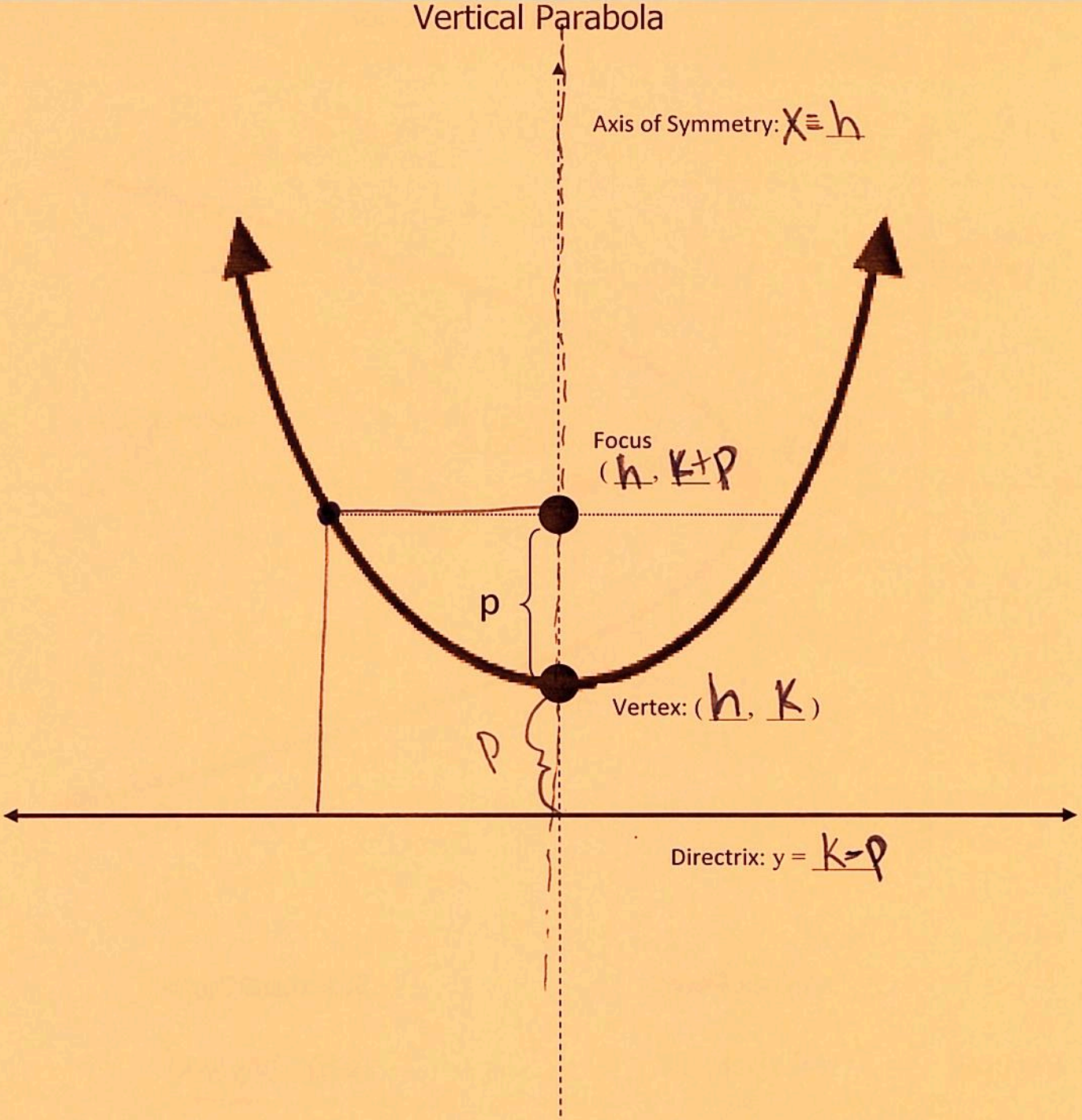
Vertical Parabola



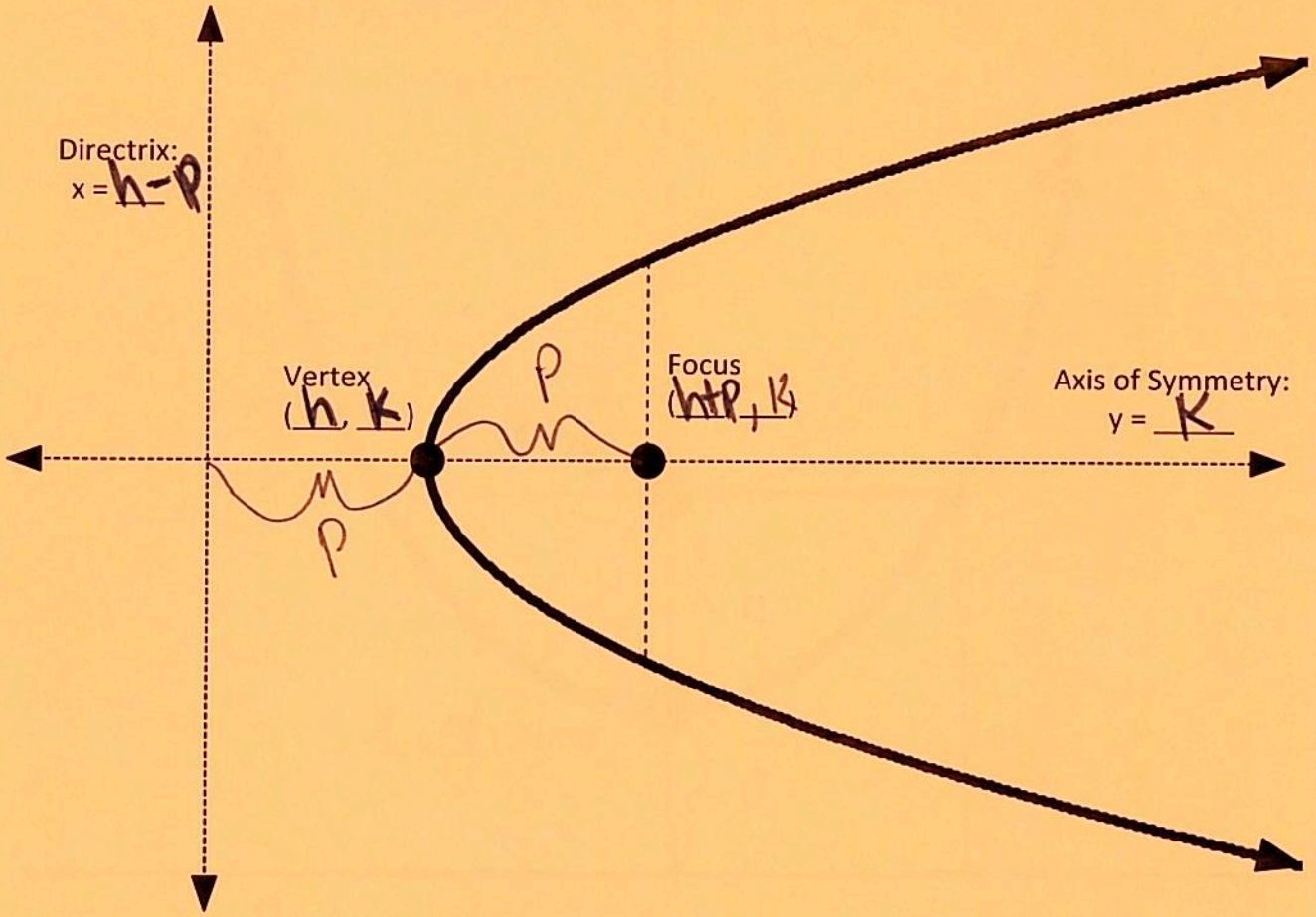
	Vertex Form	Standard Form
Vertical	$y = a(x-h)^2+k$	$(x-h)^2 = 4p(y-k)$
Horizontal	$x = a(y-k)^2+h$	$(y-k)^2=4p(x-h)$

