Summary of formulas from chapter 9:

Parabola with vertex V = (h,k):

a = distance(V,focus) = distance (V, directrix)

A parabola opens toward the focus and away from the directrix.

$(y-k)^2=4a(x-h)$ opens right; $(x-h)^2=4a(y-k)$ opens up

$(y-k)^2= - 4a(x-h)$ opens left; $(x-h)^2= - 4a(y-k)$ opens down

Ellipse with center (h,k):

$$a > b \text{ and } a > c \text{ , } b^2 = a^2 - c^2$$

a= distance (center,vertex),c=distance(center,foci)

$$\frac{(x-h)^2}{a^2}+\frac{(y-k)^2}{b^2}=1$$ major axis is parallel to the **x-axis**

$$\frac{(x-h)^2}{b^2}+\frac{(y-k)^2}{a^2}=1$$ major axis is parallel to the **y-axis**

Hyperbola with center (h,k):

c > a and c > b with $b^2 = c^2 - a^2$

a= distance (center,vertex),c=distance(center,foci)

The center, vertices and foci all lie on the transverse axis .

Equation of hyperbola:	**Transverse axis**:	**Asymptotes**:
$\frac{(x-h)^2}{a^2}-\frac{(y-k)^2}{b^2}=1$	parallel to **x-axis**;	$y-k=\pm\frac{b}{a}(x-h)$
$\frac{(y-k)^2}{a^2}-\frac{(x-h)^2}{b^2}=1$	parallel to **y-axis**;	$y-k=\pm\frac{a}{b}(x-h)$