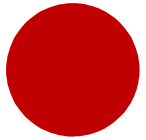
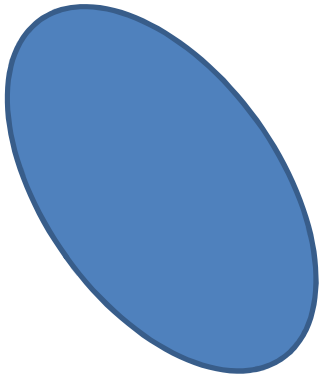
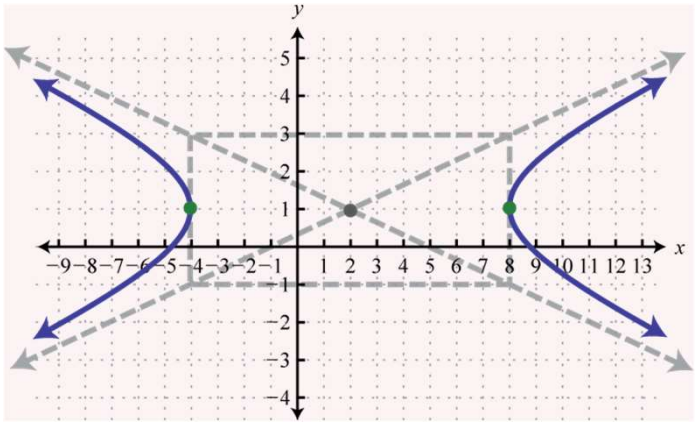
Ch. 11 Conics



