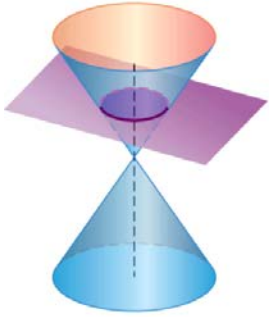
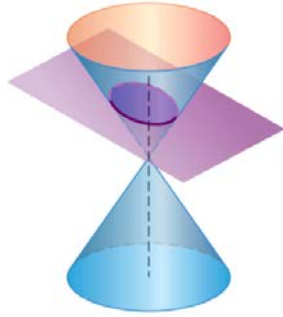


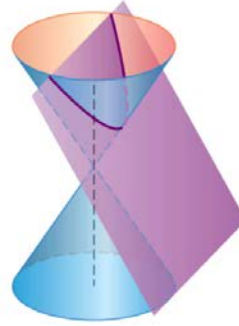
Kjeglensnitt



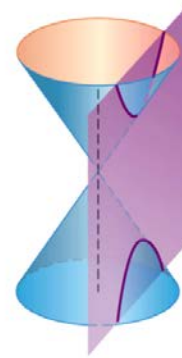
Circle: plane perpendicular to cone axis



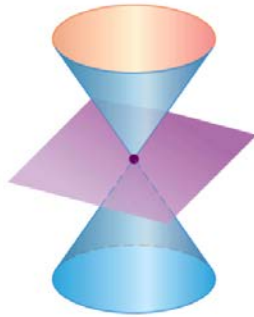
Ellipse: plane oblique to cone axis



Parabola: plane parallel to side of cone



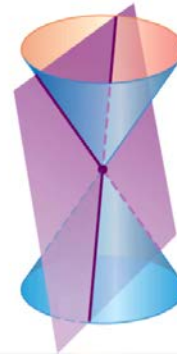
Hyperbola: plane cuts both halves of cone



Point: plane through cone vertex only



Single line: plane tangent to cone



Pair of intersecting lines

Kvadratisk kurve

$$Ax^2 + Bxy + Cy^2 + Dx + Ey + F = 0$$

$$B^2 - 4AC = 0$$

Parabel

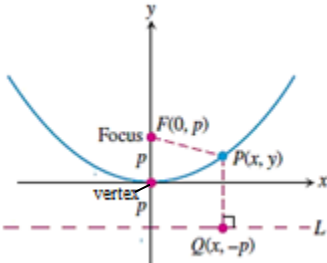
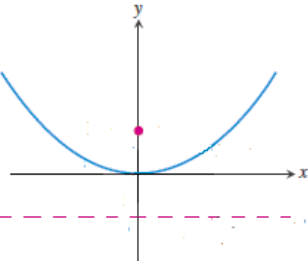
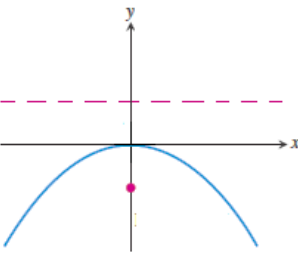
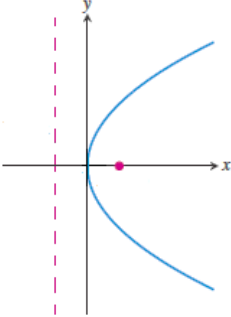
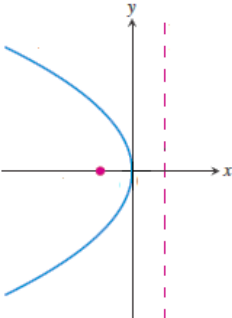
$$B^2 - 4AC < 0$$

