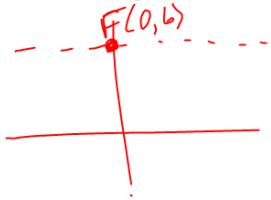
25. The equation of the axis is $y = 6$, the focus is at $(0, 6)$, and $p = -3$.



$(y-k)^2 = 4p(x-h)$

$(y-6)^2 = -12(x-3)$

$(y-6)^2 = 4(-3)(x-3)$

Focus $(h+p, \boxed{k})$

$(0, \boxed{6})$

$h+p=0$

$h-3=0$

$h=3$

21. $2x^2 - 12y - 16x + 20 = 0$

$+12y \quad -20$

$2(x^2-8x+16) = 12y - 20 + 2(16)$

$\frac{2(x-4)^2}{2} = \frac{12y+12}{2}$

$(x-4)^2 = 6y+6$

$\boxed{(x-4)^2 = 6(y+1)}$

$6 = 4p$

$\frac{6}{4} = p$

$\boxed{(x-4)^2 = 4(\frac{3}{2})(y+1)}$

$h = 4$

$k = -1$

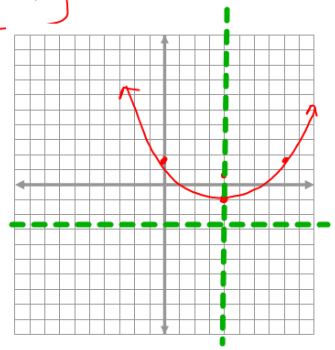
$p = \frac{3}{2}$

vertex $(4,-1)$

focus $(4, \frac{1}{2})$

directrix: $y = -\frac{5}{2}$

axis of symm: $x = 4$



$(8-4)^2 = 6(y+1)$

$16 = 6y+6$

$10 = 6y$

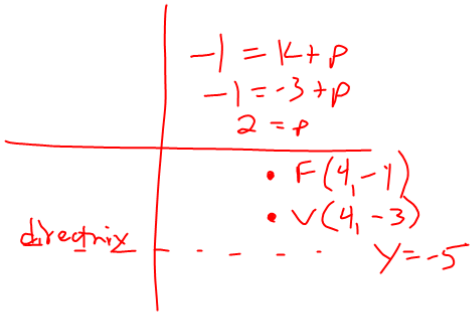
$\frac{10}{6} = \frac{5}{3} = y$

26. The focus is at $(4, -1)$, and the equation of the directrix is $y = -5$.

$-1 = k + p$
$-1 = -3 + p$
$2 = p$

$(x-h)^2 = 4p(y-k)$

$\boxed{(x-4)^2 = 4(2)(y+3)}$



$h = 4$
$k = -3$

(23) $2y^2 + 16y + 16x + 64 = 0$

$-16x \quad -64$

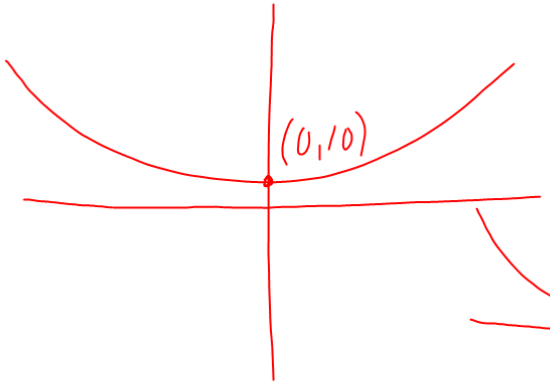
$2(y^2 + 8y + 16) = -16x - 64 + 2(16)$

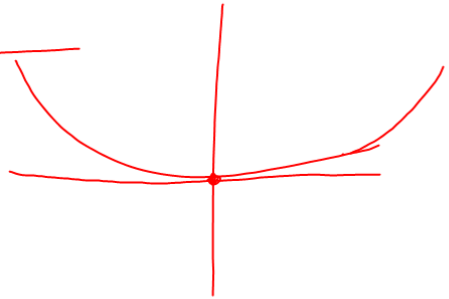
$2(y+4)^2 = -16x - 32$

$\frac{2(y+4)^2}{2} = \frac{-16(x+2)}{2}$

$\boxed{(y+4)^2 = -8(x+2)}$

$\boxed{(y+4)^2 = 4(-2)(x+2)}$





General form for ALL conic sections

If $A=C$

If A,C same sign

If A, C opposite signs

If A or $C = 0$

Identify the conic section represented by each equation.

a. $6y^2 + 3x - 4y - 12 = 0$

b. $3y^2 - 2x^2 + 5y - x - 15 = 0$

c. $9x^2 + 27y^2 - 6x - 108y + 82 = 0$

d. $4x^2 + 4y^2 + 5x + 2y - 150 = 0$