Circle

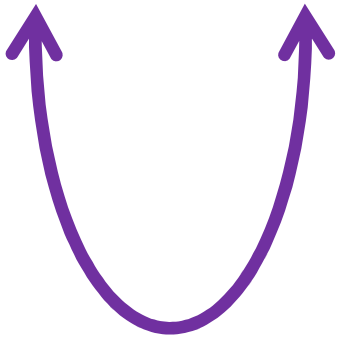


Ellipse

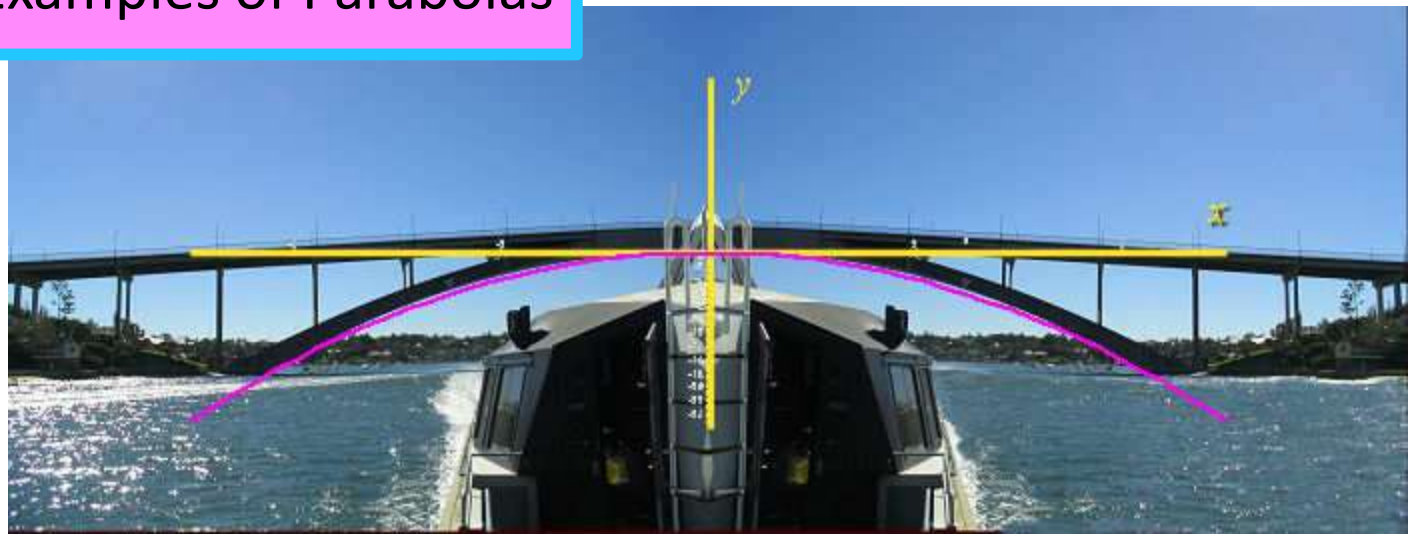


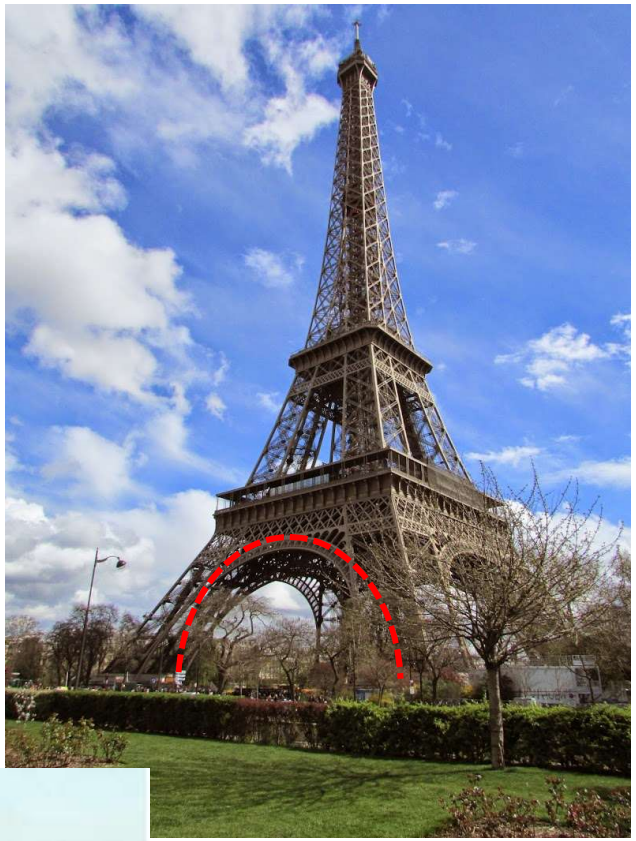
Hyperbola

Parabola

