*AAT

Chapter 11: Parabolas (IC)

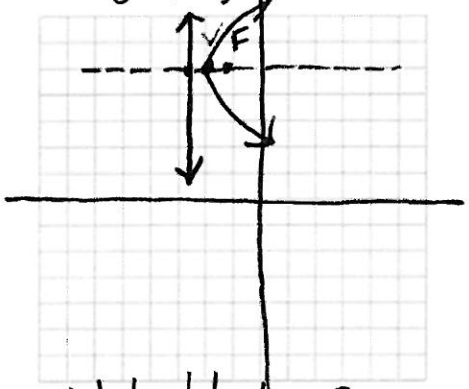
Name: Key

Date: _____ Period: _____

Graph each parabola and compute the coordinates of the vertex and focus and the equations for the axis of symmetry and directrix.

1. $x+2=\frac{1}{3}(y-5)^2$

$X=\frac{1}{3}(Y-5)^2-2$



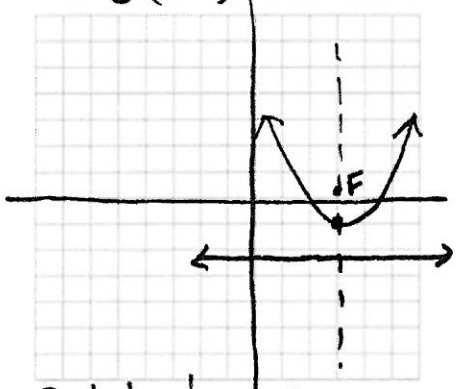
$P=\left|\frac{1}{4a}\right|=\left|\frac{1}{4(\frac{1}{3})}\right|=\frac{3}{4}$

V(-2,5); F(-1.25,5); Axis: y=5

Directrix: x=-2.75

2. $y+1=\frac{1}{5}(x-3)^2$

$Y=\frac{1}{5}(X-3)^2-1$



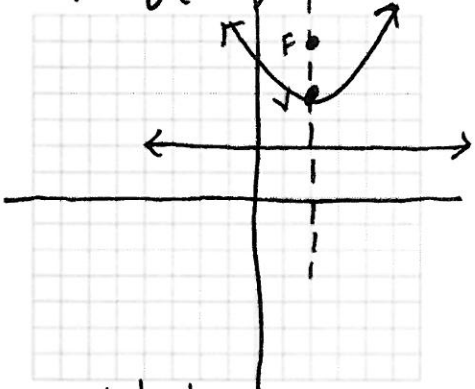
$P=\left|\frac{1}{4(\frac{1}{5})}\right|=\frac{5}{4}$;

V(3,-1); F(3,.25); Axis: x=3

Directrix: y=-2.25

3. $y-4=\frac{1}{8}(x-2)^2$

$Y=\frac{1}{8}(X-2)^2+4$



$P=\left|\frac{1}{4(\frac{1}{8})}\right|=2$;

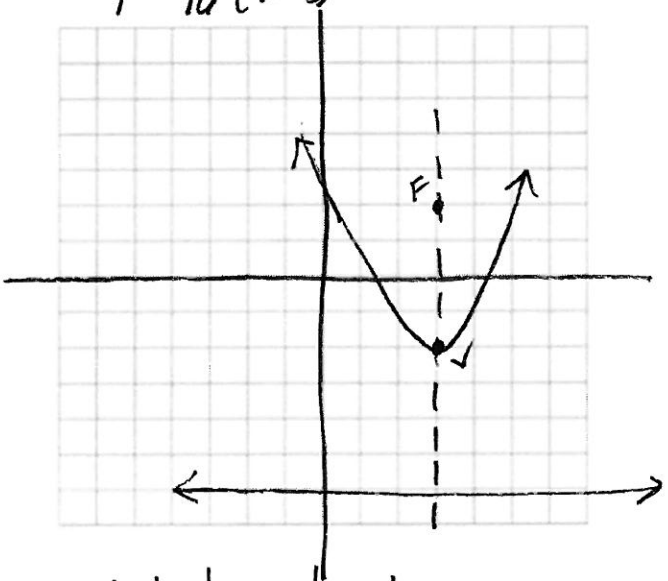
V(2,4); F(2,6); Axis: x=2

Directrix: y=2

Identify the coordinates of the center, focus, & vertex and identify equations for the line of symmetry and directrix for each parabola. Then sketch a graph of each parabola.

4. $(y+2)=\frac{1}{16}(x-3)^2$

$Y=\frac{1}{16}(X-3)^2-2$

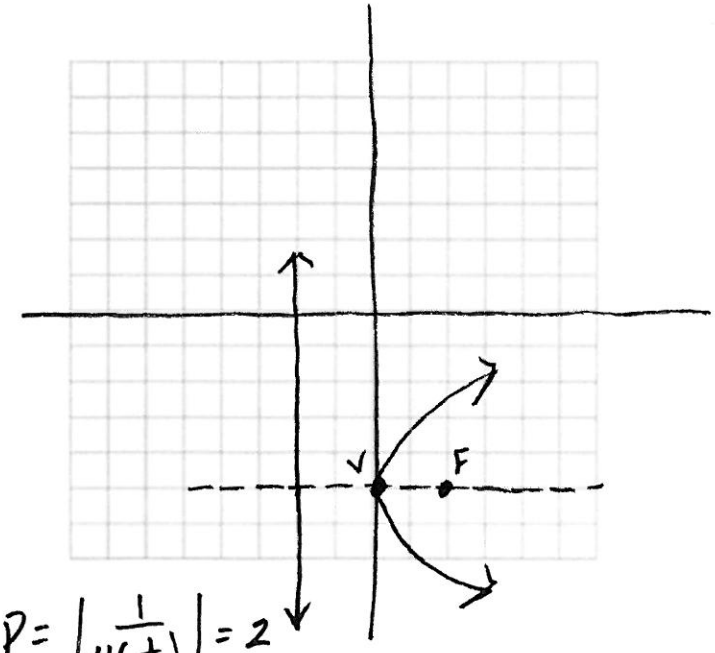


$P=\left|\frac{1}{4a}\right|=\left|\frac{1}{4(\frac{1}{16})}\right|=4$

V(3,-2); F(3,2); Axis: (x=3)

