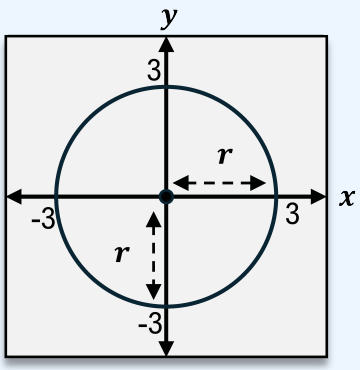
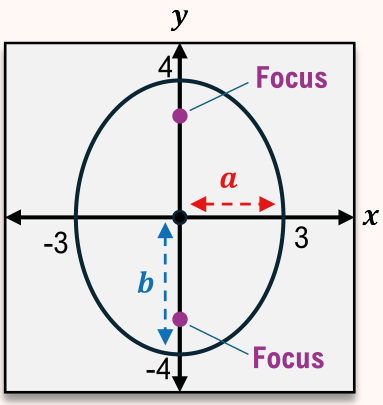
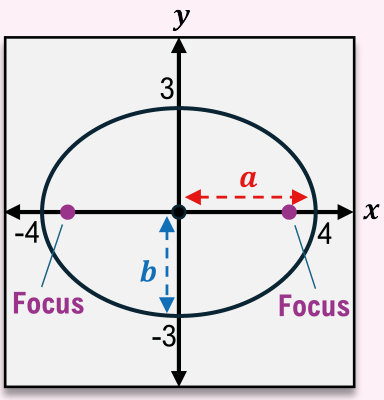
TOPIC: ELLIPSES

Ellipses at the Origin

◆ Recall: The graph of a circle is the set of all points that are the same distance r from ___ point, the center.

► An ellipse is an oval shape made up of points whose distances to ___ points (**foci**) *add* to the same value.

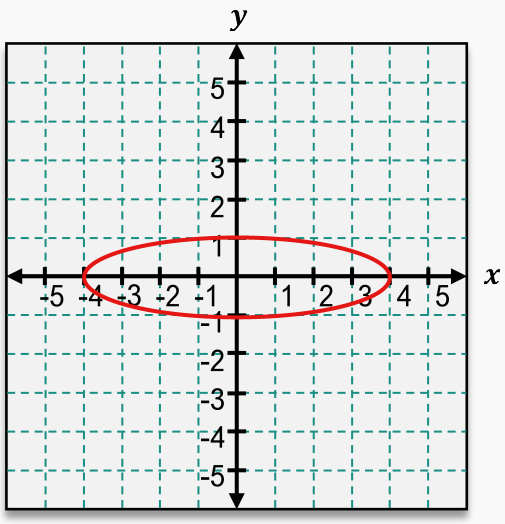
Circle at Origin	Vertical Ellipse	Horizontal Ellipse
		
$x^2 + y^2 = r^2$	$a =$ ___ $b =$ ___	$a =$ ___ $b =$ ___
$x^2 + y^2 = 3^2$ $x^2 + y^2 = 9$	$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$	

◆ To sketch, plot points a units right & left and b units up & down from (___ , ___) and connect with a smooth curve.

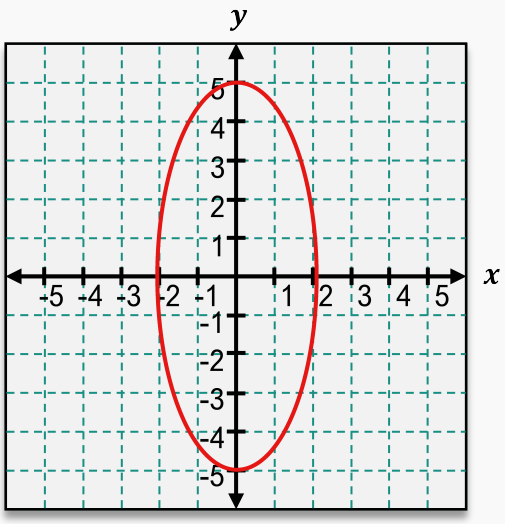
TOPIC: ELLIPSES

PRACTICE Write the standard form equation of each ellipse centered at the origin.

(*A*)



(*B*)



EXAMPLE Graph the ellipse.

$$4x^2 + 9y^2 = 36$$