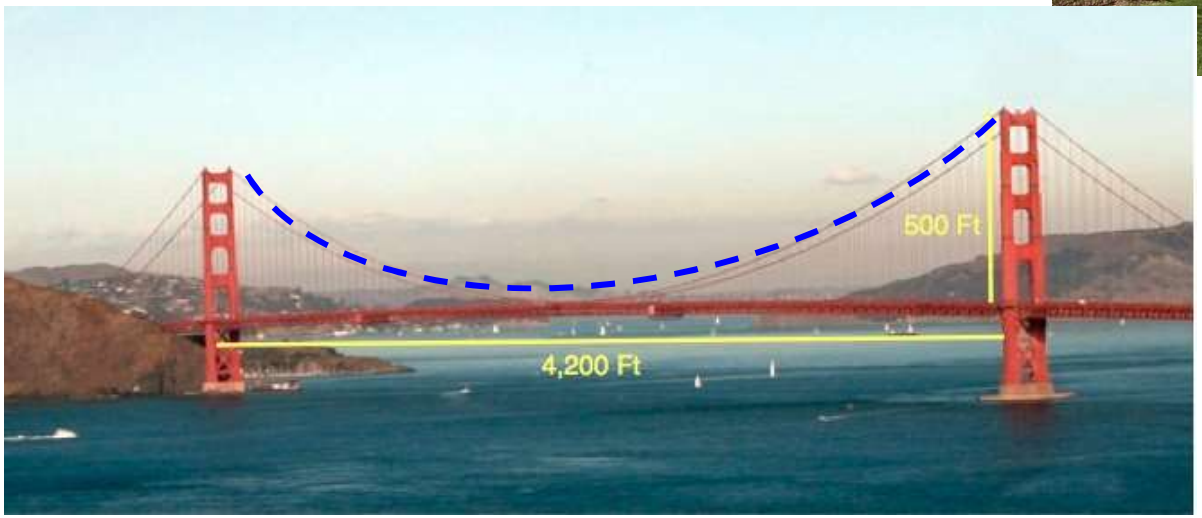


Examples of Parabolas



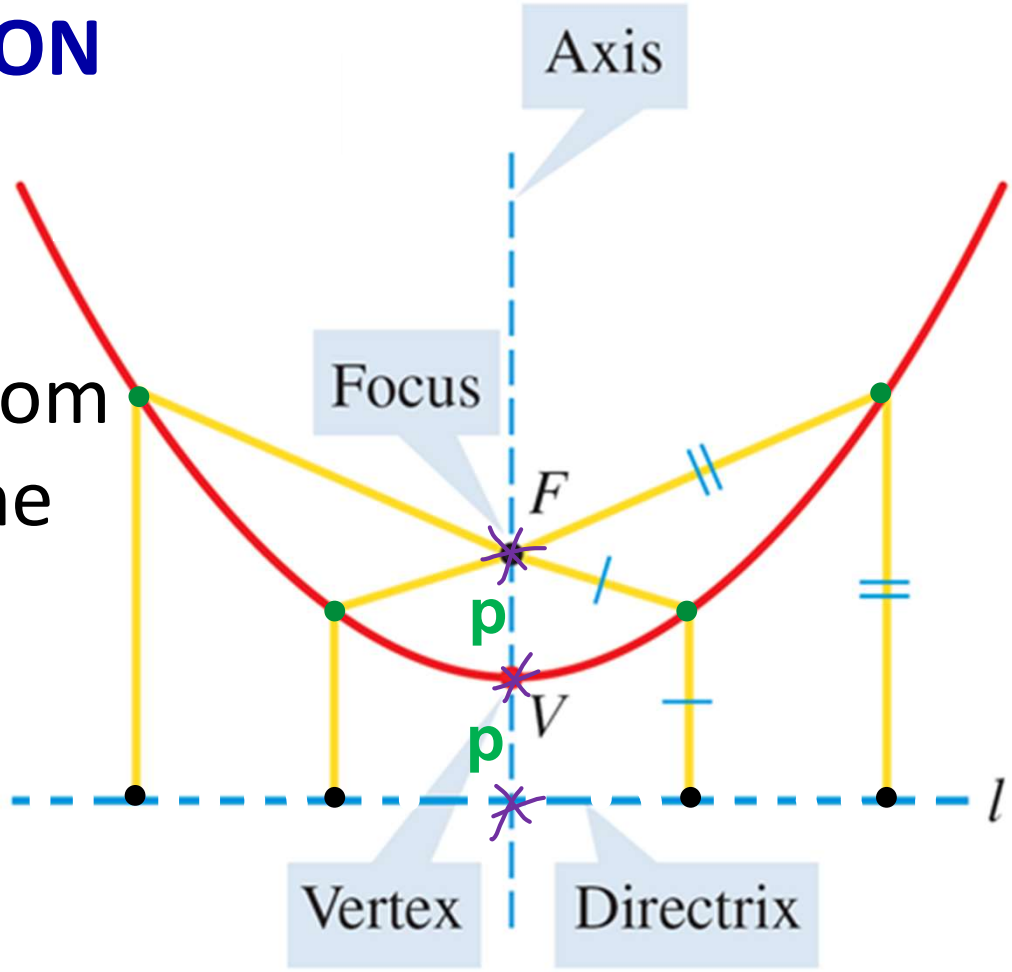


Examples of Parabolas



GEOMETRIC DEFINITION OF A PARABOLA:

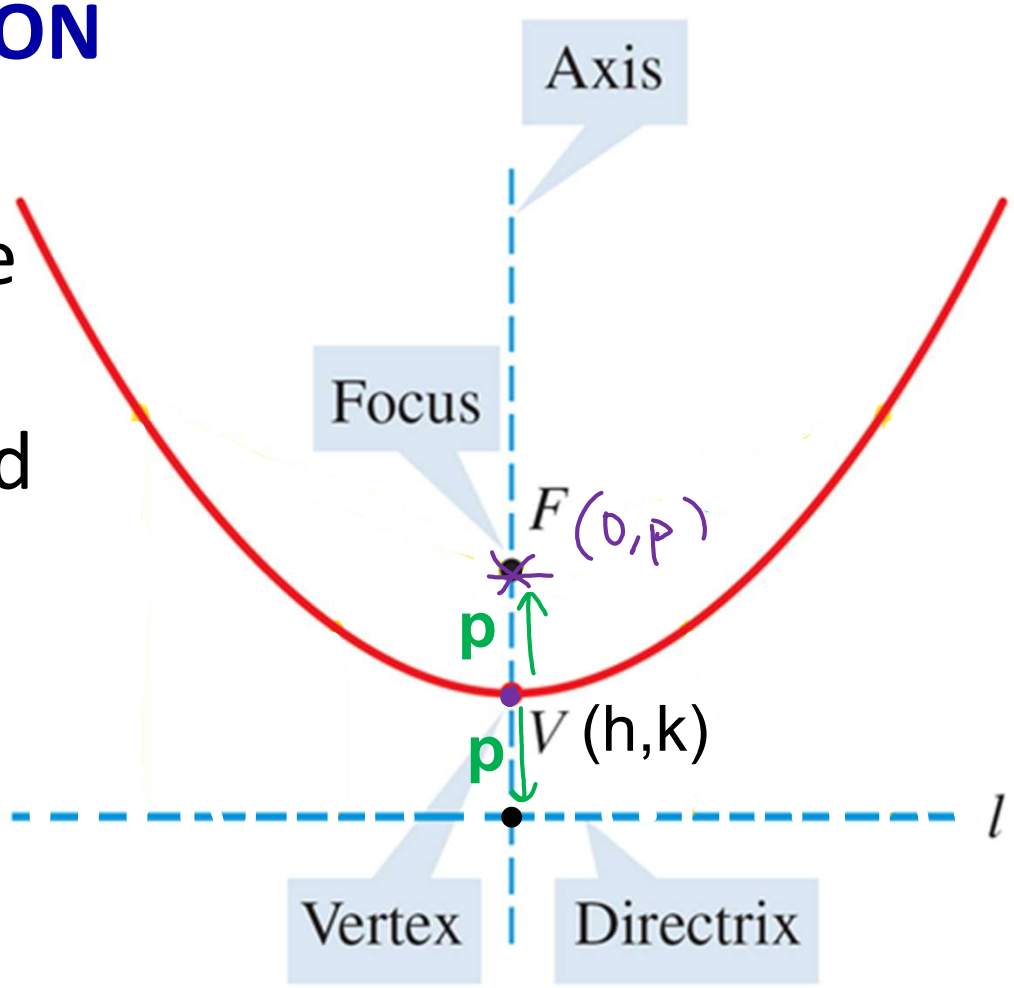
The set of all points that are equidistant from a fixed point (called the **focus**) and a fixed line (called the **directrix**).



No notes…just read through the information!

GEOMETRIC DEFINITION OF A PARABOLA:

The **vertex (h,k)** of the parabola is halfway between the focus and the directrix.



Equations:

$$x^2 = 4py$$

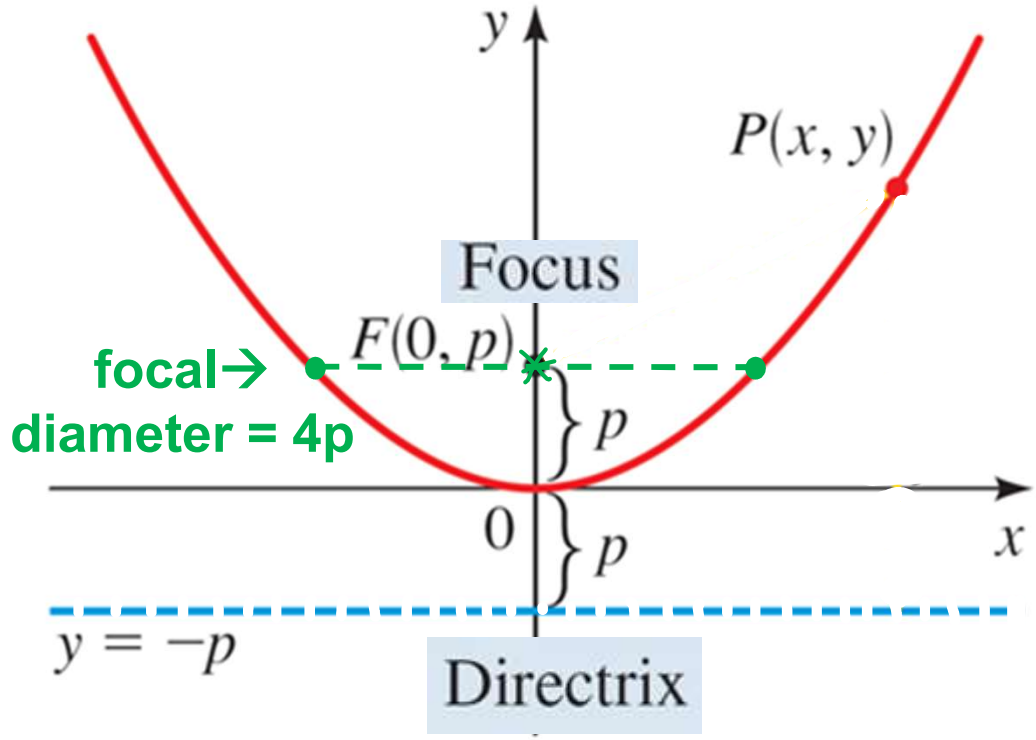
or $$y^2 = 4px$$

Equations are listed on provided formula sheet!

NOTES: add details to provided formula sheet

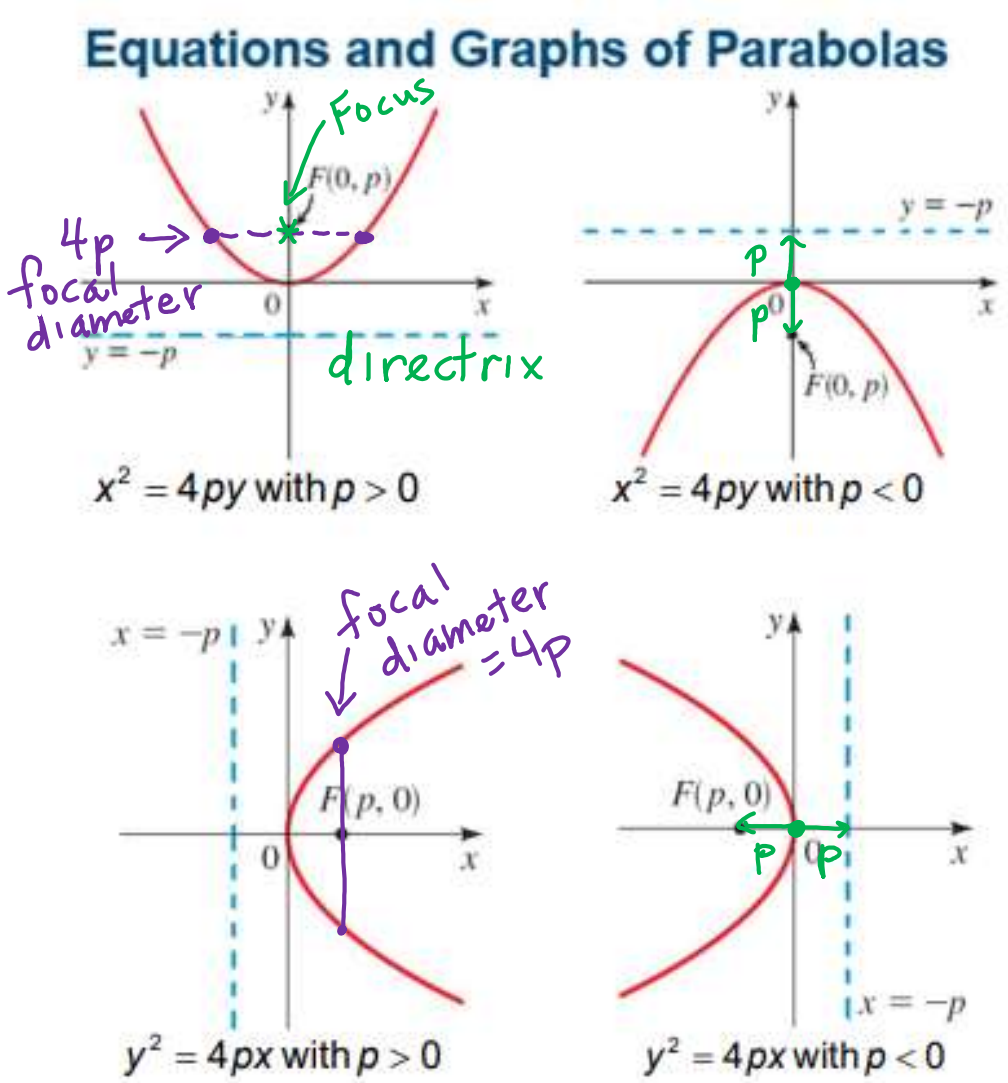
GEOMETRIC DEFINITION OF A PARABOLA:

The **vertex** of the parabola is halfway between the **focus** and the **directrix.**



The focal diameter will help determine if the parabola is wide or narrow.

Add notes to pink sheet as needed:

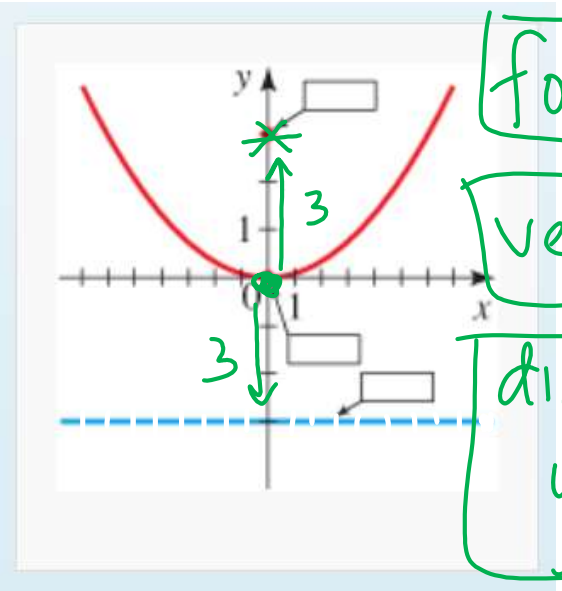


Graph #11-21odd on front, show work for all other problems on the back.

11.1 #4, 11-21odd, 35,37, 43-53odd, 65 identify focal diameter, focus, directrix list 3 real-world examples for #65

Label the focus, vertex, and directrix for the given graphs:

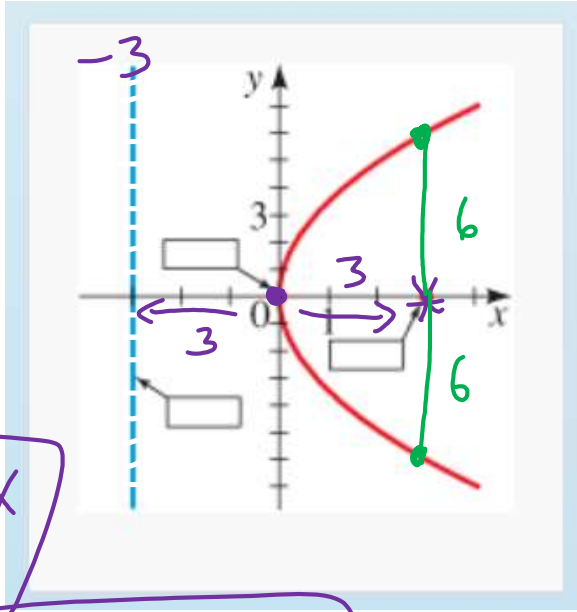
4. (a) $x^2 = 12y$ $4p = 12$, $p = 3$ (b) $y^2 = 12x$ $4p = 12$, $p = 3$



focus (0,3)

vertex (0,0)

directrix $y = -3$



directrix $x = -3$

vertex (0,0)

focus (3,0)

11-21odd

(a) Find the focus, directrix, focal diameter.