$4p > 0$

$4p < 0$

$****a = \frac{1}{4p}***$

Horizontal Parabola



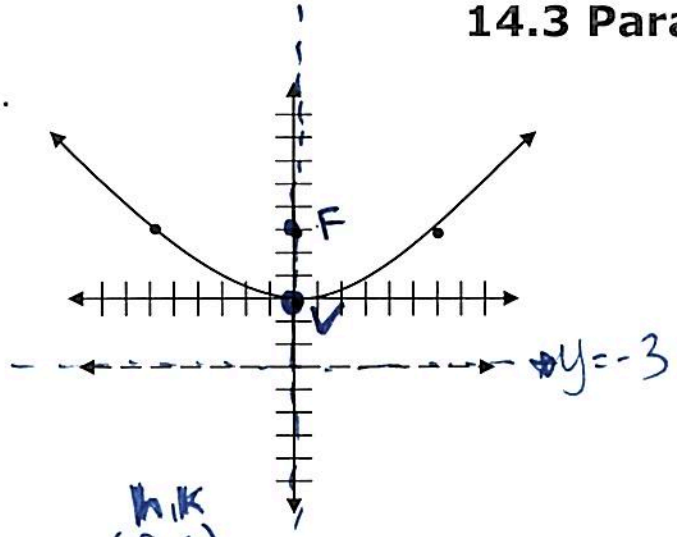
	Vertex Form	Standard Form
Vertical	$y = a(x-h)^2+k$	$(x-h)^2 = 4p(y-k)$
Horizontal	**$x = a(y-k)^2+h$**	**$(y-k)^2=4p(x-h)$**
	$****a = \frac{1}{4p}***$	

$4p > 0$

$4p < 0$

14.3 Parabola Notes

1.



h, k

Vertex: (0,0)

p= 3

Focus: (0,3)

Directrix: y=-3

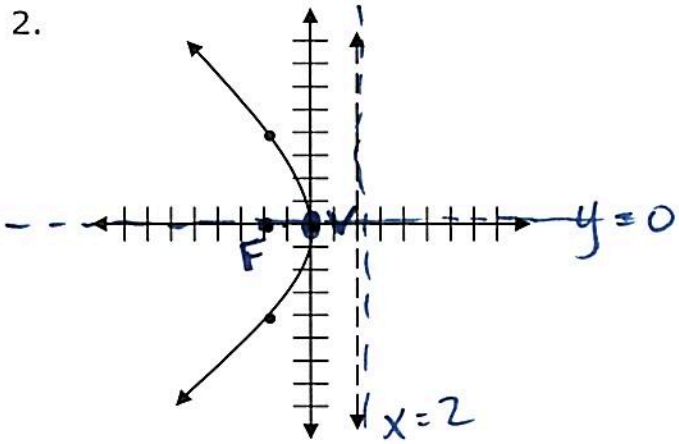
Axis: x=0

AOS:

Equation: $(x-0)^2 = 4(3)(y-0)$

$x^2 = 12y$

2.



Vertex: (0,0)

p= -2

Focus: (-2,0)

Directrix: x=2

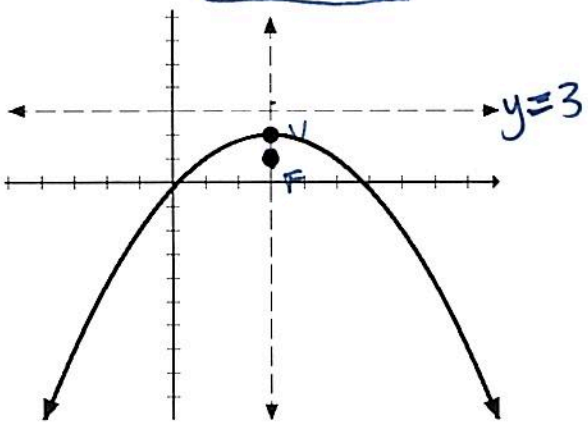
Axis: y=0

AOS:

Equation: $(y-0)^2 = 4(-2)(x-0)$

$y^2 = -8x$

3.



Vertex: (3,2)

p= -1

Focus: (3,1)

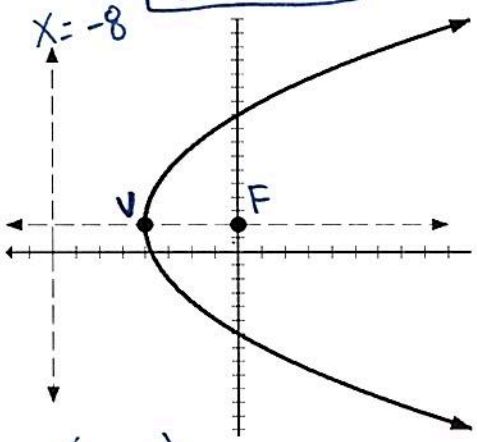
Directrix: y=3

Axis: x=3

Equation: $(x-3)^2 = 4(-1)(y-2)$

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

4.



Vertex: (-4,2)

p= 4

Focus: (0,2)

Directrix: x=-8

Axis: y=2

Equation: $(y-2)^2 = 4(4)(x--4)$

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

Intro to Parabolas
PAP Algebra 2

Name: Key

Vertical

Vertex: (2 , 3)

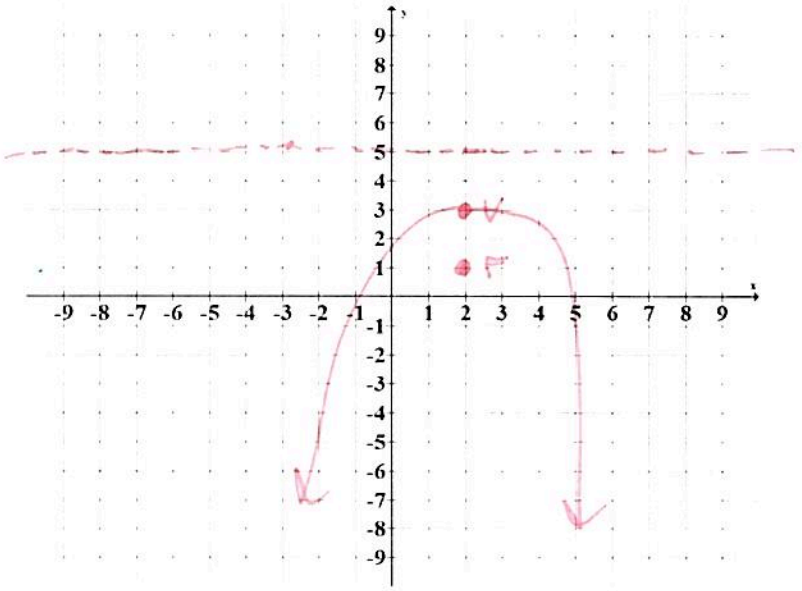
P value: - 2

Focus: (2, 1)

Directrix: $y = 5$

AOS: $x = 2$

Equation: $(x-2)^2 = -8(y-3)$



Horizontal

Vertex: (- 1 , 4)

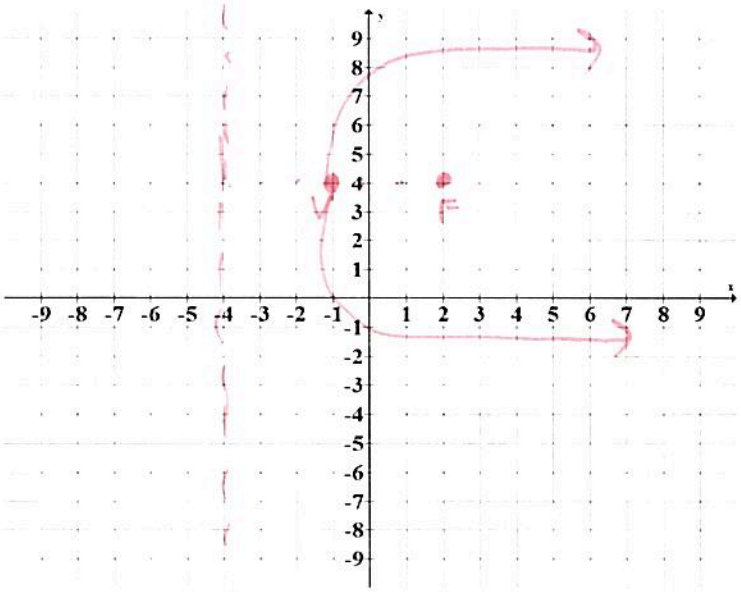
value: 3

Focus: (2, 4)

Directrix: $x = -4$

AOS: $y = 4$

Equation: $(y-4)^2 = 12(x+1)$



Vertical

Vertex: (1 , - 2)

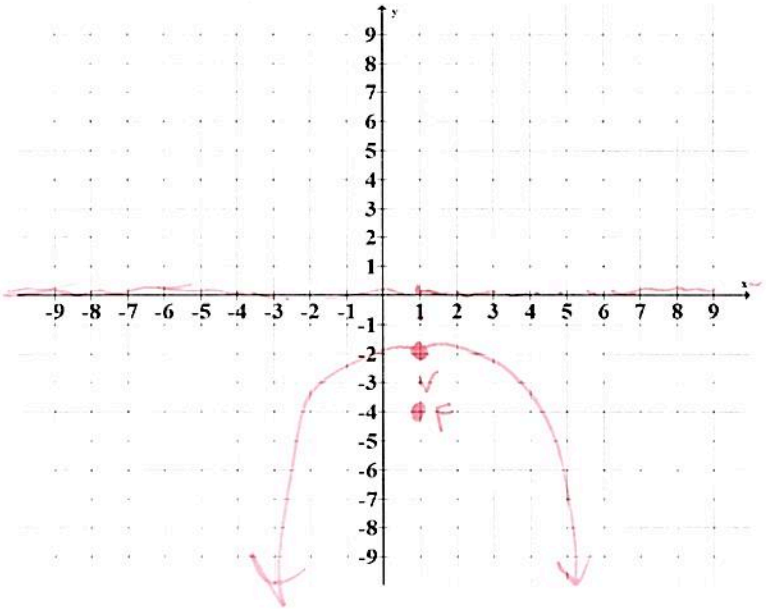
P value: - 2

Focus: (1, -4)

Directrix: $y = 0$

OS: $x = 1$

Equation: $(x-1)^2 = -8(y+2)$



Horizontal

Vertex: (0 , - 5)

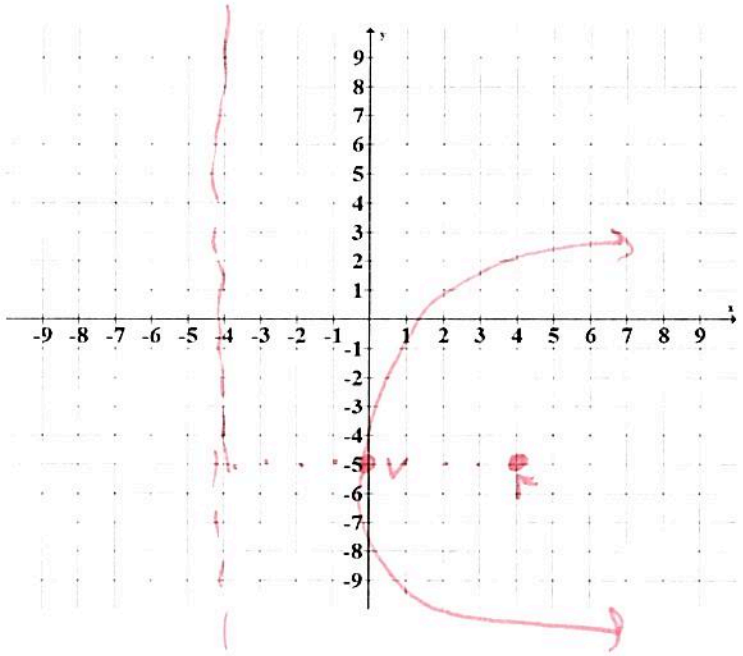
P value: 4

Focus: $(4, -5)$

Directrix: $x = -4$

AOS: $y = -5$

Equation: $(y+5)^2 = 16(x)$



Vertical

Vertex: (- 5 , - 3)

P value: 2

Focus: $(-5, -1)$

Directrix: $y = -5$

AOS: $x = -5$

Equation: $(x+5)^2 = 8(y+3)$