms**

Trinomials	Perfect Square Trinomials	Factor by Grouping
Rule: Use X Method or Box Method or Guess & check. Always check for GCF first.	Rule(s): $a^2+2ab+b^2=(a+b)^2$ $a^2-2ab+b^2=(a-b)^2$	Rule: Put the polynomial in standard form. Group the first 2 terms & the last 2 terms. GCF 3 times.
Examples:	Examples:	Examples:

Ex.1 $y^2-11y+18$ $a=1$ $b=-11$ $c=18$

$ac=18$: $1\cdot18$, $2\cdot9$, $3\cdot6$ → -2 and -9; $-2+(-9)=-11$

$(y-2)(y-9)$

Ex.2 $4x^2-13x-35$ $a=4$ $b=-13$ $c=-35$

$ac=-140$: $1\cdot-140$, $2\cdot-70$, $4\cdot-35$, $5\cdot-28$, $7\cdot-20$, $10\cdot-14$ → 7 and -20; $7+(-20)=-13$

$\frac{7}{4}=\frac{-20}{4}=\frac{-5}{1}$

$(4x+7)(x-5)$

Ex.3 $12x^2+13x+3$ $a=12$ $b=13$ $c=3$

$ac=36$: $1\cdot36$, $2\cdot18$, $3\cdot12$, $4\cdot9$, $6\cdot6$ → 4 and 9; $4+9=13$

$\frac{1}{3}=\frac{4}{12}$ $\frac{9}{12}=\frac{3}{4}$

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

Ex.1 $4x^2+20x+25$

$\sqrt{4x^2}=2x$ $\sqrt{25}=5$

$20x \stackrel{?}{=} 2\cdot2x\cdot5$ ✓

$(2x+5)^2$

Ex.2 $9x^2-42x+49$

$\sqrt{9x^2}=3x$ $\sqrt{49}=7$

$42x \stackrel{?}{=} 2\cdot3x\cdot7$ ✓

$(3x-7)^2$

Ex.3 $16x^2+8x+1$

$\sqrt{16x^2}=4x$ $\sqrt{1}=1$

$8x=2\cdot4x\cdot1$ ✓

$(4x+1)^2$

OPTIONAL COULD ALSO USE X METHOD

Ex.1 $(y^3-y^2)+(2y-2)$

$y^2(y-1)+2(y-1)$

$(y-1)(y^2+2)$

Ex.2 $6x^3+15x^2-4x-10$

$(6x^3+15x^2)+(-4x-10)$

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

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

Ex.3 $12x^3+16x^2+15x+20$

$(12x^3+16x^2)+(15x+20)$

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

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