(b) Sketch graph, include all values from part a

Solve for x^2 or y^2

11. $x^2 = 8y$

$4p = 8$

4 + 4

focal diameter = 8

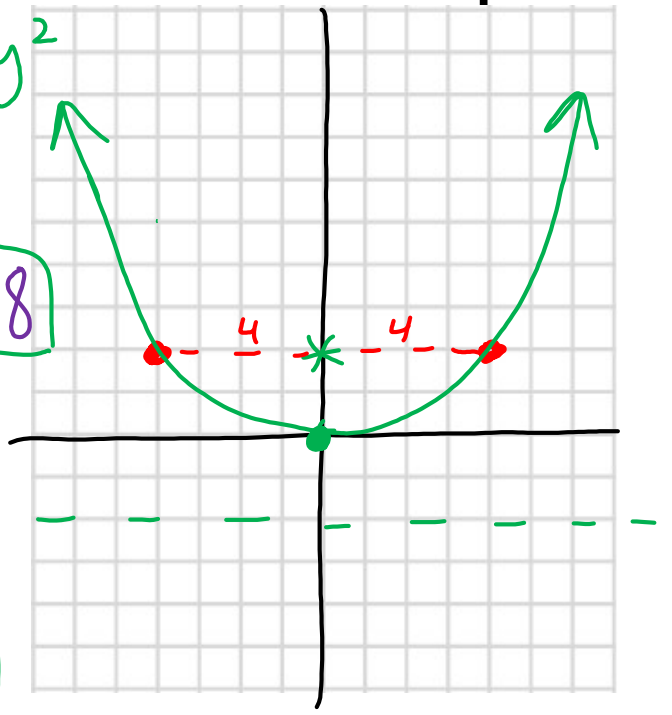
$p = 2$

focus (0, 2)

up 2 from vertex

directrix $y = -2$

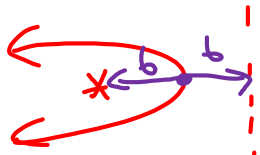
down 2 from vertex



(a) Find the focus, directrix, focal diameter.

(b) Sketch graph, include all values from part a

13. $y^2 = -24x$



vertex (0,0)

$4p = -24$

focal diameter

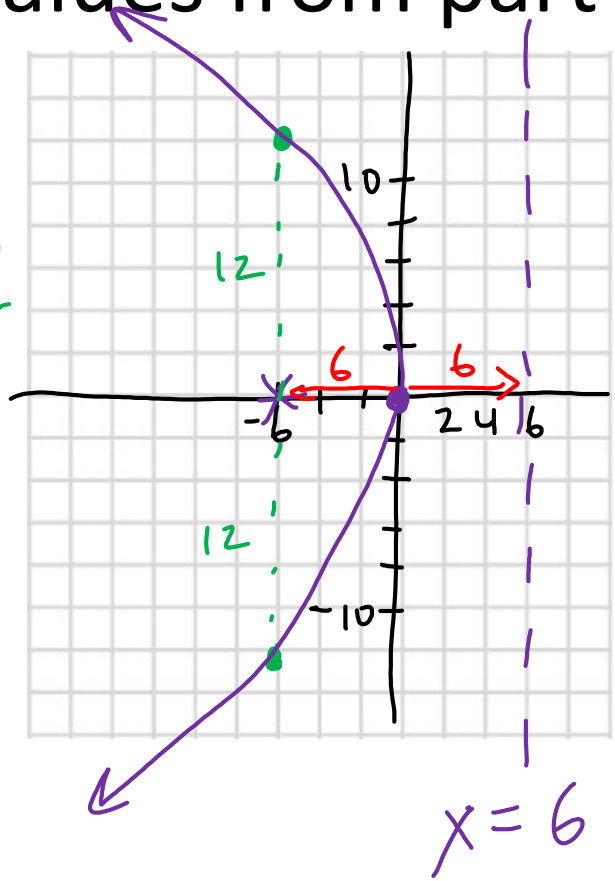
$= |-24| = 24$

12 + 12

$p = -6$

focus $(-6, 0)$

directrix $x = 6$



(a) Find the focus, directrix, focal diameter.

(b) Sketch graph, include all values from part a

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

Solve for x^2 first!

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

$-8y = x^2$

or $x^2 = -8y$

$4p = -8$

focal diameter

$p = -2$

focus (,)

directrix