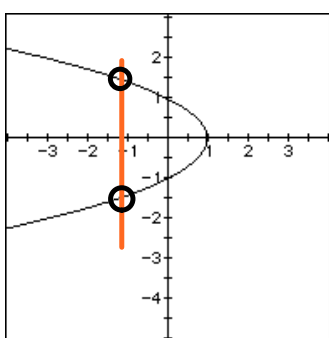


Horizontal Parabolas



They are not functions!

DOES NOT PASS VERTICAL LINE TEST!

It cannot be expressed as $y=\text{something}$

but we can express this equation in parabolic form

horizontal

vertical

$$x-h=a(y-k)^2$$

$$y-k=a(x-h)^2$$



$$x=y^2 \text{ - horizontal}$$

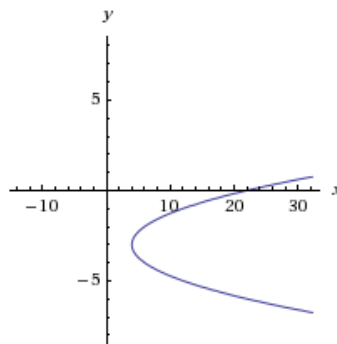
$$y=x^2 \text{ vertical}$$

Let's explore horizontal parabolas some

Because standard graphing tools can't graph horizontal parabolas, I am going to use www.wolframalpha.com

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

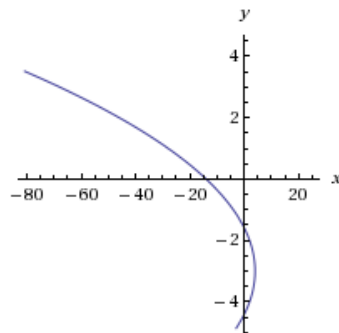
Vertex: (4,-3)



What happens if I make the a negative?

Predictions: opens to the left

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



though this doesn't look like it just flipped around, it really did just flip.

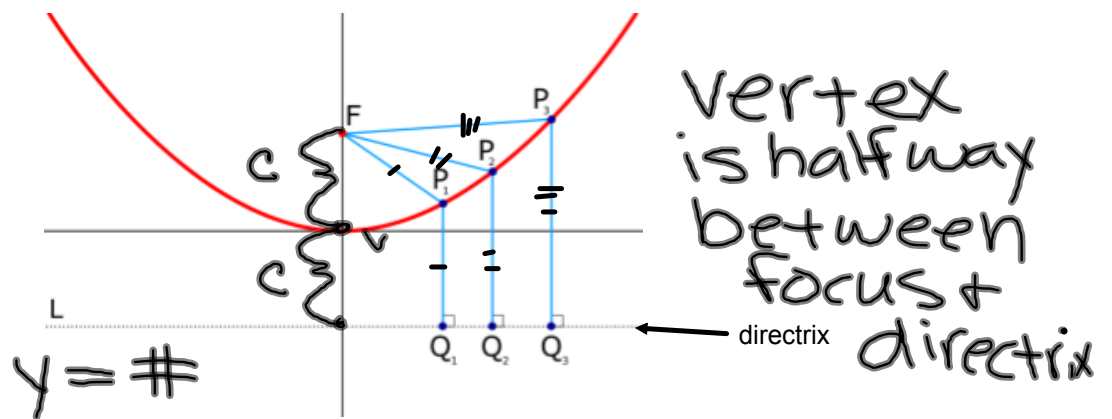
The reason the graphs look so different is that our axes are on different scales

$a > 0$: opens to the right

$a < 0$: opens to the left

Geometry of Parabolas

A parabola is a set of points that are equidistant from a line (the directrix) and a point not on the line (the focus).



horizontal:

