$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \quad (ax^2 + bx + c = 0)$$

$$\vec{u} \cdot \vec{v} = \sum_{i=1}^{n} u_i v_i = \|\vec{u}\| \, \|\vec{v}\| \cos(\alpha) \qquad \vec{u} \times \vec{v} = \begin{vmatrix} \vec{i} & \vec{j} & \vec{k} \\ u_1 & u_2 & u_3 \\ v_1 & v_2 & v_3 \end{vmatrix}$$

$$d(P_1, l) = \frac{\|\vec{u} \times (\overrightarrow{AP_1})\|}{\|\vec{u}\|} \qquad d(P_1, T) = \frac{|\vec{n} \cdot (\overrightarrow{AP_1})|}{\|\vec{n}\|}$$

x	$\cos x$	$\sin x$
$\frac{\pi}{6}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$
$\frac{\pi}{4}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{\sqrt{2}}$
$\frac{\pi}{3}$	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$

$$\sin^2 x + \cos^2 x = 1 \qquad \tan x = \frac{\sin x}{\cos x} \qquad \cot x = \frac{1}{\tan x}$$

$$\sin x = -\sin(-x) = \cos\left(\frac{\pi}{2} - x\right) \qquad \cos x = \cos(-x) = \sin\left(\frac{\pi}{2} - x\right)$$

$$\sin 2x = 2 \sin x \cos x \qquad \cos 2x = \cos^2 x - \sin^2 x = 2\cos^2 x - 1 = 1 - 2\sin^2 x$$

$$\sin(x + y) = \sin x \cos y + \cos x \sin y \qquad \cos(x + y) = \cos x \cos y - \sin x \sin y$$

$$\sinh x = \frac{1}{2}(\mathrm{e}^x - \mathrm{e}^{-x}) \qquad \cosh x = \frac{1}{2}(\mathrm{e}^x + \mathrm{e}^{-x}) \qquad \tanh x = \frac{\sinh x}{\cosh x} \qquad \coth x = \frac{\cosh x}{\sinh x}$$

$$D(\frac{f(x)}{g(x)}) = \frac{f'(x)g(x) - g'(x)f(x)}{[g(x)]^2} \quad D(f(x)g(x)) = f'(x)g(x) + f(x)g'(x)$$

$$Dx^n = nx^{n-1} \qquad D\sin x = \cos x \qquad D\cos x = -\sin x \qquad D\tan x = \frac{1}{\cos^2 x} = 1 + \tan^2 x$$

$$D\,\mathrm{e}^x = \mathrm{e}^x \qquad Da^x = a^x \ln a (a > 0) \qquad D\ln|x| = \frac{1}{x} \qquad D\log_a|x| = \frac{1}{x \ln a}(a > 0, a \neq 1)$$

$$D\overline{\mathrm{arc}}\sin x = \frac{1}{\sqrt{1 - x^2}} \qquad D\overline{\mathrm{arc}}\cos x = -\frac{1}{\sqrt{1 - x^2}} \qquad D\overline{\mathrm{arc}}\tan x = \frac{1}{1 + x^2}$$

$$(f^{-1})'(y_0) = \frac{1}{f'(x_0)}, \text{ missä } y_0 = f(x_0)$$

$$\int x^n \,\mathrm{d}x = \frac{x^{n+1}}{n+1} + C \ (n \neq -1) \qquad \int \frac{1}{x} \,\mathrm{d}x = \ln|x| + C \qquad \int \tan x \,\mathrm{d}x = -\ln|\cos x| + C$$

$$\int \frac{\mathrm{d}x}{\sqrt{1 - x^2}} = \overline{\mathrm{arc}} \ \sin x + C \qquad \int \frac{\mathrm{d}x}{1 + x^2} = \overline{\mathrm{arc}} \ \tan x + C$$

$$\int f'(x)[f(x)]^n \,\mathrm{d}x = \frac{[f(x)]^{n+1}}{n+1} + C \ (n \neq -1) \quad \int \frac{f'(x)}{f(x)} \,\mathrm{d}x = \ln|f(x)| + C \quad \int f'(x)\,\mathrm{e}^{f(x)} \,\mathrm{d}x = \mathrm{e}^{f(x)} + C$$

$$A = \int_a^b |f(x)| \,\mathrm{d}x \qquad V = \pi \int_a^b (f(x))^2 \,\mathrm{d}x$$

$$\begin{aligned} Q(x) &= (x - x_1)^{k_1} \dots (x - x_r)^{k_r} (x^2 + c_1 x + d_1)^{l_1} \dots (x^2 + c_s x + d_s)^{l_s}; \\ \frac{P(x)}{Q(x)} &= \frac{A_{1,1}}{x - x_1} + \dots + \frac{A_{1,k_1}}{(x - x_1)^{k_1}} + \dots + \frac{A_{r,1}}{x - x_r} + \dots + \frac{A_{r,k_r}}{(x - x_r)^{k_r}} \\ &+ \frac{B_{1,1}x + C_{1,1}}{x^2 + c_1 x + d_1} + \dots + \frac{B_{1,l_1}x + C_{1,l_1}}{(x^2 + c_1 x + d_1)^{l_1}} + \dots \\ &+ \frac{B_{s,1}x + C_{s,1}}{x^2 + c_s x + d_s} + \dots + \frac{B_{s,l_s}x + C_{s,l_s}}{(x^2 + c_s x + d_s)^{l_s}} \end{aligned}$$