Ellipse

$$B^2 - 4AC > 0$$

Hyperbel

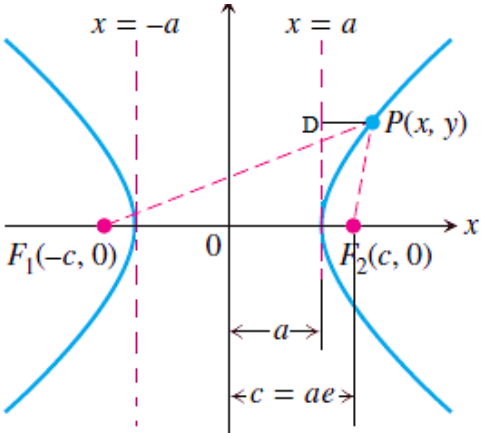
Kjeglensnitt - Parabel

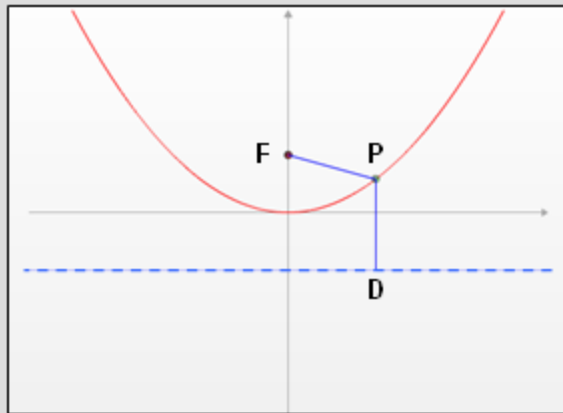
<p>Parabel</p>	$y = \frac{1}{4p} x^2$ $PF = PQ$		
 <p>$x^2 = 4py$</p> <p>Fokus $(0, p)$</p> <p>Styrelinje $y = -p$</p>	 <p>$x^2 = -4py$</p> <p>Fokus $(0, -p)$</p> <p>Styrelinje $y = p$</p>	 <p>$y^2 = 4px$</p> <p>Fokus $(p, 0)$</p> <p>Styrelinje $x = -p$</p>	 <p>$y^2 = -4px$</p> <p>Fokus $(-p, 0)$</p> <p>Styrelinje $x = p$</p>
<p>Eksentrisitet</p>	$e = \frac{PF}{PQ} = 1$		

Kjeglensnitt - Ellipse

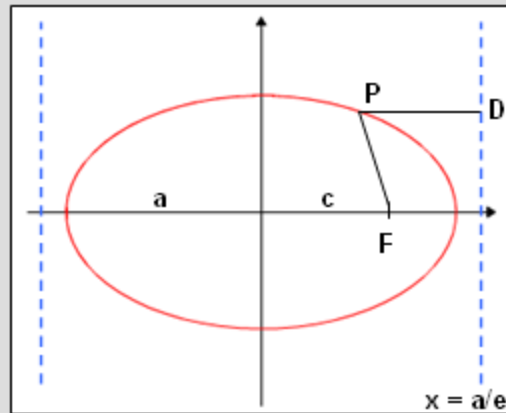
<p>Ellipse</p>	$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ $s_1 + s_2 = 2a$	
	<p>Directrix $x = -\frac{a}{e}$</p> <p>Vertex $(a, 0)$ $F_1(-c, 0)$ $(0, b)$ $P(x, y)$ s_1 s_2 $s_1 + s_2 = 2a$ $F_2(c, 0)$ $(-a, 0)$ $(0, -b)$ $(a, 0)$ $(0, 0)$ x y D $Center$ $Vertex$</p>	
<p>Eksentrisitet</p>	$e = \frac{PF}{PQ} = \frac{c}{a} < 1$	

Kjeglensnitt - Hyperbel

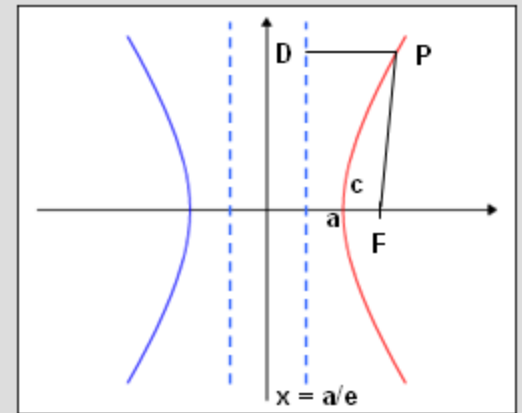
<p>Hyperbel</p>	$\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ $PF_1 - PF_2 = \pm 2a$	
<p>Eksentrisitet</p>	$e = \frac{PF}{PD} = \frac{c}{a} > 1$	



$$e = \frac{PF}{PD} = 1$$



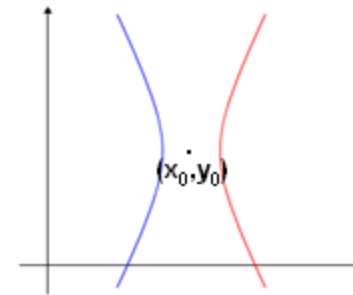
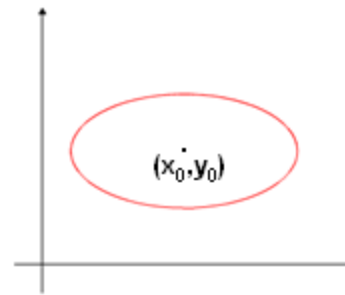
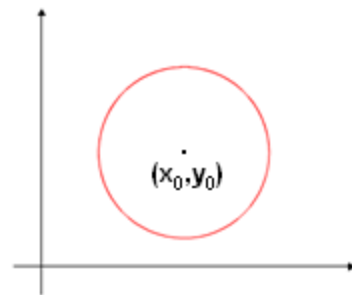
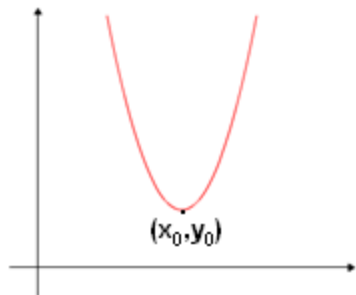
$$e = \frac{PF}{PD} = \frac{c}{a} < 1$$



$$e = \frac{PF}{PD} = \frac{c}{a} > 1$$

$$e = \frac{PF}{PD} = \frac{\text{Avstand fra P til nærmeste fokuspunkt}}{\text{Avstand fra P til nærmeste styrelinje}}$$

Parabel – Sirkel – Ellipse – Hyperbel



Parabel

Sirkel

Ellipse

Hyperbel

$$y = y_0 + k(x - x_0)^2$$

$$(x - x_0)^2 + (y - y_0)^2 = R^2$$

$$\left(\frac{x - x_0}{a}\right)^2 + \left(\frac{y - y_0}{b}\right)^2 = 1$$

$$\left(\frac{x - x_0}{a}\right)^2 - \left(\frac{y - y_0}{b}\right)^2 = 1$$

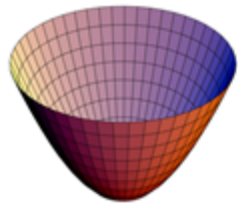
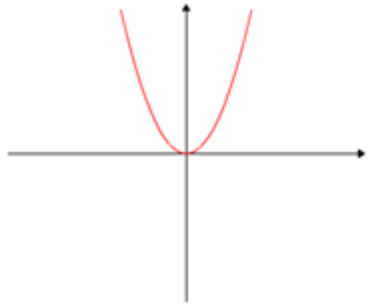
$$B^2 - 4AC = 0$$

$$A = C \quad B = 0$$

$$B^2 - 4AC < 0$$

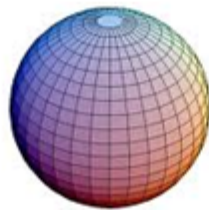
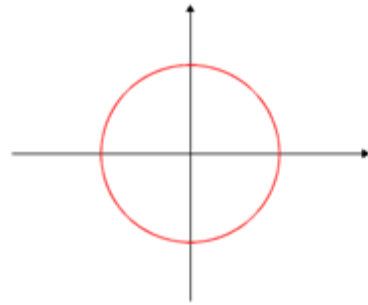
$$B^2 - 4AC > 0$$

$$Ax^2 + Bxy + Cy^2 + Dx + Ey + F = 0$$



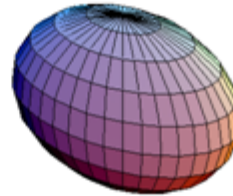
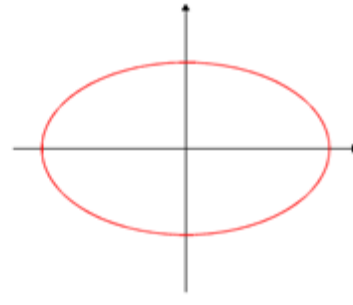
Paraboloide

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} - z = 0$$



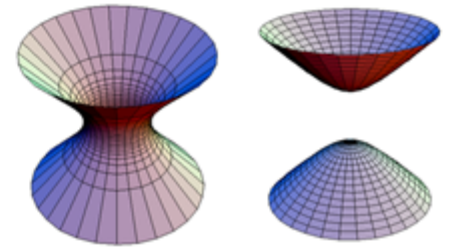
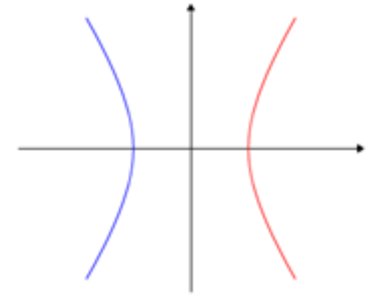
Kule

$$x^2 + y^2 + z^2 = R^2$$



Ellipsoide

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1$$



Hyperboloide

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} - \frac{z^2}{c^2} = \pm 1$$