Unit 6 - Factored Form

$y = a(x-s)(x-t)$

zeros at s, t

y int $= a(-s)(-t)$

step pattern
direction of opening

vertex (x, y)

halfway between s and t

sub x coordinate into $y = a(x-s)(x-t)$

$y = -2(x-3)(x+4)$

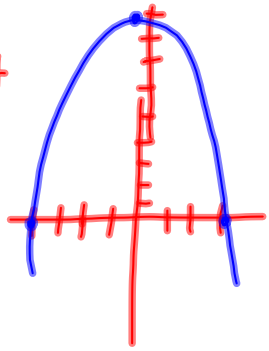
zeros $3, -4$

opens down

step pattern
$-2, -8, -18$

y int → $y = -2(-3)(4)$
$= 24$

axis of symmetry
$\frac{3+(-4)}{2}$
$= -0.5$



vertex
$(-0.5, ?)$

$y = -2(-0.5-3)(-0.5+4)$
$= -2(-3.5)(3.5)$
$= 24.5$

Factoring

2 terms	3 terms	4 terms
1) common factoring 2) Difference of Squares	1) common factoring 2) MAN Factor 3) Extra MAN or Decomposition	1) common factoring 2) Factor by Grouping

2 Term

$3x^2y - 12xy$

$3xy(x-4)$

$125x^2 - 500y^2$

$25(5x^2 - 20y^2)$

$125(x^2 - 4y^2)$

$125(x+2y)(x-2y)$

$125x^2 - 81y^2$

$121x^2 - 81y^2$

$(11x-9y)(11x+9y)$

$(6x-9y)(6x+9y)$

$3(2x-3y)\,3(2x+3y)$

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

3 terms

x^2+5x+6 M 6, A 5, N 2,3

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

$3x^2+15x+18$

$3(x^2+5x+6)$

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

$2x^2+12x+4$ M 2, A 6, N

$2(x^2+6x+2)$

$2x^2+5x+3$ M 6

$2x^2+2x+3x+3$ A 5

$2x(x+1)+3(x+1)$ N 2,3

$(x+1)(2x+3)$

$3x^2-8x+4$ M 12

$3x^2-6x-2x+4$ A -8

$3x(x-2)-2(x-2)$ N -6,-2

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

4terms

$3x^2-2y+6y+4x^2$ →

$=7x^2+4y$

$3x^2+6y+4x^2-2y$

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

$=3(x^2+2y)+2(x^2-y)$

DECOMPOSITION