

Première partie

Enseignement de Spécialité

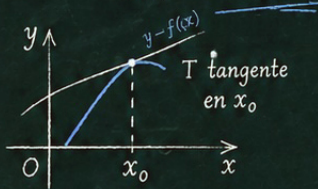
$$\int_a^b f(x) dx$$

$$\sum_{k=0}^n \binom{n}{k} = 2^n \quad (a+b)^n = \sum_{k=0}^n \binom{n}{k} a^{n-k} b^k$$

(u_n) arithmétique de raison r (u_n) géométrique de raison q

$$\begin{cases} u_{n+1} = u_n + r \\ u_n = u_0 + nr \end{cases} \quad \begin{cases} u_{n+1} = qu_n \\ u_n = u_0 q^n \end{cases}$$

$$f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$$



$$F' = f$$

$$\int_a^b f(x) dx = F(b) - F(a)$$

$$\begin{cases} (u+v)' = u' + v' \\ (ku)' = k u' \\ (uv)' = u'v + uv' \\ \left(\frac{u}{v}\right)' = \frac{u'v - uv'}{v^2} \quad (v \neq 0) \end{cases}$$

$$\begin{cases} e^{x+y} = e^x e^y \\ e^{-x} = \frac{1}{e^x} \\ (e^x)' = e^x \end{cases} \quad \begin{cases} \ln(ab) = \ln a + \ln b \\ \ln\left(\frac{a}{b}\right) = \ln a - \ln b \\ (\ln x)' = \frac{1}{x} \end{cases}$$

x	$-\infty$	α	$+\infty$
$f'(x)$	$+$	0	$-$
f	\nearrow	$f(x)$	\searrow

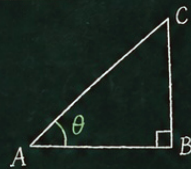
$$\begin{aligned} \sin(a+b) &= \sin a \cos b + \cos a \sin b \\ \cos(a+b) &= \cos a \cos b - \sin a \sin b \\ \sin^2 x + \cos^2 x &= 1 \end{aligned}$$

Inégalités

Si $u \leq v$ et $\alpha \geq 0$ alors $\alpha u \leq \alpha v$
Si $u \leq v$ alors $u+c \leq v+c$

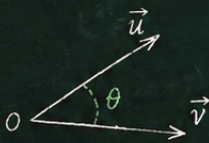
$$\sum_{k=1}^n k = \frac{n(n+1)}{2}$$

$$\sum_{k=1}^n k^2 = \frac{n(n+1)(2n+1)}{6}$$



Dans un triangle ABC

$$a^2 = b^2 + c^2 - 2bc \cos A$$

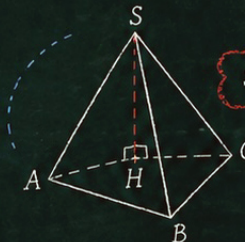


$$\vec{u} \cdot \vec{v} = \|\vec{u}\| \|\vec{v}\| \cos \theta$$

$$\|\vec{u}\| = \sqrt{x^2 + y^2}$$

si $\vec{u} \begin{pmatrix} x \\ y \end{pmatrix}$

$$\vec{AB} = \begin{pmatrix} x_B - x_A \\ y_B - y_A \end{pmatrix}$$



$SH \perp (ABC)$

$$V = \frac{1}{3} BH \times \mathcal{A}_{ABC}$$

$$f(x+h) = f(x) + f'(x)h + o(h)$$

$$\lim_{x \rightarrow a} f(x) = \ell \quad \left| \quad \lim_{x \rightarrow +\infty} f(x) = \ell \right.$$

$$\int_a^b u'(x) v(x) dx = [u(x) v(x)]_a^b - \int_a^b u(x) v'(x) dx$$