## Cheatography

## Conics Cheat Sheet by teeswizzle via cheatography.com/146802/cs/31810/

circle  $(x-h)^2 + (y-k)^2 = r^2$ standard Form derived from distance formula (h, k) centre radius r hyperbola  $(x-h)^2/a^2 - (y-k)^2/b^2 =$ horizontal transverse axis (x 1 coefficient > 0) vertices (h ± a, k) foci (h ± c, k) asymptote y-k=±(b/a)(x-h)  $(y-k)^2/a^2 - (x-h)^2/b^2 =$ vertical transverse axis (y coefficient > 1 0) vertices (h, k ± a) foci (h, k ± c) asymptote y-k=±(a/b)(x-h) transverse axis passes through center vertex of both parabolas distance from centre а to each vertex b point on conjugate axis, not a point on hyperbola distance from center centre to each focus,  $c^{2}=a^{2}+b^{2}$ 

parabola	
vertex	(h, k)
	~~~
opens up/down	$(x-h)^2 = 4p(y-k)$
focus	(h, k+p)
directrix	y=k-p
opens up	p > 0
opens down	p < 0
	~~
opens right/left	$(y-k)^2 = 4p(x-h)$
foci	(h+p, k)
directrix	x=h-p
opens right	p > 0
opens left	p < 0
ellipse	
horizontal	$(x-h)^2/a^2 + (y-k)^2/b^2 = 1$
major axis (a > b)	
vertices	$(b \pm a, k)$
foci	$(h \pm a, k)$
1001	(h ± c, k)
vortical major	$(x-h)^2/b^2 + (y-k)^2/a^2 = 1$
vertical major axis (b > a)	(x-n) /b + (y-k) /a - 1
vertices	(h, k ± a)
foci	(h, k ± c)
	(,= )
major axis	longer axis
minor axis	shorter axis
a	distance from centre to
G	each vertex
b	distance from center to
	end of minor axis
С	distance from center to
	each focus, $c^2=a^2-b^2$
length of minor	2a
axis	
length of major	2b
axis	

## By te

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