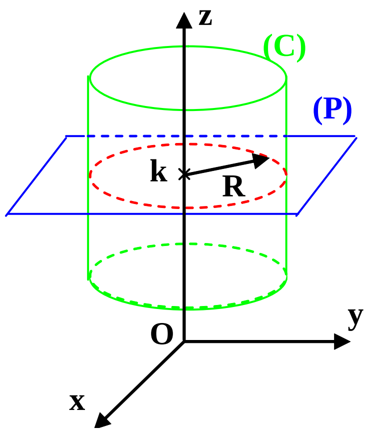
SECTIONS PLANES DE SURFACES

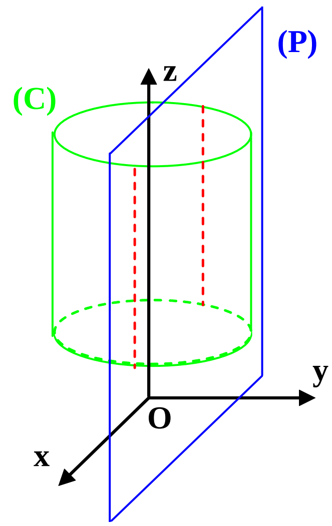
- Cylindre:



$$\begin{cases}(C): x^2 + y^2 = R^2 \\ (P): z = k\end{cases}$$

L'intersection est le cercle d'équation:

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



$$\begin{cases}(C): x^2 + y^2 = R^2 \\ (P): y = k\end{cases}$$

L'intersection est formée des deux droites d'équations:

$$\begin{cases}x = \sqrt{R^2 - k^2} \\ y = k \\ z = t\end{cases} \quad \text{et} \quad \begin{cases}x = -\sqrt{R^2 - k^2} \\ y = k \\ z = t\end{cases}, \ t \in \mathbb{R}$$

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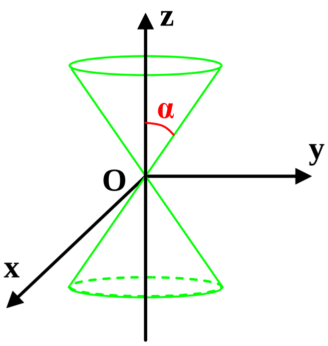
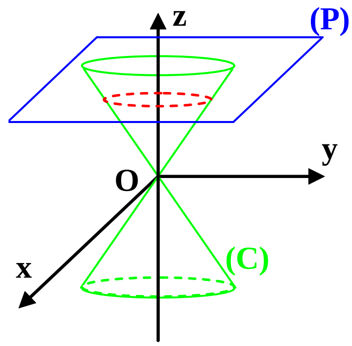
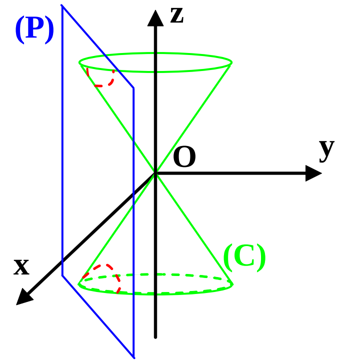
- Cône:







Equation du cône:
$x^2 + y^2 = z^2 \tan^2 \alpha$

$$\begin{cases} (C) : x^2 + y^2 = z^2 \tan^2 \alpha \\ (P) : z = k \end{cases}$$

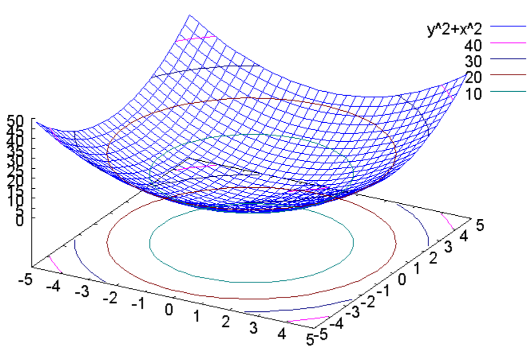
L'intersection est le cercle d'équation:
$x^2 + y^2 = k^2 \tan^2 \alpha$

$$\begin{cases} (C) : x^2 + y^2 = z^2 \tan^2 \alpha \\ (P) : y = k \end{cases}$$

L'intersection est l'hyperbole d'équation :
$X \cdot Y = k^2$
avec:

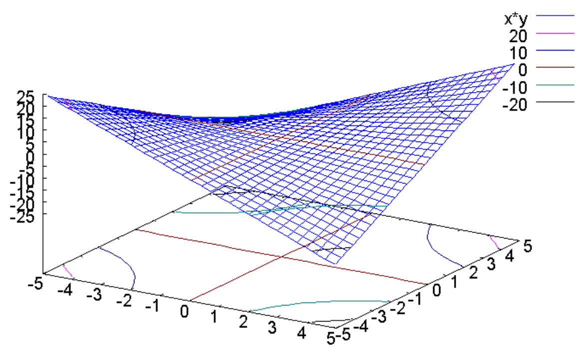
$$\begin{cases} X = z \tan \alpha - x \\ Y = z \tan \alpha + x \end{cases}$$

- Fonctions de deux variables: de la forme z = f(x;y)



$z = x^2 + y^2$

Intersection avec les plans (P) : z = k
(k > 0)
Cercles d'équation $x^2 + y^2 = k$



$z = xy$

Intersection avec les plans (P) : z = k

Hyperbole d'équation xy = k

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