

circle	
standard Form	$(x-h)^2 + (y-k)^2 = r^2$
	derived from distance formula
centre	(h, k)
radius	r

hyperbola	
horizontal transverse axis (x coefficient > 0)	$(x-h)^2/a^2 - (y-k)^2/b^2 = 1$
vertices	$(h \pm a, k)$
foci	$(h \pm c, k)$
asymptote	$y-k = \pm(b/a)(x-h)$

vertical transverse axis (y coefficient > 0)	$(y-k)^2/a^2 - (x-h)^2/b^2 = 1$
vertices	$(h, k \pm a)$
foci	$(h, k \pm c)$
asymptote	$y-k = \pm(a/b)(x-h)$

transverse axis	passes through center vertex of both parabolas
a	distance from centre to each vertex
b	point on conjugate axis, not a point on hyperbola
centre	distance from center 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 major axis (a > b)	$(x-h)^2/a^2 + (y-k)^2/b^2 = 1$
vertices	$(h \pm a, k)$
foci	$(h \pm c, k)$

vertical major axis (b > a)	$(x-h)^2/b^2 + (y-k)^2/a^2 = 1$
vertices	$(h, k \pm a)$
foci	$(h, k \pm c)$

major axis	longer axis
minor axis	shorter axis
a	distance from centre to each vertex
b	distance from center to end of minor axis
c	distance from center to each focus, $c^2 = a^2 - b^2$
length of minor axis	2a
length of major axis	2b