Directrix: y=-6

5. $x=\frac{1}{8}(y+5)^2$



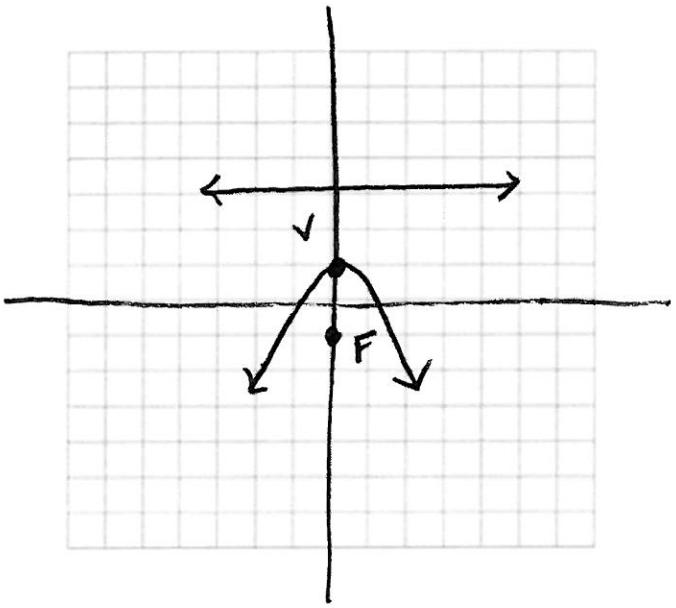
$P=\left|\frac{1}{4(\frac{1}{8})}\right|=2$

V(0,-5); F(2,-5); Axis: y=-5

Directrix: x=-2

Write an algebraic equation for each parabola defined by the given information. Then sketch a graph of each hyperbola.

6. Vertex at (0,1); Focus at (0, -1).



$p = \left|\frac{1}{4a}\right|$

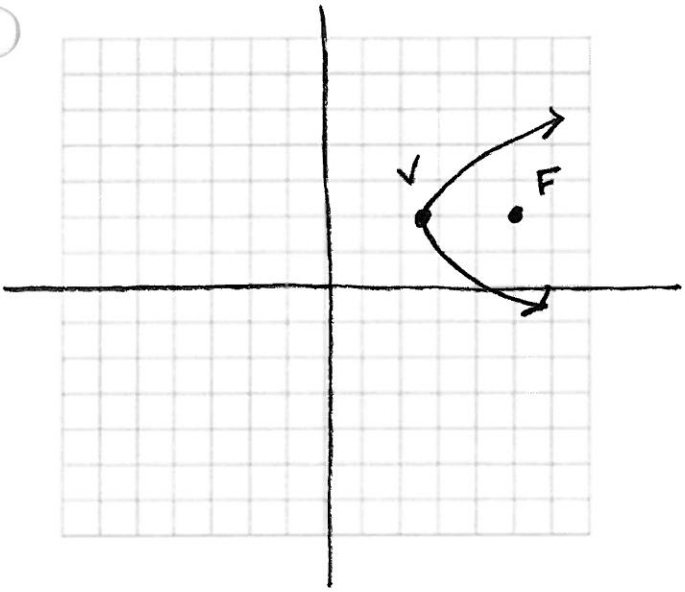
$2 = \frac{1}{4a}$

$a = \frac{1}{8}$

$y = ax^2$

$y = -\frac{1}{8}x^2 + 1$

7. Focus at (5,2); Directrix at x = 0



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

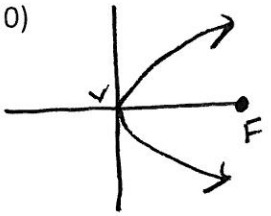
$2.5 = \frac{1}{4a}$

$a = \frac{1}{10}$

$x = \frac{1}{10}(y-2)^2 + 2.5$

Determine the equation of the parabola defined by the given focus or directrix with the vertex at the origin.

8. Focus at (12, 0)



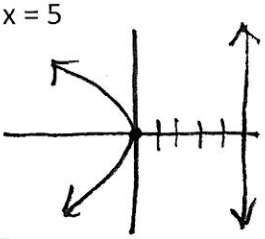
$p = \left|\frac{1}{4a}\right|$

$12 = \frac{1}{4a}$

$a = \frac{1}{48}$

$x = \frac{1}{48}y^2$

9. Directrix at x = 5

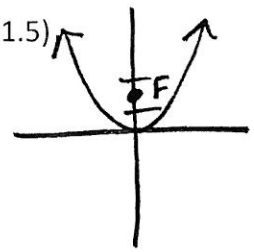


$5 = \frac{1}{4a}$

$a = -\frac{1}{20}$

$x = -\frac{1}{20}y^2$

10. Focus at (0, 1.5)



$1.5 = \frac{1}{4a}$

$a = \frac{1}{6}$

$y = \frac{1}{6}x^2$