9.6A Translate and Classify Conic Sections P. 650

Parabolas, circles, ellipses, and hyperbolas are called **conic sections** or simply **conics,** because they are formed when a plane intersects a double napped cone. (See p. 649 for illustrations)

Translating conics means to graph a conic section whose only vertex or center is **not** the origin.

Standard Form of Equations of Translated Conics

The point (h, k) is the *vertex* of the parabola and the *center* of the other conics.

	Horizontal Axis	Vertical Axis
Circle	$(x-h)^2+(y-k)^2=r^2$	
Parabola	$(y-k)^2=4p(x-h)$	$(x-h)^2=4p(y-k)$
Ellipse	$\frac{(x-h)^2}{a^2}+\frac{(y-k)^2}{b^2}=1$	$\frac{(x-h)^2}{b^2}+\frac{(y-k)^2}{a^2}=1$
Hyperbola	$\frac{(x-h)^2}{a^2}-\frac{(y-k)^2}{b^2}=1$	$\frac{(y-k)^2}{a^2}-\frac{(x-h)^2}{b^2}=1$

Graph the equation. Identify the important characteristics of the graph.

1. $(x-3)^2+(y-2)^2=25$

Circle

C(3,2)

r = 5

a_1 (-2,2)

a_2 (3,7)

a_3 (8,2)

a_4 (3,-3)

Circles

1. **Classify** the type of conic.
2. Name and plot the **center** (h, k).
3. Name the **radius.**
4. Use the radius to graph and label **four** points on the circle.
5. **Draw** the circle.