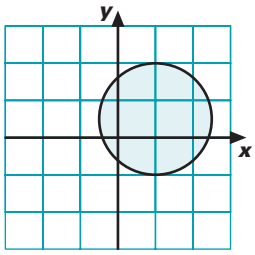
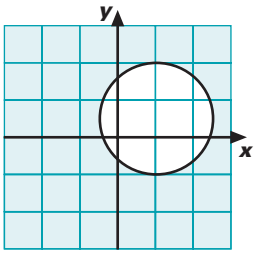
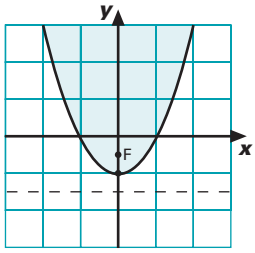
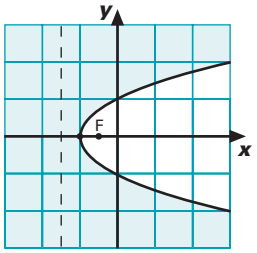
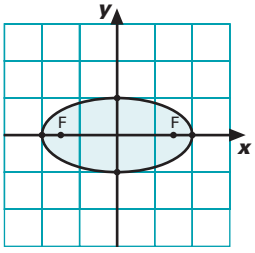
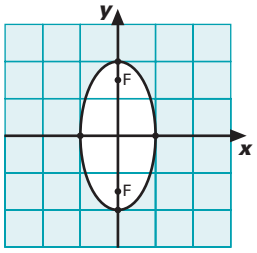
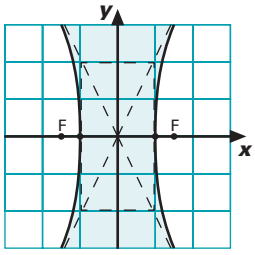
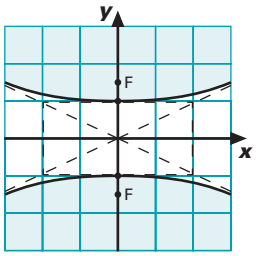
Les coniques

Caractéristiques	Représentation graphique
Le cercle Forme générale : $Ax^2 + Ay^2 + Dx + Ey + F = 0$ Forme canonique : $(x - h)^2 + (y - k)^2 = r^2$ Centre : (h, k) Rayon : r	 $(x - h)^2 + (y - k)^2 \leq r^2$  $(x - h)^2 + (y - k)^2 \geq r^2$
La parabole Orientation verticale : $(x - h)^2 = 4a(y - k)$ Orientation horizontale : $(y - k)^2 = 4a(x - h)$ Sommet : (h, k) Distance Sommet/Foyer : $\lvert a \rvert$	 $(x - h)^2 \leq 4a(y - k)$  $(y - k)^2 \geq 4a(x - h)$
L'ellipse (centrée à l'origine) $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ Orientation horizontale : $a > b$ Sommets : $(\pm a, 0)$ et $(0, \pm b)$ Foyers : $(\pm\sqrt{a^2 - b^2}, 0)$ Orientation verticale : $b > a$ Sommets : $(0, \pm b)$ et $(\pm a, 0)$ Foyers : $(0, \pm\sqrt{b^2 - a^2})$	 $\frac{x^2}{a^2} + \frac{y^2}{b^2} \leq 1$ où $a > b$  $\frac{x^2}{a^2} + \frac{y^2}{b^2} \geq 1$ où $b > a$
L'hyperbole (centrée à l'origine) Sommets sur axe des x : $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ Sommets : $(\pm a, 0)$ Foyers : $(\pm\sqrt{a^2 + b^2}, 0)$ Sommets sur axe des y : $\frac{y^2}{b^2} - \frac{x^2}{a^2} = 1$ Sommets : $(0, \pm b)$ Foyers : $(0, \pm\sqrt{a^2 + b^2})$	 $\frac{x^2}{a^2} - \frac{y^2}{b^2} \leq 1$  $\frac{y^2}{b^2} - \frac{x^2}{a^2} \geq 1$