

Binomit:

$$(a + b)^2 = a^2 + 2ab + b^2$$

$$(a + b)(a - b) = a^2 - b^2$$

Toisen asteen yhtälö:

$$ax^2 + bx + c = 0, a \neq 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Potenssi:

$$a^n = a \cdot a \cdot \dots \cdot a \quad (n \text{ kpl})$$

$$a^{-n} = \left(\frac{1}{a}\right)^n$$

$$a^0 = 1, \quad a \neq 0$$

$$a^{\frac{m}{n}} = \sqrt[n]{a^m} = (\sqrt[n]{a})^m$$

Logaritmi:

$$a^x = b \iff x = \log_a b$$

$$\log_a(x \cdot y) = \log_a x + \log_a y$$

$$\log_a\left(\frac{x}{y}\right) = \log_a x - \log_a y$$

$$\log_a(x^y) = y \cdot \log_a x$$

$$\ln x = \log_e x$$

$$\lg x = \log_{10} x$$

Trigonometria:

$$\sin^2 x + \cos^2 x = 1$$

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

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

$$\tan x = \frac{\sin x}{\cos x}$$

Derivointi:

$$D(c) = 0$$

$$D(cf(x)) = cf'(x)$$

$$D(f(x) + g(x)) = f'(x) + g'(x)$$

$$D(f(x)g(x)) = f'(x)g(x) + f(x)g'(x)$$

$$D\left(\frac{f(x)}{g(x)}\right) = \frac{f'(x)g(x) - f(x)g'(x)}{g(x)^2}$$

$$D(f(g(x))) = f'(g(x)) \cdot g'(x)$$

$$D(x^a) = ax^{a-1}, \quad a \neq 0$$

$$D(\cos x) = -\sin x$$

$$D(\sin x) = \cos x$$

$$D(\tan x) = 1 + (\tan x)^2 = \frac{1}{\cos^2 x}$$

$$D(e^x) = e^x$$

$$D(\ln x) = \frac{1}{x}$$

$$D(a^x) = a^x \ln a$$

$$D(\log_a x) = \frac{1}{x \ln a}$$

Integrointi:

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

Analyttinen geometria:

$$k = \frac{y_2 - y_1}{x_2 - x_1}$$

$$y - y_0 = k(x - x_0)$$

$$y = kx + b$$

$$ax + by + c = 0$$

$$d(P_1, P_2) = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$$

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

$$x^2 + y^2 + ax + by + c = 0$$

$$x^2 + ax + by + c = 0$$

$$y^2 + ax + by + c = 0$$